

ICVSS 2010

Università degli studi dell'Insubria

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[ROOT ANALYSIS OF AN IDEA]

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2. Introduction

The assignment of this work is to analyze the roots of a topic to find the main idea origin and the related works which inspired the main idea as far in time as possible. The first part of this study describes the search method adopted trying to outline a structure in order to facilitate the analysis, instead in the second part I described the result found.

3. Structure of search

To achieve this goal I started with the analysis of the most recent work, which I called “Start Point”, in order to understand the related fields and works. Using the bibliography to track a dependency tree of the related paper is an obvious starting point but one of the most important information is present in the keywords related with the argument. This information is useful in order to find all the works not directly related with the starting point. Usually the most important keywords are in the title or in the abstract. After performing a first web search I had collected all the related works, which I called “Recent Level”, I identified the oldest and most cited works in order to find the work with the main idea, called “Original Work”. After had detected it (or they, it depends by how many important works could be identified) as the main idea, I have started to find the previous works to it and I called them as “Ancient Level”. The deep in time of the Ancient Level is in according with the dependency level of the cited works with the topic of discussion. The difference between the two levels is that in the recent level all the works are related with the Main Work instead in the Ancient Level are present all the works which had inspired the Main Work. In the latter the key words could change and other important aspects must be taken in consideration.

Identify the data of the Original Work is important to detect how old is the main idea which is a good sign to understand the evolution of the research in this field. Another good sign is how many and how old are the related works between the Start Point and the Original Work and from the Original Work to the past.

3.1 Main Work Temporal Window

An important point to keep in mind is that there could be more Original Works and to identify that I used a time window of one year in the past and one year in the future from the “Main Original Work” detected. I searched in this window all the works published with the same concept of the Main Original Work. I adopted this strategy in order to not penalize all the works published after the first published work because from the developing of a work and the relative publication could pass a lot of time, generally one year or more.

If the Original Idea is 20 – 30 years old I’m expect to have a Recent Level composed by all the documents which can be finding as a result of a web search because are indexed in the major search engines. Instead the Ancient Level composed by all the documents which can be finding in some analogical way. If the Original Idea is fresher the situation could be different, and it’s possible to have all the ancient level indexed in a digital library.

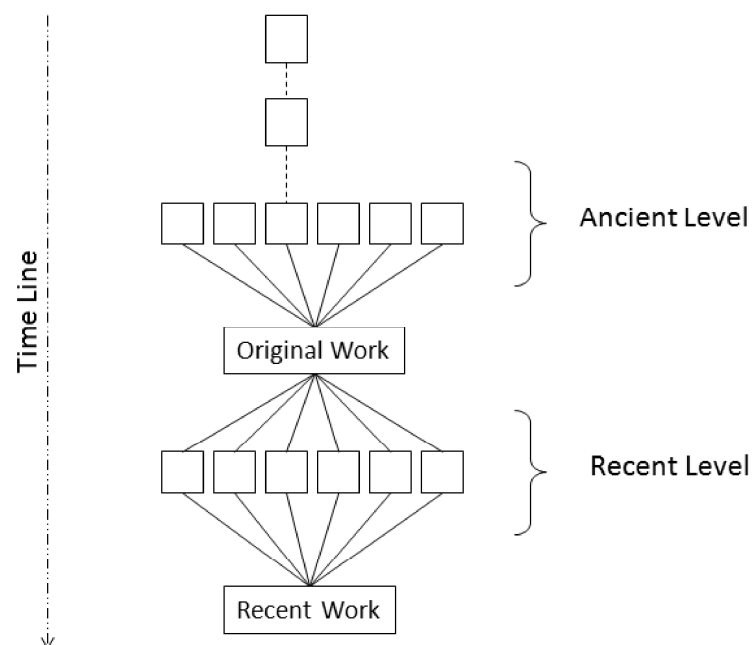


Figure 1 - Scheme of the documents analysis

3.2 Exhaustive Complementary Search

One of the main goals of this study is to find as many documents as possible related with the topic of the research which they are not indexed in the traditional web search engines. To achieve this goal I have crawled all the indexed documents and I used this dataset, in a second step, to find all the documents that usually do not appear in a web search engine.

3.3 The deep search

One of the topic goal, and the most interesting challenge, is to find the oldest related work with the Starting Point. It's obvious that the oldest work must be searched in an analogical library and this task requires a lot of time and a physical movement between different libraries.

3.4 The wide search

Instead of the "deep search" this kind of search is performed analyzing not only the work directly related but it's possible to find two or more works which discuss about the same topic in an unlinked way.

3.5 Conclusion

To improve the search in the past a typical phenomenon could be occurred. If the time span between the root of a work and the most recent one is wide the keywords used to refer to a concept could change. Consequently one of the best solutions is to find a way to identify these changes in order to change also the keyword to improve the search results.

In the first side of this study a search method was been discussed next the results found.

OPTICAL FLOW

1. Secrets of Optical Flow Estimation and Their Principles

The first argument analyzed is the “Secrets of Optical Flow Estimation and Their Principles”. The key words identified in this work are: Optical Flow, Estimation, Middlebury Optical Flow Benchmark.

In this case the Original Work is explicit reported in the Paper because the goal of this work is to define a baseline algorithm using the original idea of Horn and Schunk and modifying the model developed and analyze the benchmark showing that only the modern optimization and implementation techniques have improved the results of the Optical Flow algorithm. The scheme proposed for this topic is as follow:

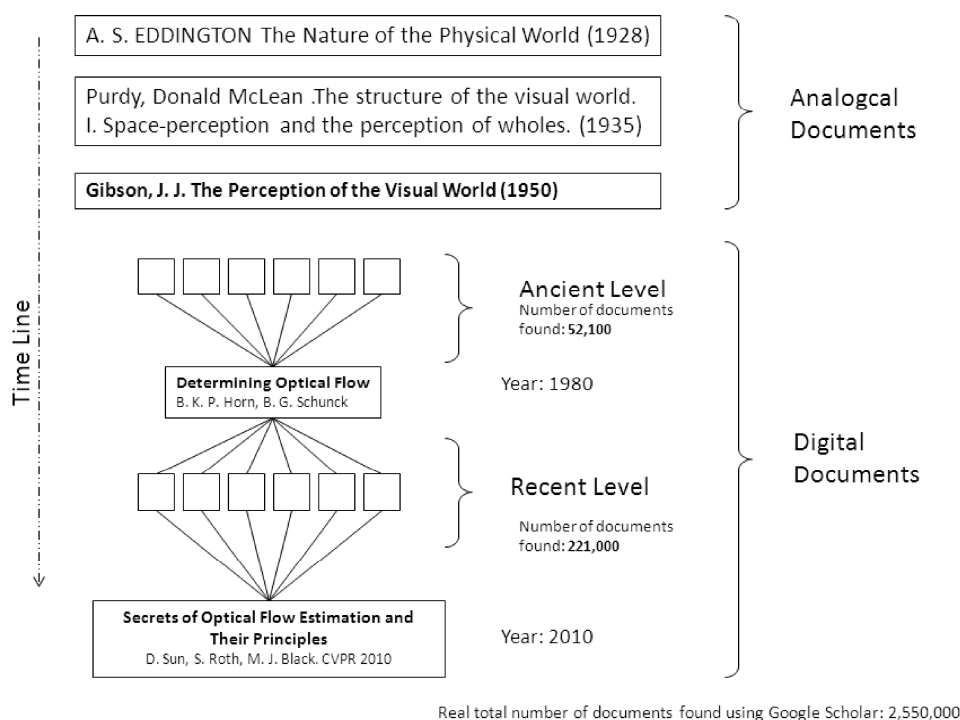


Figura 1 - The proposed root

2. Main Work:

Secrets of Optical Flow Estimation and Their Principles, D Sun, S Roth, TU Darmstadt, MJ Black – 2010

3. Original Idea:

BKP Horn, BG Schunck, "Determining optical flow" Artificial intelligence, 1981

4. Ancient Level:

Gibson, J. J. (1950) The Perception of the Visual World, Riverside Press, Cambridge, England .

Gibson, J . J. (1966) The Senses Considered as Perceptual Systems, Houghton-Mifflin, Boston .

Gibson, J. J. (1977) "On the Analysis of Change in the Optic Array," Scandinavian Journal of Psychology 18, pp . 161-163 .

4.1 Segmenting using optical flow

Nakayama, K . & Loomis, J . M . (1974) "Optical Velocity Patterns, Velocity-Sensitive Neurons and Space Perception," Perception, 3, pp. 63-80.

Jain, R., Martin, W . N., & Aggarwal, J . K. (1979) "Segmentation Through the Detection of Changes Due to Motion," Computer Graphics and Image Processing 11,1 (September 1979), pp . 13-34.

Jain, R ., Militzer, D. & Nagel, H .-H. (1977) "Separating Non-stationary from Stationary Scene Components in a Sequence of Real World TV-images," Proceedings of the 5th International Joint Conference on Artificial Intelligence, 22-25 August 1977, pp . 612-618 .

Jain, R . & Nagel, FL-H . (1979) "On a Motion Analysis Process for Image Sequences from Real World Scenes," IEEE Transactions on Pattern Analysis and Machine Intelligence 2, (April 1979), pp . 206-214 .

4.2 Recovering Velocity from optical flow

Hadani, I., Ishai, G. & Gut, M. (1980) "Visual Stability and Space Perception in Monocular Vision : Mathematical Model," Journal of the Optical Society of America 70,1 (January 1980), pp. 60-65.

Koenderink, J. J. & van Doorn, A. J. (1975) "Invariant Properties of the Motion Parallax Field Due to the Movement of Rigid Bodies Relative to an Observer," Optica Acta 22,9, pp. 773-791 .

Koenderink, J. J. & van Doorn, A. J. (1976) "Visual Perception of Rigidity of Solid Shape," Journal of Mathematical Biology 3,79, pp . 79-85 .

Longuet-Higgins, H . C. & Prazdny, K. (1980) "The Interpretation of Moving Retinal Image," Proceedings of the Royal Society B, (in press) .

Prazdny, K. (1979) "Egomotion and Relative Depth Map from Optical Flow," Computer Science Department, University of Essex, Colchester, England, (unpublished) .

Prazdny, K. (1980) "The Information in Optical Flows," Computer Science Department, University of Essex, Colchester, England (unpublished) .

4.3 Shape from Optical Flow

Clocksini, W. (1978) "Determining the Orientation of Surfaces from Optical Flow," Proceedings Third AISB Conference, Hamburg, pp. 93-102 .

Koenderink, J. J. & van Doorn, A. J. (1975) "Invariant Properties of the Motion Parallax Field Due to the Movement of Rigid Bodies Relative to an Observer," Optica Acta 22,9, pp. 773-791 .

Koenderink, J. J. & van Doorn, A. J. (1976) "Visual Perception of Rigidity of Solid Shape," Journal of Mathematical Biology 3,79, pp . 79-85 .

5. Analogical work related found

- Gibson, J. J. (1950) The Perception of the Visual World, Riverside Press, Cambridge, England .

- Purdy, Donald McLean (1935) The structure of the visual world. I. Space-perception and the perception of wholes (Lancaster, PA : Lancaster Press). - P. 399-424 ; 25 cm. Estratto da: The psychological review, v. 42, n. 5 (set. 1935). - Include bibliografia (p. 424)
- A. S. EDDINGTON The Nature of the Physical World (1928)

Copie: Bicocca Sede Centrale - Fondo: Fondi ASPI - Coll.: MUS R 0385 - [Consultazione (magazzino)]

6. *Crawled Works*

Title: Determining optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:Optical flow cannot be computed locally, since only one independent measurement is available from the image sequence at a point, while the flow velocity has two components. A second constraint is needed. A method for finding the optical flow pattern is presented which assumes that ... Cited by 5000 - Related articles - ACNP Holdings - All 50 versions

Title: Performance of optical flow techniques

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:JL Barron, DJ Fleet, SS Beauchemin - International journal of computer …, 1994 - Springer... Netherlands. Systems and Experiment Performance of Optical Flow Techniques JL ... Abstract While different optical flow techniques continue to appear, there has been a lack of quantitative evaluation of exist- ing methods. For a ... Cited by 3107 - Related articles - BL Direct - All 71 versions

Title: Determining three-dimensional motion and structure from optical flow generated by several moving objects

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:G Adiv - IEEE Transactions on Pattern Analysis and Machine …, 1985 - csa.comDetermining three-dimensional motion and structure from optical flow generated by several moving objects. G ADIV IEEE Transactions on Pattern Analysis and Machine Intelligence 7, 384-401, 7/1985. A new approach for the interpretation of optical flow fields is presented. ... Cited by 831 - Related articles - All 6 versions

Title: The computation of optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:SS Beauchemin, JL Barron - ACM Computing Surveys (CSUR), 1995 - portal.acm.orgPage 1. The Computation of Optical Flow SS BEAUCHEMIN AND JL BARRON Unwerslty of Western Ontario ... called the opt~cal fZow field or the Lmage veloctty fZeld. Provided that optical flow is a reliable approximation to two-dimensional image motion, it may then be used to ... Cited by 601 - Related articles - ACNP Holdings - All 39 versions

Title: [PDF] Probability distributions of optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:EP Simoncelli, EH Adelson, DJ … - … Vision and Pattern …, 1991 - ldv.e-technik.tu-muenchen.de1 Introduction The recovery of motion information from visual input is an important task for both natural and artificial vision sys- tems. Most models for the analysis of visual motion begin by extracting two-dimensional motion information. In par- ticular, computer vision techniques typically ... Cited by 362 - Related articles - View as HTML - All 5 versions

Title: Optical flow estimation: An error analysis of gradient-based methods with local optimization.

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:JK Kearney, WB Thompson, DL Boley - IEEE TRANS. PATTERN ANAL. …, 1987 - csa.com ... Many of the methods that recover this information require the determination of optical flow--the velocity, on the image, of visible points on object surfaces. ... Cited by 264 - Related articles - All 3 versions

Title: On the estimation of optical flow: Relations between different approaches and some new results

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:HH Nagel - Artificial Intelligence, 1987 - ElsevierA common basis is suggested for the optical flow estimation approaches of Nagel (1983), Haralick and Lee (1983) and Tretiak and Pastor (1984). Based on a discussion of these approaches, an exact solution for the system of partial differential equations proposed by Horn and ... Cited by 471 - Related articles - ACNP Holdings - All 3 versions

Title: Optical flow using spatiotemporal filters

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:DJ Heeger - International Journal of Computer Vision, 1988 - SpringerThe world we live in is constantly in motion-an observer (either a biological organism or a com- puter being) who depends on visual perception to gain an understanding of his environment must be able to interpret visual motion. Some of the important functions of motion ... Cited by 560 - Related articles - All 7 versions

Title: High accuracy optical flow estimation based on a theory for warping

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:T Brox, A Bruhn, N Papenberg, J Weickert - Computer Vision-ECCV 2004, 2004 - SpringerAbstract. We study an energy functional for computing optical flow that com- bines three assumptions: a brightness constancy assumption, a gradient con- stancy assumption, and a discontinuity-preserving spatio-temporal smoothness constraint. In order to allow for large ... Cited by 357 - Related articles - BL Direct - All 31 versions

Title: Recognizing human facial expressions from long image sequences using optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:Y Yacoob, LS Davis - IEEE Transactions on Pattern Analysis and …, 1996 - portal.acm.orgAn approach to the analysis and representation of facial dynamics for recognition of facial expressions from image sequences is presented. The algorithms utilize optical flow computation to identify the direction of rigid and nonrigid motions that are caused by human facial expressions. A ... Cited by 289 - Related articles - BL Direct - All 8 versions

Title: Direction of self-motion is perceived from optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:WH Warren, DJ Hannon - 1988 - nature.comCan moving observers distinguish the direction in which they are moving from the direction in which they are looking? Radial patterns of optical flow could be used to perceive the translational direction of self-motion and to guide locomotion. However, these patterns are confounded ... Cited by 275 - Related articles - All 6 versions

Title: [PDF] A framework for the robust estimation of optical flow
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:MJ Black, P Anandan - Proc. Int. Conf. on Computer Vision, ICCV, 1993 - CiteseerWe consider the problem of robustly estimating optical flow from a pair of images using a new framework based on robust estimation which addresses violations of the brightness constancy and spatial smoothness assumptions. We also show the relationship between the robust ... Cited by 301 - Related articles - View as HTML - All 11 versions

Title: Motion field and optical flow: Qualitative properties
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:A Verri, T Poggio - IEEE Transactions on pattern analysis and …, 1989 - computer.orgAbstract- This paper shows that the motion field, the 2-D vector field which is the perspective projection on the image plane of the 3-D velocity field of a moving scene, and the optical flow, defined as the estimate of the motion field which can be derived from first order variation of the ... Cited by 295 - Related articles - All 33 versions

Title: Multidimensional orientation estimation with applications to texture analysis and optical flow
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:J Bigun, GH Granlund, J Wiklund - IEEE Transactions on Pattern Analysis …, 1991 - ep.liu.seThe problem of detection of orientation in finite dimensional Euclidean spaces is solved in the least squares sense. In particular, the theory is developed for the case when such orientation computations are necessary at all local neighborhoods of the n-dimensional Euclidean ... Cited by 208 - Related articles - Cached - All 5 versions

Title: Eye movements and optical flow
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:WH Warren, Jr, DJ Hannon - Journal of the Optical Society of …, 1990 - opticsinfobase.orgReceived January 17, 1989; accepted August 15, 1989 Translation of an observer through a static environment generates a pattern of optical flow that specifies the direction of self-motion, but the retinal flow pattern is confounded by pursuit eye movements. How ... Cited by 247 - Related articles - ACNP Holdings - All 12 versions

Title: On benchmarking optical flow
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:B McCane, K Novins, D Crannitch, B Galvin - Computer Vision and Image …, 2001 - ElsevierEvaluating the performance of optical flow algorithms has been difficult because of the lack of ground truth data sets for complex scenes. We present a new method for generating motion fields from real sequences containing polyhedral objects and present a test suite for ... Cited by 131 - Related articles - ACNP Holdings - BL Direct - All 11 versions

Title: Mixture models for optical flow computation
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:A Jepson, M Black - … data sets: DIMACS workshop, April 19-21, …, 1995 - books.google.comDIMACS Series in Discrete Mathematics and Theoretical Computer Science Volume 19, 1995 MIXTURE MODELS FOR OPTICAL FLOW COMPUTATION ALLAN JEPSON AND MICHAEL J. BLACK ABSTRACT. The computation of optical flow relies on merging information ... Cited by 261 - Related articles - BL Direct - All 27 versions

Title: Investigations of multigrid algorithms for the estimation of optical flow fields in image sequences
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:W Enkelmann - Computer Vision, Graphics, and Image Processing, 1988 - ElsevierOptical flow fields are useful to describe the motion of objects relative to the observer of a scene. Smoothness requirements facilitate the

estimation of optical flow fields even for areas with constant or only linearly sloping gray value distributions. Horn and Schunck (Artif. ... Cited by 246 - Related articles - ACNP Holdings - All 7 versions

Title: Robust computation of optical flow in a multi-scale differential framework

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:J Weber, J Malik - International Journal of Computer Vision, 1995 - SpringerAbstract. We have developed a new algorithm for computing optical flow in a differential framework. The image sequence is first convolved with a set of linear, separable spatiotemporal filter kernels similar to those that have been used in other early vision problems such as ... Cited by 249 - Related articles - BL Direct - All 16 versions

Title: On the advantages of polar and log-polar mapping for direct estimation of time-to-impact from optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:M Tistarelli, G Sandini - IEEE Transactions on Pattern Analysis and ... , 1993 - computer.orgAbstract-The estimation of time to impact is of vital importance for animals as well as for autonomous robots. The optical flow, which is the 2-D projection on the retinal plane of the relative, 3-D motion between the observer and the objects in the scene, can be used to estimate the time to ... Cited by 213 - Related articles - BL Direct - All 12 versions

Title: Egomotion and relative depth map from optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:K Prazdny - Biological Cybernetics, 1980 - SpringerAbstract. When an observer moves in a 3D world, optical flow fields are generated on his retina. We argue that such an observer can in principle compute the parameters of his egomotion, and following this, the relative depth map of the stationary environment solely ... Cited by 242 - Related articles - ACNP Holdings - All 2 versions

Title: Multidimensional Orientation Estimation with Applications to Texture Analysis and Optical Flow (PDF)

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:J Bigün, GH Granlund, J Wiklund - IEEE Transactions on Pattern Analysis ... , 1993 - computer.orgAbstract-The problem of detection of orientation in finite dimensional Euclidean spaces is solved in the least squares sense. In particular, the theory is developed for the case when such orientation computations are necessary at all local neighborhoods of the n-dimensional Euclidean ... Cited by 247 - Related articles - All 6 versions

Title: Reliable estimation of dense optical flow fields with large displacements

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:L Alvarez, J Weickert, J Sánchez - International Journal of Computer ... , 2000 - SpringerInternational Journal of Computer Vision 39(1), 41-56, 2000 c 2000 Kluwer Academic Publishers. Manufactured in The Netherlands. ... Reliable Estimation of Dense Optical Flow Fields with Large Displacements ... LUIS ALVAREZ Departamento de Informática y ... Cited by 206 - Related articles - BL Direct - All 14 versions

Title: The integration of optical flow and deformable models with applications to human face shape and motion estimation

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:D DeCarlo, D Metaxas - cvpr, 1996 - computer.orgAbstract We present a formal methodology for the integration of optical flow and deformable models. The optical \mathcal{H}^1 constraint equation provides a non-holonomic constraint on the motion of the deformable model. In this augmented system, forces computed from edges and ... Cited by 198 - Related articles - BL Direct - All 19 versions

Title: [PDF] View-based interpretation of real-time optical flow for gesture recognition

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:R Cutler, M Turk - IEEE Automatic Face and Gesture Recognition, 1998 - CiteseerWe have developed a real-time, view-based gesture recognition system. Optical flow is estimated and segmented into motion blobs. Gestures are recognized using a rule-based technique based on characteristics of the motion blobs such as relative motion and size. Parameters of ... Cited by 163 - Related articles - View as HTML - All 18 versions

Title: First-order analysis of optical flow in monkey brain

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:GA Orban, L Lagae, A Verri, S … - Proceedings of the …; 1992 - National Acad SciencesProc. Nati. Acad. Sci. USA Vol. 89, pp. 2595-2599, April 1992 Neurobiology ... First-order analysis of optical flow in monkey brain ... GA ORBAN*, L. LAGAE*, A. VERRI, S. RAIGUEL*, D. XIAO*, H. MAES*, AND V. TORRE ... *KULeuven, Laboratorium voor Neuro- en ... Cited by 163 - Related articles - ACNP Holdings - All 12 versions

Title: Determining the instantaneous direction of motion from optical flow generated by a curvilinearly moving observer

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:K Prazdny - Computer Graphics and Image Processing, 1981 - ElsevierA method is described capable of decomposing the optical flow into its rotational and translational components. The translational component is extracted implicitly by locating the focus of expansion associated with the translational component of the relative motion. The method is simple, ... Cited by 148 - Related articles - All 8 versions

Title: Determination of optical flow and its discontinuities using non-linear diffusion

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:M Proesmans, L Van Gool, E Pauwels, A … - … Vision—ECCV'94, 1994 - SpringerAbstract. A new method for optical flow computation by means of a coupled set of non-linear diffusion equations is presented. This approach integrates the classical differential approach with the correlation type of motion detectors. A measure of inconsistency within the optical ... Cited by 122 - Related articles - All 7 versions

Title: [PDF] A parallel algorithm for real-time computation of optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:H Biilthoff, J Little, T Poggio - Nature, 1989 - cbcl.mit.eduNATURE VOL. 337 9 FEBRUARY 1989 LETTERS TO NATURE- 0.5 1.0 1.5 Sand " DM (Gyr) Fig. 2 Plot of neodymium model ages (relative to depleted mantle) for coexisting sands and muds. The diagonal line represents equivalent ages. Age differences of up to 440 ... Cited by 152 - Related articles - ACNP Holdings - All 14 versions

Title: [PDF] Estimating optical flow in segmented images using variable-order parametric models with local deformations

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:MJ Black, AD Jepson - IEEE Transactions on Pattern Analysis and …; 1996 - CiteseerXerox Palo Alto Research Center, 3333 Coyote Hill Road, Palo Alto, CA 94304 Phone: (415)812-4745, FAX: (415)812-4334, email: black@parc.xerox.com ... This paper presents a new model for estimating optical flow based on the motion of planar regions plus local ... Cited by 182 - Related articles - View as HTML - BL Direct - All 25 versions

Title: Inverse perspective mapping simplifies optical flow computation and obstacle detection

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:HA Mallot, HH Bülthoff, JJ Little, S Bohrer - Biological cybernetics, 1991 - SpringerAbstract. We present a scheme for obstacle detection from optical flow which is based on strategies of biological information processing. Optical flow is established by a local "voting" (non-maximum suppression) over the outputs of correlation-type motion detectors similar to those found ... Cited by 152 - Related articles - ACNP Holdings - All 6 versions

Title: [PDF] Recovering motion fields: An evaluation of eight optical flow algorithms

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:B Galvin, B McCane, K Novins, D Mason, S … - British Machine Vision …, 1998 - CiteseerEvaluating the performance of optical flow algorithms has been difficult because of the lack of ground-truth data sets for complex scenes. We describe a simple modification to a ray tracer that allows us to generate ground-truth motion fields for scenes of arbitrary complexity. ... Cited by 113 - Related articles - View as HTML - All 8 versions

Title: Computing optical flow with physical models of brightness variation

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:HW Huissecker, DJ Fleet - cvpr, 2000 - computer.orgAbstract This paper exploits physical models of time-varying brightness in image sequences to estimate optical flow and physical parameters of the scene. Previous approaches have violated brightness constancy with the use of robust statistics or with generalized ... Cited by 140 - Related articles - BL Direct - All 25 versions

Title: A database and evaluation methodology for optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:S Baker, S Roth, D Scharstein, MJ Black, JP Lewis, R … - 2007 - computer.orgThe quantitative evaluation of optical flow algorithms by Barron et al. led to significant advances in the performance of optical flow methods. The challenges for optical flow today go beyond the datasets and evaluation methods proposed in that paper and center on problems ... Cited by 154 - Related articles - ACNP Holdings - All 31 versions

Title: Optical flow: a curve evolution approach

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:A Kumar, AR Tannenbaum, G Balas - 1995 - smartech.gatech.eduOPTICAL FLOW: A CURVE EVOLUTION APPROACH Arun Kumar, Allen Tannenbaum and Gary Balas Departments of Aerospace and Electrical Engineering, University of Minnesota Minneapolis, MN 55455 ABSTRACT A novel approach for the computation of optical flow ... Cited by 90 - Related articles - Cached - BL Direct - All 17 versions

Title: Accuracy vs. efficiency trade-offs in optical flow algorithms

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:H Liu, TH Hong, M Herman, R Chellappa - Computer Vision—ECCV'96, 1996 - SpringerThere have been two thrusts in the development of optical flow algorithms. One has emphasized higher accuracy; the other faster implementation. These two thrusts, however, have been independently pursued, without addressing the accuracy vs. efficiency trade-offs. Although the accuracy- ... Cited by 126 - Related articles - BL Direct - All 24 versions

Title: Optical flow estimation: advances and comparisons

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:M Otte, H Nagel - Computer Vision—ECCV'94, 1994 - SpringerAbstract. This contribution investigates local differential techniques for estimating optical flow and its derivatives based on the brightness change constraint. By using the tensor calculus representation we build the Taylor expansion of the gray-value derivatives as well as of the optical flow ... Cited by 124 - Related articles - All 3 versions

Title: Optical flow constraints on deformable models with applications to face tracking

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:D Decarlo, D Metaxas - International Journal of Computer Vision, 2000 - Springer... Publishers. Manufactured in The Netherlands. Optical Flow Constraints on Deformable Models with Applications to Face Tracking DOUGLAS ... Abstract. Optical flow provides a constraint on the motion of a deformable model. We derive ... Cited by 186 - Related articles - BL Direct - All 24 versions

Title: Rigid body motion from depth and optical flow* 1

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:DH Ballard, OA Kimball - Computer Vision, Graphics, and Image …, 1983 - ElsevierCOMPUTERVISION,GRAPHICS,ANDIMAGEPROCESSING22, 95 115 (1983) Rigid Body Motion from Depth and Optical Flow* DANA H. BALLARD AND O. A. KIMBALL ComputerScienceDepartment,Universityof Rochester,Rochester.NewYork1462 7 ... Cited by 108 - Related articles - ACNP Holdings - All 2 versions

Title: Skin and bones: Multi-layer, locally affine, optical flow and regularization with transparency

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:SX Ju, MJ Black, AD Jepson - cvpr, 1996 - computer.orgThis puper describes a new methodfor estimating op- tical flow thut strikes a balance between the jlexibil- ity of local dense computations and the robustness and accuracy of global parameterized jlow models. An affine model of image motion is used within locul im- age patches while ... Cited by 134 - Related articles - BL Direct - All 31 versions

Title: [PDF] Robust incremental optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:MJ Black - Yale University, New Haven, CT, 1992 - CiteseerThis thesis addresses the problem of recovering 2D image velocity, or optical flow, ro- bustly over long image sequences. We develop a robust estimation framework for improv- ing the reliability of motion estimates and an incremental minimization framework for re- covering flow ... Cited by 157 - Related articles - View as HTML - All 20 versions

Title: Optical-flow estimation while preserving its discontinuities: a variational approach

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:R Deriche, P Kornprobst, G Aubert - Recent Developments in Computer …, 1996 - SpringerAbstract. This paper describes a variational approach devised for the purpose of estimating optical flow from a sequence of images with the constraint to preserve the flow discontinuities. This problem is set as a regularization and minimization of a non quadratic functional. The Tikhonov ... Cited by 101 - Related articles - BL Direct - All 7 versions

Title: Obstacle detection by evaluation of optical flow fields from image sequences

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:W Enkelmann - Image and Vision Computing, 1991 - ElsevierIn comparison with single images, image sequences contain information about the dynamic aspects of the recorded scene. Dynamic aspects play a crucial role in traffic scenarios, especially for the guidance of an autonomous vehicle. In this contribution we present an approach for ... Cited by 127 - Related articles - ACNP Holdings - All 8 versions

Title: [PDF] Multi-frame optical flow estimation using subspace constraints

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:M Irani - Proc. ICCV, 1999 - CiteseerWe show that the set of all flow-fields in a se- quence of frames imaging a rigid scene resides in a low- dimensional linear subspace. Based on this observa- tion, we develop a method for simultaneous estimation of optical-flow across multiple frames, which uses these ... Cited by 127 - Related articles - View as HTML - All 18 versions

Title: [PDF] Simultaneous multiple optical flow estimation

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:M Shizawa, K Mase - IEEE Conf. Computer Vision and Pattern …, 1990 - kepler.ia.ac.cnAbstract This paper proposes a simultaneous closed form estimation method for multiple optical flow from image sequences

in which each image point has multiple motions. This method only needs convolution for space-time filtering and low-dimensional eigensystem analysis as ... Cited by 106 - Related articles - View as HTML - All 2 versions

Title: [PDF] Dynamic occlusion analysis in optical flow fields

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:WB Thompson, KM Mutch, VA Berzins - IEEE transactions on pattern …, 1985 - cs.utah.eduAbstract-Optical flow can be used to locate dynamic occlusion boundaries in an image sequence. We derive an edge detection algorithm sensitive to changes in flow fields likely to be associated with occlusion. The algorithm is patterned after the Marr-Hildreth zero- ... Cited by 125 - Related articles - View as HTML - All 7 versions

Title: Perception of surface slant and edge labels from optical flow: a computational approach

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:WF Clocksin - Perception, 1980 - perceptionweb.comAbstract. I present here two results from investigations of a computational theory of how the human visual system may obtain information about the physical environment directly from optically sensed velocity fields (optical flow). Previous work has shown how optical flow arises when an ... Cited by 123 - Related articles - ACNP Holdings - All 5 versions

Title: Computing optical flow via variational techniques

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:G Aubert, R Deriche, P Kornprobst - SIAM Journal on Applied Mathematics, 1999 - JSTORG. AUBERTt, R. DERICHET, AND P. KORNPBSTt Abstract. Defined as the apparent motion in a sequence of images, the optical flow is very important in the computer vision community where its accurate estimation is necessary for many applications. It is one of the most ... Cited by 124 - Related articles - ACNP Holdings - BL Direct - All 14 versions

Title: Bayesian multi-scale differential optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:EP Simoncelli - Handbook of Computer Vision and Applications, 1999 - CiteseerIntroduction 397 14.2 Differential formulation 398 14.3 Uncertainty Model 400 14.4 Coarse-to- ne estimation 404 14.5 Implementation issues 411 ... Cited by 62 - Related articles - Cached - All 3 versions

Title: [PDF] Validation of an optical flow method for tag displacement estimation

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:L Dougherty, JC Asmuth, AS Blom, L Axel, … - IEEE Transactions on …, 1999 - cds.ismrm.orgIntroduction We present an optical flow method for the rapid estimation of deformation of magnetic resonance tagged cardiac images. The registration and change visualization (RCV) software is a hierarchical estimation technique that is based on the methods developed by Bergen, ... Cited by 75 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 6 versions

Title: Differential techniques for optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:A Verri, F Girosi, V Torre - Journal of the Optical Society of …, 1990 - opticsinfobase.orgReceived April 12, 1989; accepted November 22, 1989 We show that optical flow, ie, the apparent motion of the time-varying brightness over the image plane of an imaging device, can be estimated by means of simple differential techniques. Linear algebraic equations for the two ... Cited by 111 - Related articles - ACNP Holdings - All 10 versions

Title: Use of central and peripheral optical flow in stance and locomotion in young walkers

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:TA Stoffregenfl, MA Schmuckler, EJ Gibson - Perception, 1987 - perceptionweb.comAbstract. Young walkers (up to 5 years of age) were presented with optical flow in a moving room. Flow was global or was restricted to either the center or the periphery of the visible optic array. On standing trials the response rate was greatest when peripheral flow was ... Cited by 91 - Related articles - ACNP Holdings - All 4 versions

Title: Lucas-kanade 20 years on: A unifying framework
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:S Baker, I Matthews - International Journal of Computer Vision, 2004 - Springer... Applications range from optical flow and tracking to layered motion, mosaic construction, and face coding. ... where the vector of parameters $p = (p_1, p_2)^T$ is then the optical flow. If we are tracking a larger image patch moving in 3D we may instead consider the set of affine warps: ... Cited by 534 - Related articles - BL Direct - All 22 versions

Title: The Statistics of Optical Flow* 1
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:C Fermüller, D Shulman, Y Aloimonos - Computer Vision and Image …, 2001 - ElsevierWhen processing image sequences some representation of image motion must be derived as a first stage. The most often used representation is the optical flow field, which is a set of velocity measurements of image patterns. It is well known that it is very difficult to estimate ... Cited by 62 - Related articles - ACNP Holdings - BL Direct - All 10 versions

Title: Particle image velocimetry with optical flow
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:GM Quénot, J Pakleza, TA Kowalewski - Experiments in fluids, 1998 - SpringerAbstract An optical Flow technique based on the use of Dynamic Programming has been applied to Particle Image Velocimetry thus yielding a significant increase in the accuracy and spatial resolution of the velocity field. Results are present- ed for calibrated synthetic sequences ... Cited by 102 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: [PDF] Efficient multiscale regularization with applications to the computation of optical flow
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:M Luetttgen, W Karl, A Willsky - IEEE Trans. Image Processing, 1994 - CiteseerAbstract A new approach to regularization methods for image processing is introduced and developed using as a vehicle the problem of computing dense optical flow fields in an image sequence. Standard formulations of this problem require the computationally intensive solution of an elliptic ... Cited by 175 - Related articles - View as HTML - ACNP Holdings - All 14 versions

Title: Optical flow from 1-D correlation: Application to a simple time-to-crash detector
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:N Ancona, T Poggio - International Journal of Computer Vision, 1995 - Springer... Optical Flow from 1-D Correlation: Application to a Simple Time-to-Crash Detector ... 1 Introduction The problem of how to compute efficiently estimates of the optical flow at sparse locations is of critical importance for practical implementations in a number of different tasks. ... Cited by 90 - Related articles - BL Direct - All 36 versions

Title: Computing optical flow across multiple scales: an adaptive coarse-to-fine strategy
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:R Battiti, E Amaldi, C Koch - International Journal of Computer Vision, 1991 - SpringerAbstract Single-scale approaches to the determination of the optical flow field from the time-varying brightness pattern assume that spatio-temporal discretization is adequate for representing the patterns and motions in a scene. However, the choice of an appropriate spatial resolution ... Cited by 91 - Related articles - All 6 versions

Title: [PDF] Accurate Computation of Optical Flow by Using Layered Motion Representations

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:S Hsu, P Anandan - vision.huji.ac.ilAbstract This paper presents a framework combining two prevailing approaches to motion analysis: optical flow which describes motion at each point, and methods that define global motions for larger regions. Image motion is represented by layers, image regions whose coherent ... Cited by 64 - Related articles - View as HTML - BL Direct - All 8 versions

Title: [PDF] Real-time quantized optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:T Camus - Real Time Imaging, 1997 - CiteseerAlgorithms based on the correlation of image patches can be robust in practice but are computationally intensive due to the computational complexity of their search-based nature. Performing the search over time instead of over space is linear in nature, rather than quadratic, and ... Cited by 98 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 15 versions

Title: Adapting optical flow to measure object motion in reflectance and X-ray image sequences

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:N Cornelius, T Kanade - ACM Siggraph/Sigart Interd. Workshop on …;, 1983 - oai.dtic.milAbstract : This paper adapts a previous work on optical flow to the problem of determining arbitrary motions of objects from 2-dimensional image sequences. The method allows for gradual changes in the way an object boundaries. The authors find velocity fields that give estimates of the ... Cited by 81 - Related articles - Cached - All 6 versions

Title: Combination of edge element and optical flow estimates for 3D-model-based vehicle tracking in traffic image sequences

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:M Haag, HH Nagel - International Journal of Computer Vision, 1999 - Springer... Manufactured in The Netherlands. Combination of Edge Element and Optical Flow Estimates for 3D-Model-Based Vehicle Tracking in Traffic Image Sequences MICHAEL HAAG ∗ ... Page 3. Edge Element and Optical Flow Estimates 297 by (Mitiche and Bouthemey, 1996). ... Cited by 99 - Related articles - BL Direct - All 5 versions

Title: [PDF] Nonlinear variational method for optical flow computation

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:I Cohen - …; OF THE SCANDINAVIAN CONFERENCE ON IMAGE …;, 1993 - CiteseerWe present a new method for optical flow computation based on the minimization of a non-quadratic functional. The solution of the obtained nonlinear differential equations is done with a time dependent approach leading to the successive solutions of linear systems. This new ... Cited by 70 - Related articles - View as HTML - BL Direct - All 5 versions

Title: Determining optical flow: a retrospective

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:BKP Horn, BG Schunck - Artificial intelligence in perspective, 1994 - books.google.comArtificial Intelligence 59 (1993) 81-87 81 Elsevier ARTINT 1000 " Determining optical flow"; a retrospective Berthold KP Horn MIT, Artificial Intelligence Laboratory, 545 Technology Square, Cambridge, MA 02139, USA BG Schunck Artificial Intelligence Laboratory, ... Cited by 60 - Related articles - All 5 versions

Title: Derivation of optical flow using a spatiotemporal-Frequency approach*

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:L Jacobson, H Wechsler - Computer Vision, Graphics, and Image …;, 1987 - ElsevierWe advance in this paper the spatiotemporal-frequency (STF) approach for computing the optical flow of a time-varying image. STF flow derivation provides an attractive alternative to earlier approaches based on (1) feature correspondence, (2) spatiotemporal gradients, and (3) ... Cited by 88 - Related articles - ACNP Holdings - All 4 versions

Title: Motion recovery from image sequences using only first order optical flow information

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:S Negahdaripour, S Lee - International Journal of Computer Vision, 1992 - Springer... Motion Recovery from Image Sequences Using Only First Order Optical Flow Information ... In developing a robust motion recovery method, one should keep in mind that optical flow (image motion) cannot be estimated free of error from image sequences due to various factors. ... Cited by 82 - Related articles - BL Direct - All 3 versions

Title: On variable brightness optical flow for tagged MRI

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:SN Gupta, JL Prince - … Conference, Ile de Berder, France, June, 1995 - books.google.com324 S. GUPTA AND JL PRINCE application. Another problem with VBOF is that its performance degrades over time making estimates of motion over long time sequences impractical. This work aims both at improving OF performance for long time sequences and at reducing the ... Cited by 69 - Related articles - All 3 versions

Title: Optical Flow Not Retinal Flow Is the Basis of Wayfinding by Foot* 1

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:NG Kim, R Growney, MT Turvey - Journal of Experimental Psychology: …, 1996 - ElsevierTwo experiments were directed at the hypothesis that wayfinding is achieved by a recursive strategy using differential motion parallax (DMP), a property of retinal flow due to near and far objects moving against fixation. Experiment 1 showed that without the changing global optical ... Cited by 57 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: The lumigraph

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:SJ Gortler, R Grzeszczuk, R Szeliski, MF … - Proceedings of the 23rd …, 1996 - portal.acm.org... model. Chen and Williams [7] and Werner et al [30] have investigated smooth inter- polation between images by modeling the motion of pixels (ie, the optical flow) as one moves from one camera position to another. In Plenoptic ... Cited by 1627 - Related articles - ACNP Holdings - All 36 versions

Title: Probabilistic solution of ill-posed problems in computational vision

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:J Marroquin, S Mitter, T Poggio - Journal of the American Statistical …, 1987 - JSTOR... Some examples of early vision modules are edge detection, spatio-temporal interpolation and approxima- tion, computation of optical flow, computation of lightness and albedo, shape from contours, shape from texture, shape from shading, binocular stereo, structure from motion ... Cited by 624 - Related articles - ACNP Holdings - All 21 versions

Title: A scale-space approach to nonlocal optical flow calculations

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:L Alvarez, J Sánchez, J Weickert - Scale-Space Theories in Computer …, 1999 - SpringerAbstract. This paper presents an interpretation of a classic optical flow method by Nagel and Enkelmann as a tensor-driven anisotropic diffusion approach in digital image analysis. We introduce an improvement into the model formulation, and we establish well-posedness results for ... Cited by 66 - Related articles - BL Direct - All 9 versions

Title: A duality based approach for realtime TV-L 1 optical flow

Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier

Year:1981

Content:C Zach, T Pock, H Bischof - … of the 29th DAGM conference on …, 2007 - portal.acm.orgAbstract. Variational methods are among the most successful approaches to calculate the optical flow

between two image frames. A particularly appealing formulation is based on total variation (TV) regularization and the robust L 1 norm in the data fidelity term. This formulation can ... Cited by 65 - Related articles - BL Direct - All 10 versions

Title: Green theorems and qualitative properties of the optical flow
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:T Poggio, A Verri, V Torre - AIM-1289, 1991 - dspace.mit.eduMASSACHUSETTS INSTITUTE OF TECHNOLOGY ARTIFICIAL INTELLIGENCE LABORATORY and CENTER FOR BIOLOGICAL INFORMATION PROCESSING AI Memo No. 1289 April 1991 CBIP Paper No. 67 Green Theorems and Qualitative Properties of the Optical Flow ... Cited by 49 - Related articles - All 21 versions

Title: [PDF] Non-rigid summing of gated PET via optical flow
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:GJ Klein, BW Reutter, RH Huesman - IEEE Transactions on nuclear …, 1997 - CiteseerAbstract A method for summing together datasets from gated car- diac PET acquisitions is described. Optical flow techniques are used to accurately model non-rigid motion present during the cardiac cycle so that a one-to-one mapping is found between each voxel of two gated ... Cited by 63 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 10 versions

Title: The accuracy of the computation of optical flow and of the recovery of motion parameters
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:E De Micheli, V Torre, S Uras - IEEE Transactions on Pattern …, 1993 - computer.org... Two major approaches have been proposed for the analysis of image sequences: one based on differential techniques aims at computing a dense optical flow (Fenmen and Thompson [131; Gibson [15]; Heitz and Bouthemy [17]; Horn and Schunck [19]; Koenderink and Van ... Cited by 77 - Related articles - BL Direct - All 7 versions

Title: [PDF] Overtaking vehicle detection using implicit optical flow
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:PH Batavia, DA Pomerleau, CE Thorpe - Proceedings of the IEEE …, 1997 - CiteseerABSTRACT We describe an optical flow based obstacle detec- tion system for use in detecting vehicles approach- ing the blind spot of a car on highways and city streets. The system runs at near frame rate (8-15 frames/second) on PC hardware. We will discuss the prediction of a ... Cited by 61 - Related articles - View as HTML - All 17 versions

Title: Reliable and efficient computation of optical flow
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:SH Lai, BC Vemuri - International Journal of Computer Vision, 1998 - Springer... Reliable and Efficient Computation of Optical Flow ∗ ... Abstract. In this paper, we present two very efficient and accurate algorithms for computing optical flow. The first is a modified gradient-based regularization method, and the other is an SSD-based regularization method. ... Cited by 79 - Related articles - BL Direct - All 10 versions

Title: Accurate dense optical flow estimation using adaptive structure tensors and a parametric model
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:H Liu, R Chellappa, A Rosenfeld - Pattern Recognition, 2002 - computer.orgAn accurate optical flow estimation algorithm is proposed in this paper. By using a 3D structure tensor and a para- metric flow model, the optical flow estimation is converted to generalized eigenvalue problem to avoid solving a linear sys- tem explicitly. The optical flow can be accurately ... Cited by 56 - Related articles - ACNP Holdings - BL Direct - All 11 versions

Title: On the detection of motion and the computation of optical flow
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:JH Duncan, TC Chou - IEEE Transactions on Pattern Analysis and …; 1992 - computer.orgAbstract- A method for the detection of motion in image sequences is presented. In this method, the intensity history at each pixel is convolved with the second derivative in time of a temporal Gaussian smoothing function. The zero crossings in a single frame of the ... Cited by 70 - Related articles - All 8 versions

Title: Digital image translational and rotational motion stabilization using optical flow technique
Author: BKP Horn, BG Schunck - Artificial intelligence, 1981 - Elsevier
Year:1981

Content:JY Chang, WF Hu, MH Cheng, BS Chang - 2002 - ir.lib.nctu.edu.twAbstract- This paper proposes a new digital im- age stabilization (DIS) systems based on opti- cal flow technique. Unlike previous DIS sys- tems developed mainly for removing the transla- tional motion disturbance, the proposed system removes not only the ... Cited by 58 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 6 versions

Title: Super-resolution optical flow
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:Existing approaches to super-resolution are not applicable to videos of faces because faces are non-planar, non-rigid, non-lambertian, and are subject to self occlusion. We present super-resolution optical ow as a solution to these problems. Super-resolution optical ow ... Cited by 56 - Related articles - Cached - All 6 versions

Title: On the spatial statistics of optical flow
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:S Roth, MJ Black - International Journal of Computer Vision, 2007 - SpringerInternational Journal of Computer Vision 74(1), 33-50, 2007 c 2007 Springer Science + Business Media, LLC. Manufactured in the United States. DOI: 10.1007/s11263-006-0016-x ... On the Spatial Statistics of Optical Flow ... STEFAN ROTH AND MICHAEL J. BLACK Department ... Cited by 75 - Related articles - BL Direct - All 40 versions

Title: Determining the egomotion of an uncalibrated camera from instantaneous optical flow
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:MJ Brooks, W Chojnacki, L …; - Journal of the Optical …; 1997 - opticsinfobase.orgReceived August 26, 1996; accepted February 20, 1997 A procedure is described for self-calibration of a moving camera from instantaneous optical flow. Under cer- tain assumptions this procedure allows the egomotion and some intrinsic parameters of the camera to be de- termined ... Cited by 63 - Related articles - ACNP Holdings - BL Direct - All 18 versions

Title: A generalized optical flow constraint and its physical interpretation
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:D Béréziat, I Herlin, L Younes - cvpr, 2000 - computer.orgThis paper addresses the issue of motion estimation on image sequences. The standard motion equation used to compute the apparent motion of image irradiance patterns is an invariance brightness based hypothesis called the opti- cal flow constraint. Other equations can be ... Cited by 53 - Related articles - BL Direct - All 11 versions

Title: On the mathematical foundations of smoothness constraints for the determination of optical flow and for surface reconstruction
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:MA Snyder - IEEE Transactions on Pattern Analysis and Machine …; 1991 - computer.orgAbstract- Gradient-based approaches to the computation of optical flow often use a minimization technique incorporating a smoothness constraint on the optical flow field. In this paper, we derive the most general form of such a smoothness constraint that is quadratic in first derivatives ... Cited by 65 - Related articles - All 11 versions

Title: Women go with the (optical) flow
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer

Year:1999

Content:DS Tan, M Czerwinski, G Robertson - Proceedings of the SIGCHI …, 2003 - portal.acm.orgABSTRACT Previous research reported interesting gender effects involving specific benefits for females navigating with wider fields of view on large displays. However, it was not clear what was driving the 3D navigation performance gains, and whether or not the effect was more ... Cited by 58 - Related articles - BL Direct - All 15 versions

Title: Experiments in computing optical flow with the gradient-based, multiconstraint method

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:A Mitche, YF Wang, JK Aggarwal - Pattern Recognition, 1987 - ElsevierIn this paper we present results on experiments in computing optical flow with the multiconstraint approach. This approach relies on the gradient equation, which relates spatial and temporal changes in the image to optical flow, and the use of various image functions. The ... Cited by 59 - Related articles - ACNP Holdings - All 4 versions

Title: Intrathoracic tumour motion estimation from CT imaging using the 3D optical flow method

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:T Guerrero, G Zhang, TC Huang, KP … - Physics in medicine and …, 2004 - iopscience.iop.orgPage 1. This article has been downloaded from IOPscience. ... imaging using the 3D optical flow method* Thomas Guerrero1, Geoffrey Zhang1, Tzung-Chi Huang1,2 and Kang-Ping Lin2 ... Cited by 67 - Related articles - ACNP Holdings - BL Direct - All 12 versions

Title: Three-dimensional optical flow method for measurement of volumetric brain deformation from intraoperative MR images

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:N Hata, A Nabavi, WM Wells III, SK … - Journal of computer …, 2000 - journals.lww.comA three-dimensional optical flow method to measure volumetric brain deformation from sequential intraoperative MR images and preliminary clinical results from five cases are reported. Intraoperative MR images were scanned before and after dura opening, twice during tumor resection, ... Cited by 53 - Related articles - ACNP Holdings - All 9 versions

Title: Variational approach to optical flow estimation managing discontinuities

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:P Nesi - Image and Vision Computing, 1993 - ElsevierProjection of the 3D velocity of real objects on the image plane is often called the 'velocity field'. The estimation of this field is one of the most important research topics in computer vision. In the literature, there are numerous solutions which adopt a sort of continuity ... Cited by 65 - Related articles - ACNP Holdings - All 3 versions

Title: Extending the 'oriented smoothness constraint' into the temporal domain and the estimation of derivatives of optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:HH Nagel - Computer Vision—ECCV 90, 1990 - SpringerRecent experimental results by Schn6rr 89 with an approach based on a simplified 'oriented smoothness constraint' show considerable improvement at expected discontinuities of the optical flow field. It thus appears justified to study whether the local gray value variation can be ... Cited by 52 - Related articles - All 5 versions

Title: Video indexing using optical flow field

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:E Ardizzone, ML Cascia - IEEE International Conference on Image …, 1996 - CiteseerThe increasing development of advanced multimedia applications requires new technologies for organizing and

retrieving by content databases of digital video. Several content based features (color, texture, motion, ecc. . .) are needed to perform a reliable content based retrieval. In ... Cited by 50 - Related articles - Cached - All 3 versions

Title: Association of motion verbs with vehicle movements extracted from dense optical flow fields
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:H Kollnig, H Nagel, M Otte - Computer Vision—ECCV'94, 1994 - SpringerAbstract. This contribution addresses the problem of detection and tracking of moving vehicles in image sequences from traffic scenes recorded by a stationary camera. By replacing the low level vision system component for the estimation of displacement vectors by an optical ... Cited by 57 - Related articles - All 6 versions

Title: [PDF] Key frame selection by motion analysis
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:W Wolf - IEEE INTERNATIONAL CONFERENCE ON …; 1996 - csce.uark.edu... We use optical flow computations to identify local minima of motion in a shot—stillness emphasizes the image for the viewer. ... Specifically, we use optical flow analysis to measure the motion in a shot and select key frames at the local minima of motion. ... Cited by 246 - Related articles - BL Direct - All 7 versions

Title: Robust optical flow computation based on least-median-of-squares regression
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:EP Ong, M Spann - International Journal of Computer Vision, 1999 - Springer... Manufactured in The Netherlands. Robust Optical Flow Computation Based on Least-Median-of-Squares Regression EP ... Both angular and absolute flow errors are calculated for those sequences with known optical flow. Displaced ... Cited by 68 - Related articles - BL Direct - All 10 versions

Title: Motion analysis from first-order properties of optical flow
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:M Campani, A Verri - CVGIP: Image Understanding, 1992 - ElsevierIn this paper the first-order spatial properties of optical flow, such as singular points and elementary motions, are used to describe and analyze moving images. First, it is shown that the spatial structure of the viewed motion of rigid objects, with the exception of surface and motion ... Cited by 61 - Related articles - ACNP Holdings - BL Direct - All 2 versions

Title: Variational optical flow estimation for particle image velocimetry
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:P Ruhnau, T Kohlberger, C Schnörr, H Nobach - Experiments in Fluids, 2005 - SpringerAbstract We introduce a novel class of algorithms for evaluating PIV image pairs. The mathematical basis is a continuous variational formulation for globally estimating the optical flow vector fields over the whole image. This class of approaches has been known in the field of image ... Cited by 56 - Related articles - ACNP Holdings - All 10 versions

Title: [PDF] Lucas-Kanade 20 years on: A unifying framework: Part 1: The quantity approximated, the warp update rule, and the gradient descent approximation

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:S Baker, I Matthews - International Journal of Computer Vision, 2004 - Citeseer... Applications range from optical flow and tracking to layered motion, mosaic construction, and face coding. ... Kanade optical flow algorithm [13], image alignment has become one of the most widely used techniques in computer vision. ... Cited by 209 - Related articles - View as HTML - All 52 versions

Title: A robust algorithm for optical flow estimation
Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …; 1999 - Citeseer
Year:1999

Content:P Nesi, A Del Bimbo, D Ben-Tzvi - Computer Vision and Image …, 1995 - ElsevierMost of the existing methods for optical flow estimation are based on a constraint equation which is defined for each image pixel. This class of algorithms is usually called gradient-based. Due to the structure of the constraint equation, the problem is ill-posed, thus some solutions ... Cited by 47 - Related articles - ACNP Holdings - BL Direct - All 3 versions

Title: 3-D interpretation of optical flow by renormalization

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:K Kanatani - International Journal of Computer Vision, 1993 - SpringerAbstract This article studies 3-D interpretation of optical flow induced by a general camera motion relative to a surface of general shape. First, we describe, using the "image sphere representation,' an analytical procedure that yields an exact solution when the data are ... Cited by 52 - Related articles - BL Direct - All 3 versions

Title: [PDF] Optical flow to measure minute increments in plant growth

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:JL Barron, A Liptay - Bioimaging, 1994 - CiteseerPage 1. 1 Optical Flow to Measure Minute Increments in Plant Growth JL Barron1 and A. Liptay2 1Dept. ... 2 The Computation of Optical Flow We computed optical ow from spatiotemporal derivatives of ltered versions of the images in a sequence taken of a growing seedling. ... Cited by 50 - Related articles - View as HTML - ACNP Holdings - All 9 versions

Title: [PDF] Computation of smooth optical flow in a feedback connected analog network

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:A Stocker, R Douglas - Advances in Neural Information Processing …, 1999 - CiteseerIn 1986, Tanner and Mead [1] implemented an interesting constraint satisfaction circuit for global motion sensing in aVLSI. We report here a new and improved aVLSI implementation that provides smooth optical flow as well as global motion in a two dimensional visual field. The computation ... Cited by 39 - Related articles - View as HTML - BL Direct - All 14 versions

Title: Motion and structure from optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:K Prazdny - Proceedings of the 6th international joint conference on …, 1979 - portal.acm.orgWe show that a moving observer can (in principle) compute the relative depth map of the environment given only the instantaneous positional velocity field on his "retina". The depth map (and surface normals) are computed by recovering the egomotion parameters which in turn determine ... Cited by 45 - Related articles

Title: Determining optical flow for irregular domains by minimizing quadratic functionals of a certain class

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:C Schnörr - International Journal of Computer Vision, 1991 - SpringerAbstract Snyder (1989) has recently classified all smoothness terms which involve first-order derivatives of the flowfield $u(x, t)$ and of the image grey-value function $g(x, t)$. The physically plausible smoothness terms belonging to this class are known from the work of Horn and Schunck (... Cited by 53 - Related articles - All 5 versions

Title: Monocular depth perception from optical flow by space time signal processing

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:BF Buxton, H Buxton - Proceedings of the Royal Society …, 1983 - rspb.royalsocietypublishing.orgDownloaded from rspb.royalsocietypublishing.org on May 31, 2010 Proc. B. Soc. bond. В 218, 27-47 (1983) Printed in Great Britain Monocular depth perception from optical flow by space time signal processing By BF Buxton1 and Hilary Buxton2 1 Long Range Research ... Cited by 56 - Related articles - ACNP Holdings - All 8 versions

Title: Measurement of optical flow by a generalized gradient scheme

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:P Sobey, MV Srinivasan - Journal of the Optical Society of …, 1991 - opticsinfobase.orgReceived September 11, 1989; revised manuscript received March 19, 1991; accepted April 18, 1991 We describe a procedure for recovering the global, two-dimensional velocity of translation of an image by incorporating spatial filtering, and, optionally, temporal filtering, into a ... Cited by 54 - Related articles - ACNP Holdings - All 7 versions

Title: [PDF] Explaining optical flow events with parameterized spatio-temporal models

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:MJ Black - Proceedings of the IEEE Computer Society Conference …, 1999 - CiteseerA spatio-temporal representation for complex optical flow events is developed that generalizes traditional parameterized motion models (eg affine). These generative spatio-temporal models may be non-linear or stochastic and are event-specific in that they characterize a ... Cited by 51 - Related articles - View as HTML - BL Direct - All 18 versions

Title: Optical flow and phase portrait methods for environmental satellite image sequences

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:I Cohen, I Herlin - Computer Vision—ECCV'96, 1996 - SpringerAbstract. We present in this paper a motion computation and interpretation framework for oceanographic satellite images. This framework is based on the use of a non quadratic regularization technique in optical flow computation that preserves flow discontinuities. We also show that using an ... Cited by 44 - Related articles - BL Direct - All 15 versions

Title: Real-time implementation of an optical flow algorithm

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:MV Correia, AC Campilho - Pattern Recognition, 2002 - computer.orgOptical flow algorithms generally demand for high computational power and huge storage capacities. On the other hand, the many implementations of optical flow algorithms, reported by several authors are mostly experimental ones with no intent to apply them in any ... Cited by 36 - Related articles - ACNP Holdings - BL Direct - All 7 versions

Title: Image processing in catadioptric planes: Spatiotemporal derivatives and optical flow computation

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:K Daniilidis, A Makadia, T Bulow - 2002 - computer.orgImages produced by catadioptric sensors contain a significant amount of radial distortion and variation in inherent scale. Blind application of conventional shift-invariant operators or optical flow estimators yields erroneous results. One could argue that given a calibration of ... Cited by 49 - Related articles - All 11 versions

Title: Fluid experimental flow estimation based on an optical-flow scheme

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:T Corpetti, D Heitz, G Arroyo, E Memin, A Santa- … - Experiments in fluids, 2006 - SpringerAbstract We present in this paper a novel approach dedicated to the measurement of velocity in fluid experimental flows through image sequences. Unlike most of the methods based on particle image velocimetry (PIV) approaches used in that context, the proposed technique is an ... Cited by 53 - Related articles - ACNP Holdings - BL Direct - All 14 versions

Title: Identifying multiple motions from optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:A Rognone, M Campani, A Verri - Computer Vision—ECCV'92, 1992 - SpringerAbstract. This paper describes a method which uses optical flow, that is, the apparent motion of the image brightness pattern in time-

varying images, in order to detect and identify multiple motions. Homogeneous regions are found by analysing local linear approximations of ... Cited by 41 - Related articles - All 4 versions

Title: Age differences in perceiving the direction of self-motion from optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:WH Warren, AW Blackwell, MW … - Journal of …, 1989 - geronj.oxfordjournals.org Patterns of optical flow produced at the eye of a moving observer are important for the guidance of locomotion. This study examined age-related changes in the ability to perceive one's direction of self-motion, or heading, from optical flow, using computer displays that simulate ... Cited by 46 - Related articles - ACNP Holdings - All 5 versions

Title: The orthogonal algorithm for optical flow detection using dynamic programming

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:GM Quénot - Proc. IEEE ICASSP, 1992 - Citeseer This paper introduces a new and original algorithm for optical ow detection. It is based on an iterative search for a displacement eld that minimizes the L1 or L2 distance between two images. Both images are sliced into parallel and overlapping strips. Corresponding strips ... Cited by 33 - Related articles - Cached - All 4 versions

Title: On the motion of 3d curves and its relationship to optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:O Faugeras - Computer Vision—ECCV 90, 1990 - Springer Abstract I establish fundamental equations that relate the three dimensional motion of a curve to its observed image motion. I introduce the notion of spatio-temporal surface and study its differential properties up to the second order. In order to do this, I only make the assumption that the ... Cited by 44 - Related articles - All 14 versions

Title: [PDF] Multiple light source optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:RJ Woodham - Proc. 3rd International Conference on Computer Vision …, 1990 - 142.103.6.5Exu + Eyv + Et = О (2) From (1), it is clear that (2) is satisfied if and only if the total derivative dE/dt is zero. Much has been said concerning imaging situations that satisfy, approximately satisfy, or fail to satisfy the optical flow constraint equation (2). Some essential elements ... Cited by 41 - Related articles - All 9 versions

Title: Is super-resolution with optical flow feasible?

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:WY Zhao, H Sawhney - Computer Vision—ECCV 2002, 2002 - Springer Abstract. Reconstruction-based super-resolution from motion video has been an active area of study in computer vision and video analysis. Image alignment is a key component of super-resolution algorithms. Almost all previous super-resolution algorithms have ... Cited by 45 - Related articles - BL Direct - All 4 versions

Title: Relaxing the brightness constancy assumption in computing optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:MA Gennert, S Negahdaripour - AIM-975, 1987 - dspace.mit.edu Abstract: Optical flow is the apparent (or perceived) motion of image brightness patterns arising from relative motion of objects and observer. Estimation of the optical flow requires the application of two kinds of constraint: the flow field smoothness constraint and the brightness ... Cited by 43 - Related articles - All 18 versions

Title: Estimation of optical flow based on higher-order spatiotemporal derivatives in interlaced and non-interlaced image sequences

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:M Otte, HH Nagel - Artificial Intelligence, 1995 - ElsevierThis contribution 1 investigates local differential techniques for estimating optical flow and its derivatives based on the brightness change constraint. By using the tensor calculus representation we build the Taylor expansion of the gray-value derivatives as well as of the optical flow ... Cited by 54 - Related articles - ACNP Holdings - All 7 versions

Title: Alignment of CT lung volumes with an optical flow method

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:L Dougherty, JC Asmuth, WB Geftter - Academic radiology, 2003 - ElsevierThe optical flow method is a coarse-to-fine model-based motion estimation technique for estimating first a global parametric transformation and then local deformations. Five serial pairs of CT images of lung volumes that were misaligned because of patient positioning, respiration, and/or ... Cited by 36 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: [PDF] Robust tracking of multiple objects in sector-scan sonar image sequences using optical flow motion estimation

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:DM Lane, MJ Chantler, D Dai - IEEE journal of oceanic engineering, 1998 - imi.aau.dkAbstract—The fast update rate and good performance of new generation electronic sector scanning sonars is now allowing practicable use of temporal information for signal processing tasks such as object classification and motion estimation. Problems remain, however, as objects ... Cited by 45 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 8 versions

Title: Computing optical flow in the primate visual system

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:HT Wang, B Mathur, C Koch - Neural Computation, 1989 - MIT PressComputing motion on the basis of the time-varying image intensity is a difficult problem for both artificial and biological vision systems. We show how gradient models, a well known class of motion algorithms, can be implemented within the magnocellular pathway of the primate's ... Cited by 40 - Related articles - All 7 versions

Title: Bilateral filtering-based optical flow estimation with occlusion detection

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:J Xiao, H Cheng, H Sawhney, C Rao, M … - Computer Vision—ECCV …, 2006 - SpringerAbstract. Using the variational approaches to estimate optical flow between two frames, the flow discontinuities between different motion fields are usually not distinguished even when an anisotropic diffusion operator is applied. In this paper, we propose a multi-cue driven adaptive ... Cited by 45 - Related articles - BL Direct - All 13 versions

Title: A general motion model and spatio-temporal filters for computing optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:H Liu, TH Hong, M Herman, R Chellappa - International Journal of …, 1997 - SpringerInternational Journal of Computer Vision 22(2), 141–172 (1997) c 1997 Kluwer Academic Publishers. Manufactured in The Netherlands. ... A General Motion Model and Spatio-Temporal Filters for Computing Optical Flow ... HONGCHE LIU, TSAI-HONG HONG AND MARTIN ... Cited by 51 - Related articles - BL Direct - All 21 versions

Title: Symmetrical dense optical flow estimation with occlusions detection

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:L Alvarez, R Deriche, T Papadopoulos, J … - International Journal of …, 2007 - SpringerInternational Journal of Computer Vision 75(3), 371–385, 2007 c 2007 Springer Science + Business Media, LLC. Manufactured in the United States. DOI: 10.1007/s11263-007-0041-4 ... Symmetrical Dense Optical Flow Estimation with Occlusions Detection ... LUIS ALVAREZ Universidad ... Cited by 47 - Related articles - BL Direct - All 16 versions

Title: [BOOK] Introductory techniques for 3-D computer vision

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:E Trucco, A Verri - 1998 - cseweb.ucsd.edu... Page 6. IP tel г ж '• *J,Ms ШШЁЁа / Шш ШЁш * ЮЙ ИР! -■,■тай ■> ш ^^^^ Ч, i, ^ ^ ^ ■ м \ \ Ч -к —Е* - * N —3- - * -> 77 / 7 7> ф + Ч» + \ / 4s ' ' 1 п \ \ \ Figure 8.3 Three frames from a long image sequence (left to right and top to bottom) and the optical flow computed from ... Cited by 1508 - Related articles - All 3 versions

Title: [PDF] Adaptive road following using self-supervised learning and reverse optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:D Lieb, A Lookingbill, S Thrun - Proceedings of robotics: science and …, 2005 - CiteseerAbstract—The majority of current image-based road following algorithms operate, at least in part, by assuming the presence of structural or visual cues unique to the roadway. As a result, these algorithms are poorly suited to the task of tracking unstructured roads typical ... Cited by 40 - Related articles - View as HTML - All 4 versions

Title: Structure and motion from optical flow under orthographic projection

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:K Kanatani - Computer Vision, Graphics, and Image Processing, 1986 - ElsevierThe 3D structure and motion of an object are determined from its optical flow under orthographic projection. The image domain is divided into planar or almost planar regions by checking the flow. For each region, parameters specifying the flow are estimated, and the 3D structure ... Cited by 41 - Related articles - ACNP Holdings - All 3 versions

Title: Image matching as a diffusion process: an analogy with Maxwell's demons

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:JP Thirion - Medical image analysis, 1998 - Elsevier... We show that this concept relates to more traditional ones, based on attraction, with an intermediate step being optical flow techniques. ... Barron et al., 1994J.L. Barron, DJ Fleet and SS Beauchemin, System and experiment: performance of optical flow techniques, Int. J. Comp. ... Cited by 735 - Related articles - ACNP Holdings - All 18 versions

Title: [PDF] Concealment of whole-frame losses for wireless low bit-rate video based on multiframe optical flow estimation

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:S Belfiore, M Grangetto, E Magli, G Olmo - IEEE transactions on …, 2005 - di.unito.it... Concealment of Whole-Frame Losses for Wireless Low Bit-Rate Video Based on Multiframe Optical Flow Estimation ... Index Terms—Optical flow estimation, packet-based video transmission, video error concealment, whole-frame losses, wire- less communications. ... Cited by 50 - Related articles - View as HTML - ACNP Holdings - All 6 versions

Title: Optical flow estimation and the interaction between measurement errors at adjacent pixel positions

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:HH Nagel - International Journal of Computer Vision, 1995 - SpringerAbstract. In order to estimate both components of optical flow as well as their first spatio-temporal derivatives, it is postulated that the Optical Flow Constraint Equation (OFCE) is valid in a spatio-temporal neighborhood of pixels. So far, it has been tacitly assumed that the partial ... Cited by 43 - Related articles - BL Direct - All 4 versions

Title: Biologically plausible visual homing methods based on optical flow techniques

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:A Vardy, R Möller - Connection Science, 2005 - informaworld.comInsects are able to return to important places in their environment by storing an image of the surroundings while at the goal, and later computing a home direction from a matching between this 'snapshot' image and the currently perceived image. Very similar ideas are pursued ... Cited by 57 - Related articles - ACNP Holdings - BL Direct - All 13 versions

Title: Passive navigation

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:AR Bruss, BKP Horn - Computer Vision, Graphics, and Image Processing, 1983 - Elsevier... The optical flow in the image plane is the input, while the instantaneous rotation and translation of the body are the output. If optical flow could be determined precisely, it would only have to be known at a few places to compute the parameters of the motion. ... Cited by 398 - Related articles - ACNP Holdings - All 27 versions

Title: [PDF] Fusing optical flow and stereo disparity for object tracking

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:T Dang, C Hoffmann, C Stiller - Proc. IEEE Int. Conf. Intelligent …, 2002 - cs.auckland.ac.nzFig. 5. Estimated relative velocity (simulation results). «www 130 ua 160 iao геи Fig. 7. estimated disparity field (experimental results). Figure 4 depicts the cumulated Mahajanobis distance for the selected points. After 16 and 17 time steps respectively, the two points belonging to ... Cited by 35 - Related articles - All 3 versions

Title: Dense structure from a dense optical flow sequence

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:Y Xiong, SA Shafer - Computer Vision and Image Understanding, 1998 - ElsevierThis paper presents a structure-from-motion system which deliversdensestructure information from a sequence of dense optical flows. Most traditional feature-based approaches cannot be extended to compute dense structure due to impractical computational complexity. We ... Cited by 31 - Related articles - ACNP Holdings - BL Direct - All 18 versions

Title: Constraints on optical flow computation(for image planes)

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:BG Schunck, BKP Horn - Conference on Pattern Recognition and Image …, 1981 - csa.com. ... Any perceived change in the image irradiance at a point is assumed to be due to motion, which in the optical flow equation is related to the instantaneous velocity of the brightness pattern at that point in the image. ... Cited by 29 - Related articles - All 3 versions

Title: Computation of discontinuous optical flow by domain decomposition and shape optimization

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:C Schnörr - International Journal of Computer Vision, 1992 - SpringerAbstract A well-known method for the reconstruction of motion fields from noisy image data is to determine flow fields by the minimization of a quadratic functional. The first approach of this class has been proposed by Horn and Schunck (1981). A drawback of such approaches ... Cited by 39 - Related articles - All 6 versions

Title: Optical flow-cell multichannel immunosensor for the detection of biological warfare agents

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:S Koch, H Wolf, C Danapel, KA Feller - Biosensors and Bioelectronics, 2000 - ElsevierAn automated optical flow cell multichannel immunosensor for the detection and identification of toxins, viruses and bacterial particles is presented. A solid phase ELISA, based on a peroxidase label for signal generation and on fused silica capillaries as a support for immobilized ... Cited by 36 - Related articles - ACNP Holdings - BL Direct - All 8 versions

Title: Hardware implementation of optical flow constraint equation using FPGAs

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:JL Martín, A Zuloaga, C Cuadrado, J Lázaro, U …; - Computer Vision and …;, 2005 - ElsevierThis paper describes the hardware implementation of a high complexity algorithm to estimate the optical flow from image sequences in real time. Optical flow estimation from image sequences has been for several years a mathematical process carried out by general purpose ... Cited by 41 - Related articles - ACNP Holdings - All 5 versions

Title: Determining optical flow using a differential method

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …;, 1999 - Citeseer
Year:1999

Content:A Bainbridge-Smith, RG Lane - Image and Vision Computing, 1997 - ElsevierA comparison of different methods for determining optical flow based on local information is presented. It is shown that to overcome the aperture problem, second order differential terms of the image function are required. It is also argued that the fundamental problem of ... Cited by 41 - Related articles - ACNP Holdings - BL Direct - All 4 versions

Title: A fast obstacle detection method based on optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …;, 1999 - Citeseer
Year:1999

Content:N Ancona - Computer Vision—ECCV'92, 1992 - SpringerAbstract. This paper presents a methodology, based on the estimation of the optical flow, to detect static obstacles during the motion of a mobile robot. The algorithm is based on a correlation scheme. At any time, we estimate the position of the focus of expansion and stabilize it by ... Cited by 28 - Related articles - All 4 versions

Title: Model of human visual-motion sensing

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …;, 1999 - Citeseer
Year:1999

Content:AB Watson, AJ Ahumada, Jr - Journal of the Optical Society of …;, 1985 - opticsinfobase.org... One view is that the brain detects a physical property of the stimulus, which we may call movement, sometimes also called optical flow.' When this property is detected, the observer has a sensation of visual motion, which may be attached to some visual object. ... Cited by 829 - Related articles - ACNP Holdings - All 13 versions

Title: Unintentional modulations of human gait by optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …;, 1999 - Citeseer
Year:1999

Content:J Pailhous, AM Ferrandez, M Flückiger, B …; - Behavioural brain …;, 1990 - ElsevierVisual whole-field motion is known to trigger motor responses which minimize retinal slip (VOR, OKN and control of balance). In locomotion, however, the retinal slip is utilized to control the velocity and direction of displacement. The present experiment was aimed at ... Cited by 32 - Related articles - ACNP Holdings - All 3 versions

Title: [PDF] Bimodal speech recognition using lip movement measured by optical-flow analysis

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …;, 1999 - Citeseer
Year:1999

Content:K Iwano, S Tamura, S Furui - International Workshop on Hands- …;, 2001 - furui.cs.titech.ac.jpThis paper proposes bimodal speech recognition using lip movements measured by optical-flow analysis. The optical flow is defined as the distribution of apparent velocities of brightness pattern movements. Since the optical flow can be computed without extracting the ... Cited by 27 - Related articles - View as HTML - All 3 versions

Title: [PDF] Bio-inspired optical flow circuits for the visual guidance of micro-air vehicles

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …;, 1999 - Citeseer
Year:1999

Content:F Ruffier, S Viollet, S Amic, N Franceschini - IEEE Int Symposium on …; - laps.univ-mrs.frABSTRACT In 1986, Franceschini et al. built an optronic velocity sensor [11], the principle of which was based on the findings they had recently made on fly EMDs by performing electrophysiological recordings on single neurons while concomitantly applying optical microstimuli to single ... Cited by 34 - Related articles - View as HTML - BL Direct - All 5 versions

Title: Tracking a person with 3D motion by integrating optical flow and depth

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:R Okada, Y Shirai, J Miura, Y … - Systems and Computers …, 2001 - interscience.wiley.comPage 1. Tracking a Person with 3D Motion by Integrating Optical Flow and Depth Ryuzo ... SUMMARY In this paper, a method of tracking a person in three- dimensional motion by integration of optical flow and depth is described. Using ... Cited by 34 - Related articles - ACNP Holdings - BL Direct - All 8 versions

Title: A scalar function formulation for optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:A Amini - Computer Vision—ECCV'94, 1994 - SpringerAbstract. In this work, we present results from a new formulation for determining image velocities from a time-sequence of X-ray projection images of flowing fluid. Starting with the conservation of mass principle, aad physics of X-ray projection, we derive a motion constraint equation ... Cited by 29 - Related articles - All 8 versions

Title: [PDF] Color optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:RJ Andrews, BC Lovell - Proceedings Workshop on Digital Image …, 2003 - CiteseerGrayscale optical-flow methods have long been the fo- cus of methods for recovering optical flow. Optical flow re- covery from color-images can be implemented using direct methods, ie without using computationally costly itera- tions or search strategies. The quality of ... Cited by 28 - Related articles - View as HTML - All 9 versions

Title: Ecological robotics: Controlling behavior with optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:AP Duchon, WH Warren, LP … - Proceedings of the 17th …, 1995 - books.google.comEcological Robotics: Controlling Behavior with Optical Flow Andrew P. Duchon Department of Cognitive and Linguistic Sciences Brown University Providence, RI02912 duchon@ cog. brown. edu William H. Warren department of Cognitive and Linguistic Sciences Brown ... Cited by 34 - Related articles - ACNP Holdings - All 6 versions

Title: Optical stokes flow estimation: an imaging-based control approach

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:P Ruhnau, C Schnörr - Experiments in Fluids, 2007 - SpringerAbstract We present an approach to particle image velocimetry based on optical flow estimation subject to physical constraints. Admissible flow fields are re- stricted to vector fields satisfying the Stokes equation. The latter equation includes control variables that allow to control ... Cited by 37 - Related articles - ACNP Holdings - All 11 versions

Title: Consistent segmentation for optical flow estimation

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:CL Zitnick, N Jojic, SB Kang - 2005 - computer.orgIn this paper, we propose a method for jointly computing optical flow and segmentating video while accounting for mixed pixels (matting). Our method is based on statistical modeling of an image pair using constraints on appearance and motion. Segments are viewed as ... Cited by 38 - Related articles - All 14 versions

Title: An optical flow based method for improved reconstruction of 4D CT data sets acquired during free breathing

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer
Year:1999

Content:J Ehrhardt, R Werner, D Säring, T Frenzel, W Lu, D … - Medical physics, 2007 - link.aip.orgRespiratory motion degrades anatomic position reproducibility and leads to issues affecting image acquisition, treatment planning, and radiation delivery. Four-dimensional (4D) computer tomography (CT) image

acquisition can be used to measure the impact of organ motion and to ... Cited by 35 - Related articles - ACNP Holdings - BL Direct - All 5 versions

Title: An adaptive robotic tracking system using optical flow

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:R LUO, R MULLEN - 1988 IEEE International Conference on Robotics and …, 1988 - csa.com. RENC LUO, ROBER MULLEN ... tracking system. The eye-in-hand system is used to characterize the object trajectory in real time, using a modified optical flow approach. A control ... Cited by 32 - Related articles - All 2 versions

Title: [PDF] Video annotation by motion interpretation using optical flow streams

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

Year:1999

Content:G Sudhir, JCM Lee - Journal of Visual Communication and Image …, 1996 - CiteseerPage 1. Video Annotation by Motion Interpretation using Optical Flow Streams y G. Sudhir and John CM Lee Technical Report HKUST-CS96-16 July 13, 1997 Department of Computer Science The Hong Kong University of Science ... Cited by 38 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 9 versions

Title: Recursive optical flow estimation--adaptive filtering approach

Author: S Baker, T Kanade - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, …, 1999 - Citeseer

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Content:M Elad, A Feuer - Journal of Visual Communication and Image …, 1998 - ElsevierThis paper presents a new approach based on the differential framework proposed by Horn and Schunck, to the problem of recursive optical flow estimation from image sequences. The original method of Horn and Schunck is applicable only to the problem of estimating the optical ... Cited by 23 - Related articles - ACNP Holdings - BL Direct - All 17 versions

Title: Optical flow, spatial orientation, and the control of posture in the elderly

Author: …, Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychogerontology.oxfordjournals.…

Year:1995

Content:... Optical Flow, Spatial Orientation, and the Control of Posture in the Elderly ... The central research question was to determine the sensitivity of the subject's visual system to changes in three standard conditions of optical flow generated by an experimental moving room. ... Cited by 32 - Related articles - ACNP Holdings - BL Direct - All 7 versions

Title: [PDF] Improvement of odometry for omnidirectional vehicle using optical flow information

Author: …, Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychogerontology.oxfordjournals.…

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Content:K Nagatani, S Tachibana, M Sofue, Y … - IEEE/RSJ Int. Conference …, 2000 - 70.88.136.210This paper is posted at eScholarship@OUDIR : Okayama University Digital Information Repository. http://escholarship.lib.okayama-u.ac.jp/industrial engineering/69 ... Proceedings of the 2000 IEEE/RSJ International Conference on Intelligent Robots and Systems Cited by 30 - Related articles - View as HTML - All 6 versions

Title: Optimal filters for extended optical flow

Author: …, Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychogerontology.oxfordjournals.…

Year:1995

Content:H Scharr - Complex Motion, 2007 - SpringerAbstract. Estimation of optical flow and physically motivated brightness changes can be formulated as parameter estimation in linear models. Accuracy of this estimation heavily depends on the filter families used to implement the models. In this paper we focus on models whose ... Cited by 34 - Related articles - BL Direct - All 6 versions

Title: Optical flow estimation and segmentation of multiple moving dynamic textures

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Content:R Vidal, A Ravichandran - 2005 - computer.orgWe consider the problem of modeling a scene containing multiple dynamic textures undergoing multiple rigid-body motions, eg, a video sequence of water taken by a rigidly moving camera. We propose to model each moving dynamic texture with a time varying linear ... Cited by 32 - Related articles - BL Direct - All 11 versions

Title: [PDF] Techniques for evaluating optical flow for visual odometry in extreme terrain

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Content:J Campbell, R Sukthankar, I Nourbakhsh - Proc. of Intelligent Robots and …, 2004 - CiteseerCopyright © Intel Corporation 2004 * Other names and brands may be claimed as the property of others. ... Jason Campbell 1,2 jason.d.campbell@intel.com ... Rahul Sukthankar 1,2 rahul.sukthankar@intel.com ... 2Robotics Institute, Carnegie Mellon Pittsburgh, PA USA Cited by 34 - Related articles - View as HTML - All 17 versions

Title: [PDF] Spatio-temporal image segmentation using optical flow and clustering algorithm

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Content:S Galić, S Lončarić, EN Tesla - … of the First International Workshop on …, 2000 - CiteseerImage segmentation is an important and challenging problem in image analysis. Segmentation of moving objects in image sequences is even more difficult and computationally expensive. In this work we propose a technique for spatio-temporal segmentation of medical image ... Cited by 24 - Related articles - View as HTML - All 11 versions

Title: Optimal control formulation for determining optical flow

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Title: [PDF] Optical velocity patterns, velocity-sensitive neurons, and space perception: a hypothesis

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

Year:1995

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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

Year:1995

Content:D DeCarlo, D Metaxas - IEEE Transactions on Pattern Analysis and …, 2002 - CiteseerWe present a method for estimating the shape of a deformable model using the least-squares residuals from a model-based optical flow computation. This method is built on top of an estimation framework using optical flow and image features, where optical flow affects only the ... Cited by 34 - Related articles - View as HTML - BL Direct - All 21 versions

Title: [PDF] Pyramidal implementation of the lucas kanade feature tracker description of the algorithm

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Title: Image stabilization and mosaicking using the overlapped basis optical flow field

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Content:S Srinivasan, R Chellappa - … on Image Processing (ICIP'97) 3- …, 1997 - portal.acm.orgImage stabilization and image mosaicking are fundamental image sequence operations that compensate for camera motion. Stabilization is a precursor to background deletion, region of interest extraction, motion discontinuity estimation and video compression. The ... Cited by 26 - Related articles - All 4 versions

Title: [PDF] Optical flow estimation using high frame rate sequences

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Title: Field theory approach for determining optical flow

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Title: The use of optical flow for the autonomous navigation

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Title: Structure and motion from optical flow under perspective projection

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
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Title: Optical flow estimation using wavelet motion model

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

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Content:S Vedula, S Baker, P Rander, R Collins, T … - IEEE Transactions on …, 2005 - computer.org... Abstract—Just as optical flow is the two-dimensional motion of points in an image, scene flow is the three-dimensional motion of points in the world. ... However, optical flow is just a two-dimensional motion field in the image plane. ... Cited by 182 - Related articles - All 36 versions

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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Title: [PDF] Optical flow recognition from the power spectrum of a single blurred image

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

Year:1995

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Title: Non uniform multiresolution method for optical flow and phase portrait models: Environmental applications

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Title: Factors influencing the structure and shape of stenotic and regurgitant jets: An in vitro investigation using Doppler color flow mapping and optical flow visualization

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…

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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

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Title: [PDF] Optical flow-based person tracking by multiple cameras

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
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Content:H Tsutsui, J Miura, Y Shirai - Proc. MVA, 1998 - CiteseerThis paper describes optical ow-based person tracking using multiple cameras in an indoor envi- ronment. There are usually several objects in indoor environments which may obstruct a camera view. If we use only one camera, tracking may fail when the target is occluded ... Cited by 29 - Related articles - View as HTML - All 11 versions

Title: The performance of camera translation direction estimators from optical flow: Analysis, comparison, and theoretical limits

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
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Title: Image registration, optical flow and local rigidity

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

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Title: Equivalence of subpixel motion estimators based on optical flow and block matching

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

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Title: 'Bee-bot'; using peripheral optical flow to avoid obstacles

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

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Title: Total least squares fitting spatiotemporal derivatives to smooth optical flow fields

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

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Title: Decoupling Fourier components of dynamic image sequences: A theory of signal separation, image segmentation, and optical flow estimation

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychogerontology.oxfordjournals.org …

Year: 1995

Content: D Vernon - Computer Vision—ECCV'98, 1998 - Springer Abstract. This paper presents a new Fourier-based approach to the separation or decoupling of m additive images from a time-sequence of the sum of these images where at least $m \geq 1$ images are translating with distinct and unique velocity. A closed-form solution is presented for ... Cited by 27 - Related articles - BL Direct - All 7 versions

Title: A new approach to study cardiac motion: The optical flow of cine MR images

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychogerontology.oxfordjournals.org …

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Content: SC Amartu, HJ Vesselle - Magnetic Resonance in Medicine, 1993 - interscience.wiley.com We present a novel approach to study the intricate motion of the heart using the optical flow technique applied to cine MR images. The method uses image brightness variations between consecutive frames to compute in-plane displacements or velocities of moving image features. The ... Cited by 26 - Related articles - ACNP Holdings - BL Direct - All 3 versions

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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychogerontology.oxfordjournals.org …

Year: 1995

Content: S Keeling - Mathematical Models for Registration and Applications …, 2006 - Springer Institut für Mathematik, Karl Franzens Universität Graz stephen.keeling@uni-graz.at Abstract In this paper a variational method for registering or mapping like points in medical images is proposed and analyzed. The proposed variational principle penalizes a departure from ... Cited by 31 - Related articles - BL Direct - All 10 versions

Title: Analysis of optical flow models in the framework of the calculus of variations

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychogerontology.oxfordjournals.org …

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Content: W Hinterberger, O Scherzer, C Schnörr, … - Numerical Functional …, 2002 - informaworld.com In image sequence analysis, variational optical flow computations require the solution of a parameter dependent optimization problem with a data term and a regularizer. In this paper we study existence and uniqueness of the optimizers. Our studies rely on quasiconvex functionals on the ... Cited by 27 - Related articles - ACNP Holdings - BL Direct - All 6 versions

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Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychogerontology.oxfordjournals.org …

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Content: SJ Maybank - Image and Vision Computing, 1986 - Elsevier An algorithm for analysing the optical flow field due to a camera moving through a rigid environment is presented. It relies on a least-squares estimate of the errors associated with possible values for the translational velocity. If the surfaces in view are irregular then some of the ... Cited by 28 - Related articles - ACNP Holdings - All 3 versions

Title: [PDF] Person tracking by integrating optical flow and uniform brightness regions

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychogerontology.oxfordjournals.org …

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Content:T Yamane, Y Shirai, J Miura - IEEE International Conference on Robotics & Automation, 1998 - CiteseerVisual object tracking is useful for various applications such as visual surveillance and gesture recognition. Several techniques for visual object tracking have been proposed. Some of them are based on subtraction between frames[1]. This method cannot be applied to the case ... Cited by 26 - Related articles - View as HTML - BL Direct - All 7 versions

Title: [PDF] Real-time optical flow

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

Year:1995

Content:T Camus - TECHNICAL PAPERS-SOCIETY OF …, 1994 - CiteseerPage 1. Real-Time Optical Flow PhD Thesis Ted Camus Department of Computer Science Brown University, Providence, RI 02912, USA. ... 5 Page 18. Chapter 2 Optical Flow The primary difficulty with computer vision is that a single 2-dimensional image can arise ... Cited by 39 - Related articles - View as HTML - BL Direct - All 10 versions

Title: MRI monitoring of laser ablation using optical flow

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

Year:1995

Content:… , PR Morrison, MP Fried, SG Hushek, … - Journal of …, 1998 - interscience.wiley.comThe optical flow method is used for visualizing and quantifying the dynamics of tissue changes observed by MRI during thermal ablations. An approach was implemented for parallel two-dimensional optical flow calculations including the replacement of spurious velocities. Velocity ... Cited by 27 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: [PDF] Gait analysis for recognition and classification

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

Year:1995

Content:L Lee, WEL Grimson - Proceedings of the IEEE Conference on Face and …, 2002 - Citeseer... Polana and Nelson [14] detected periodicity in optical flow and used these to recognize activities such as frogs jumping and human walking. ... Little and Boyd [11] used moment features and periodicity of foreground silhouettes and optical flow to identify walkers. Nixon, et al. ... Cited by 276 - Related articles - View as HTML - All 8 versions

Title: [PDF] Motion regularization for model-based head tracking

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

Year:1995

Content:S Basu, I Essa, A Pentland - International Conference on Pattern …, 1996 - Citeseer... This method uses a 3D ellipsoidal model of the head and interprets the optical flow in terms of the possible rigid motions of the model. ... In their method head motion is tracked by interpretation of optical flow in terms of a planar two-dimensional patch. ... Cited by 203 - Related articles - View as HTML - BL Direct - All 21 versions

Title: Optical flow computation in the log-polar plane

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

Year:1995

Content:K Daniilidis, V Krüger - Computer Analysis of Images and Patterns, 1995 - SpringerComputer Science Institute, Christian-Albrechts University Kiel Preusserstr. 1-9, 24105 Kiel, Germany email: kd@informatik.uni-kiel.de Abstract. The goal of this paper is to study how the logarithmic-polar mapping affects the spatiotemporal volume and the computation of the ... Cited by 24 - Related articles - All 5 versions

Title: Variable bandwidth qmdpe and its application in robust optical flow estimation

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

Year:1995

Content:H Wang, D Suter - 2003 - computer.orgRobust estimators, such as Least Median of Squared (LMedS) Residuals, M-estimators, the Least Trimmed Squares (LTS) etc., have been employed to estimate optical flow from image sequences in recent years. However, these robust estimators have a breakdown point of no more ... Cited by 23 - Related articles - All 17 versions

Title: [PDF] Optical flow estimation

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
Year:1995

Content:D Fleet, Y Weiss - Handbook of Mathematical Models in …, 2006 - leibniz.iimas.unam.mxMotion is an intrinsic property of the world and an integral part of our visual experience. It is a rich source of information that supports a wide variety of visual tasks, including 3D shape acquisition and oculomotor control, perceptual organization, object recognition and scene ... Cited by 28 - Related articles - View as HTML - All 20 versions

Title: [PDF] Probabilistic and sequential computation of optical flow using temporal coherence

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
Year:1995

Content:TM Chin, WC Karl, AS Willsky - IEEE Transactions on Image …, 1994 - bubbles.lids.mit.eduAbstract- In the computation of dense optical flow fields, spatial coherence constraints are commonly used to regularize otherwise ill-posed problem formulations, providing spatial integration of data. In this paper, we present a temporal, multiframe extension of the dense optical flow ... Cited by 27 - Related articles - View as HTML - ACNP Holdings - All 13 versions

Title: [PDF] Time-to-passage judgments in nonconstant optical flow fields

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
Year:1995

Content:MK Kaiser, H Hecht - Perception and Psychophysics, 1995 - CiteseerAs an observer moves through the environment, the temporal ranges of objects are specified by optical variables. Specifically, the time until an object passes the observer's eye plane (ie, the plane perpendicular to the observer's motion vector) is approximated by the ... Cited by 27 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 7 versions

Title: Computing occluding and transparent motions

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
Year:1995

Content:M Irani, B Rousso, S Peleg - International Journal of Computer Vision, 1994 - Springer... Analysis of multiple moving objects based on optical flow (Adiv 1985) suffers from this inaccuracy. Increasing the temporal region to more than two frames improves the accuracy of the computed optical flow. ... Optical flow using spatiotemporal filters, Intern. J. Comput. Vis. ... Cited by 355 - Related articles - BL Direct - All 8 versions

Title: A unified mixture framework for motion segmentation: Incorporating spatial coherence and estimating the number of models

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
Year:1995

Content:Y Weiss, EH Adelson - cvpr, 1996 - computer.org... To generalize this approach to large motions, we first used a nonlinear multiscale optical flow algorithm to align the two images (the optical flow algorithm used is described in [14]). ... 3.2 The disc sequence The optical flow estimated for the disc sequence is shown in figure 3a. ... Cited by 228 - Related articles - BL Direct - All 22 versions

Title: Segmentation of optical flow fields by pyramid linking

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …
Year:1995

Content:R Hartley - Pattern Recognition Letters, 1985 - ElsevierA method of image segmentation known as pyramid linking was developed several years ago for segmenting images into gray level subpopulations. This method is applied here to the segmentation of optical flow fields. The algorithm makes use of a hierarchical data structure, called a ... Cited by 25 - Related articles - ACNP Holdings - All 2 versions

Title: [PDF] Motion segmentation from optical flow

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…
Year:1995

Content:A Verri, S Uras, E DeMicheli - Proc the 5th Alvey Vision Conference, …, 1989 - bmva.orgThis note describes two different methods for motion segmentation from optical flow. In the first method, the Jacobian matrix of the first spatial derivatives of the components of optical flow is used to compute the amount of uniform expansion, pure rotation, and shear at every ... Cited by 21 - Related articles - View as HTML - All 2 versions

Title: Perception of optical flow in cortical blindness: a case report

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…
Year:1995

Content:DR Mestre, M Brouchon, M Ceccaldi, M Poncet - Neuropsychologia, 1992 - ElsevierMotion perception was studied in a subject with bilateral lesion of the visual cortex, involving severe damage to cortical areas V1 and V4, but with no apparent damage to visual associative areas situated in occipito-parietal and lateral occipito-temporal (presumably V5) zones. ... Cited by 26 - Related articles - ACNP Holdings - All 3 versions

Title: Hypergeometric filters for optical flow and affine matching

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…
Year:1995

Content:Y Xiong, SA Shafer - International Journal of Computer Vision, 1997 - SpringerAbstract. This paper proposes new "hypergeometric" filters for the problem of image matching under the translational and affine model. This new set of filters has the following advantages: (1) High-precision registration of two images under the translational and ... Cited by 24 - Related articles - BL Direct - All 16 versions

Title: [PDF] Spatial filtering requirements for gradient-based optical flow measurement

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…
Year:1995

Content:WJ Christmas - IEEE Trans. Image Processing, 2000 - CiteseerWhen using a gradient-based method to determine the optical flow field for an image sequence, it is generally appreciated that some spatial pre-filtering of the images is usually needed, particularly for large motion values. However the characteristics of the filter are ... Cited by 24 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 25 versions

Title: [PS] Wavelets for a vision

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…
Year:1995

Content:S Mallat - Proceedings of the IEEE, 1996 - cmapx.polytechnique.fr... Applications to stereo vision and optical flow measurements are described. Local ... Page 3. Ше Callida CrCaICS аП intensity displacement, the velocity of this gray level displacement in the image plane is called the optical flow. If ... Cited by 206 - Related articles - ACNP Holdings - BL Direct - All 7 versions

Title: Optical flow applied to person identification

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals.…
Year:1995

Content:P Kruizinga, N Petkov - Proc. EUROSIM Conf. Massively Parallel …, 1994 - Citeseer: We propose to compute a vector field, similar to the optical flow computed between successive frames of an image sequence, which

maps optimally (in a certain sense) one face image onto another face image. A cost of the mapping is computed and used to quantify the ... Cited by 18 - Related articles - Cached - All 2 versions

Title: A paradigm for invariant object recognition of brightness, optical flow and binocular disparity images

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

Year:1995

Content:L Jacobson, H Wechsler - Pattern Recognition Letters, 1982 - ElsevierWe suggest the Wigner distribution (WD) for the analysis of 2-D images. The WD can be used to rigorously define a local power-spectrum at each point of an image. Furthermore, an invariant representation of a given image can be obtained by applying a complex-logarithmic (CL) ... Cited by 24 - Related articles - ACNP Holdings

Title: Generation and control of tracer particles for optical flow investigations in air

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

Year:1995

Content:C Kähler, B Sammler, J Kompenhans - Experiments in Fluids, 2002 - SpringerAbstract The production of monodisperse tracer particles with suitable properties for optical flow investigations, such as small size, spherical shape, smooth surface, appropriate density and diffraction index, non-evaporating and agglomerating, electrically neutral, non-toxic and ... Cited by 23 - Related articles - ACNP Holdings - BL Direct - All 8 versions

Title: [PDF] Maze navigation using optical flow

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

Year:1995

Content:AP Duchon - From animals to animats, 1996 - cs.umu.seAbstract Some recent work with autonomous robots has focused on using optical flow for "direct" control of speed and rotation in obstacle avoidance and other simple behaviors. This work has been inspired by work with insects showing similar mechanisms. To extend ... Cited by 23 - Related articles - View as HTML - All 3 versions

Title: Estimating piecewise-smooth optical flow with global matching and graduated optimization

Author: … Wade, R Lindquist, JR Taylor, D … - The Journals …, 1995 - psychsocgerontology.oxfordjournals. …

Year:1995

Content:M Ye, RM Haralick, LG Shapiro - IEEE Transactions on Pattern …, 2003 - computer.orgAdditional constraints on the flow are obtained from various flow field models [2], [4]. Among them, we are particularly interested in piecewise smooth models [5] because they are applicable to general scenes and are indispensable building blocks, leading to more complex ... Cited by 22 - Related articles - BL Direct - All 12 versions

Title: Recovery of rigid structure from orthographically projected optical flow

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:Retinal velocity field generated by orthographic projection of a moving rigid object is studied. It is shown that, given a velocity field at one moment, the possible interpretation of motion and structure admits three degrees of freedom; two of them are due to freedom in choice of the ... Cited by 23 - Related articles - ACNP Holdings - All 3 versions

Title: Measuring 3-D plant growth using optical flow

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:JL Barron, A Liptay - Bioimaging, 1997 - interscience.wiley.comWe have presented a non-contact optical method [1] for measuring minute amounts of plant growth using optical flow calculations on an image sequence of a sprouting young corn seedling. This method eliminates the plant contact required by use of displacement transducers [2-4]. ... Cited by 20 - Related articles - ACNP Holdings - BL Direct - All 3 versions

Title: Recognizing human motion using parameterized models of optical flow

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content: SX JU - Motion-Based Recognition, 1997 - books.google.com RECOGNIZING HUMAN MOTION USING
PARAMETERIZED MODELS OF OPTICAL FLOW MICHAEL J. BLACK Xerox Palo Alto Research Center, Palo Alto, CA
94304, USA YASER YACOOB Computer Vision Laboratory, Center for Automation Research University of Maryland,
College Park, ... Cited by 24 - Related articles - BL Direct - All 14 versions

Title: Optic flow is used to control human walking

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content: WH Warren, BA Kay, WD Zosh, AP Duchon, S … - Nature …; 2001 - nature.com How is
human locomotion visually controlled? Fifty years ago, it was proposed that we steer to a goal using optic flow, the
pattern of motion at the eye that specifies the direction of locomotion. However, we might also simply walk in the
perceived direction of a goal. ... Cited by 248 - Related articles - ACNP Holdings - BL Direct - All 3 versions

Title: [PDF] Steerable filters and cepstral analysis for optical flow calculation from a single blurred image

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content: IM Rekleitis - Vision Interface, 1996 - Citeseer This paper considers the explicit use of motion blur to
compute the Optical Flow. In the past, many algorithms have been proposed for estimating the relative velocity
from one or more images. The motion blur is generally considered an extra source of noise and is ... Cited by 22 -
Related articles - View as HTML - All 10 versions

Title: [PS] Image reconstruction error for optical flow

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content: T Lin, JL Barron - Vision Interface, 1994 - csd.uwo.ca Abstract We examined a number of ways to
perform forward and backward image reconstruction. Given an image and its optical flow, we generated the next
image in the sequence. Image reconstruction techniques are used in motion compensated image ... Cited by 24 -
Related articles - View as HTML - All 5 versions

Title: Fast B-spline Transforms for Continuous Image Representation and Interpolation (PDF)

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content: M Unser, A Aldroubi, M Eden - IEEE Transactions on Pattern Analysis and …; - computer.org...
They appear to be superior to the conventional Gauss-Seidel approach, particularly for large values of X. Further, a
problem that could benefit from this approach is the area-based estimation of optical flow in the Horn and Schunk
formulation [111. ... Cited by 358 - Related articles - All 14 versions

Title: Detecting moving objects, ghosts, and shadows in video streams

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content: R Cucchiara, C Grana, M Piccardi, A …; - IEEE Transactions on …;, 2003 - computer.org... To
measure motion, for each pixel belonging to an object, we compute the spatiotemporal differential equations for
optical flow approximation, in accordance with [18]. ... However, computing the optical flow is not reliable on
uniform areas such as shadows. ... Cited by 486 - Related articles - BL Direct - All 28 versions

Title: Piecewise-smooth dense optical flow via level sets

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content: T Amiaz, N Kiryati - International Journal of Computer Vision, 2006 - Springer International Journal of
Computer Vision 68(2), 111-124, 2006 cс 2006 Springer Science + Business Media, LLC. Manufactured in
The Netherlands. DOI: 10.1007/s11263-005-6206-0 ... Piecewise-Smooth Dense Optical Flow via Level Sets ...
T.AMAIAZ AND N.KIRYATI ... Cited by 23 - Related articles - BL Direct - All 10 versions

Title: Dense disparity map estimation respecting image discontinuities: A PDE and scale-space based approach

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:L Alvarez, R Deriche, J Sánchez, J Weickert - Journal of Visual &…; 2002 - Elsevier... 3. L. Alvarez, J. Weickert, and J. Sánchez, A scale-space approach to nonlocal optical flow calculations, in Scale-Space Theories in Computer VisionM. ... 4. L. Alvarez, J. Weickert and J. Sánchez, Reliable estimation of optical flow for large displacements. Internat. J. Comput. ... Cited by 165 - Related articles - ACNP Holdings - BL Direct - All 16 versions

Title: Perception of accelerating self-motion: Global optical flow rate dominates discontinuity rate
Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:BP Dyre - Human Factors and Ergonomics Society Annual &…; 1997 - ingentaconnect.comOwen, Wolpert, and Warren (1984) proposed that egospeed may be perceived from global optical flow rate, discontinuity rate, or both. Previous psychophysical research found that both sources of information influence judgments of acceleration and control of egospeed, but that ... Cited by 18 - Related articles - BL Direct - All 2 versions

Title: A volumetric optical flow method for measurement of brain deformation from intraoperative magnetic resonance images

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:N Hata, A Nabavi, S Warfield, W Wells, R Kikinis &…; - &…; Image Computing and &…; 1999 - SpringerC. Taylor, A. Colchester (Eds.): MICCAI'99, LNCS 1679, pp. 928-935, 1999.  Springer-Verlag Berlin Heidelberg 1999 ... A Volumetric Optical Flow Method for Measurement of Brain Deformation from Intraoperative Magnetic Resonance Images ... Nobuhiko Hata, Arya Nabavi, Simon ... Cited by 19 - Related articles - BL Direct - All 2 versions

Title: High accuracy optical flow serves 3-D pose tracking: exploiting contour and flow based constraints

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:T Brox, B Rosenhahn, D Cremers, HP &…; - Computer Vision-ECCV &…; 2006 - SpringerAbstract. Tracking the 3-D pose of an object needs correspondences between 2-D features in the image and their 3-D counterparts in the object model. A large variety of such features has been suggested in the literature. All of them have drawbacks in one situation or the other ... Cited by 22 - Related articles - BL Direct - All 21 versions

Title: [PDF] Multiwindow least-squares approach to the estimation of optical flow with discontinuities

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:F Bartolini, V Cappellini, C Colombo, A &…; - OPTICAL ENGINEERING- &…; 1993 - CiteseerPage 1. A multiwindow least squares approach to the estimation of optical flow with discontinuities F.Bartolini, V.Cappellini ... Abstract The use of optical flow fields in image sequence analysis allows to perform motion-based segmentation as well as 3-D reconstruction. Many ... Cited by 19 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 8 versions

Title: [PDF] Performance of optical flow techniques for indoor navigation with a mobile robot

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:C McCarthy, N Barnes - IEEE International Conference on &…; 2004 - users.cecs.anu.edu.auAbstract—We present a comparison of four optical flow methods and three spatio-temporal filters for mobile robot navigation in corridor-like environments. Previous comparisons of optical flow methods have evaluated performance only in terms of accuracy and/or efficiency, and ... Cited by 20 - Related articles - View as HTML - BL Direct - All 9 versions

Title: Matching object models to segments from an optical flow field

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:H Kollnig, HH Nagel - Computer Vision—ECCV'96, 1996 - SpringerAbstract. The temporal changes of gray value structures recorded in an image sequence contain significantly more information about the re- corded

scene than the gray value structures of a single image. By incorporating optical flow estimates into the measurement function, our 3D ... Cited by 18 - Related articles - BL Direct - All 2 versions

Title: Integration of stereo vision and optical flow by using an energy-minimization approach
Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:NM Nasrabadi, SP Clifford, Y Liu - Journal of the Optical Society …, 1989 - opticsinfobase.orgReceived November 2, 1988; accepted February 23, 1989 A cooperative method is proposed in which image intensity (brightness) and optical-flow information are integrated into a single stereo technique by modeling the input data as coupled Markov random fields (MRF's). ... Cited by 20 - Related articles - ACNP Holdings - All 11 versions

Title: Optical flow detection using a general noise model
Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:N Ohta - IEICE TRANSACTIONS on Information and Systems, 1996 - search.ieice.orgSummary: In the usual optical flow detection, the gradient constraint, which expresses the relationship between the gradient of the image intensity and its motion, is combined with the least-squares criterion. This criterion means assuming that only the time derivative of the image intensity ... Cited by 16 - Related articles - Cached - BL Direct

Title: [PDF] Cardboard people: A parameterized model of articulated image motion
Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:SX Ju, MJ Black, Y Yacoob - … of the 2nd International Conference on …, 1996 - Citeseer... connected planar patches: the cardboard person model illustrated in Figure 1. In the case of faces, Black and Yacoob [5] showed that a planar model could well approximate the motion of a human head and that it provides a concise description of the optical flow within a region. ... Cited by 376 - Related articles - View as HTML - All 24 versions

Title: [PDF] Text, Speech, and Vision for Video Segmentation: The Informedia TM Project
Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:AG Hauptmann, MA Smith - AAAI Fall 1995 Symposium on Computational … - Citeseer... Optical Flow One important method of visual segmentation and description is based on interpreting camera motion 0 20 40 60 80 100 120 ... [Akutsu94]. We can interpret camera motion as a pan or zoom by examining the geometric properties of the optical flow vectors. ... Cited by 134 - Related articles - View as HTML - All 9 versions

Title: Robust and efficient computation of optical flow
Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:SH Lai, BC Vemuri - International Journal of Computer Vision, 1998 - CiteseerIn this paper, we present two very efficient and accurate algorithms for computing optical flow. The first is a modified gradient-based regularization method, and the other is an SSDbased regularization method. To amend the errors in the image flow constraint caused by the ... Cited by 15 - Related articles - Cached

Title: FPGA processor for real-time optical flow computation
Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:S Maya-Rueda, M Arias-Estrada - Field-Programmable Logic and …, 2003 - Springer... 1103-1106, 2003.  Springer-Verlag Berlin Heidelberg 2003 FPGA Processor for Real-Time Optical Flow Computation Selene Maya-Rueda and Miguel Arias-Estrada ... Abstract. In this work an FPGA-based architecture for optical flow computation in real-time is presented. ... Cited by 15 - Related articles - BL Direct - All 2 versions

Title: Accurate optical flow computation under non-uniform brightness variations
Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier
Year:1984

Content:CH Teng, SH Lai, YS Chen, WH Hsu - Computer Vision and Image …, 2005 - ElsevierIn this paper, we present a very accurate algorithm for computing optical flow with non-uniform brightness variations. The proposed algorithm is based on a generalized dynamic image model (GDIM) in conjunction with a regularization framework to cope with the problem of non- ... Cited by 23 - Related articles - ACNP Holdings - All 9 versions

Title: Processing images and video for an impressionist effect

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:P Litwinowicz - Proceedings of the 24th annual conference on …, 1997 - portal.acm.org... Most significantly, this paper presents a process that uses optical flow fields to push brush strokes from frame to frame in the direction of pixel movements. ... Figure 5. Two frames and the optical flow field that maps pixels from one frame to another. Page 5. ... Cited by 279 - Related articles - ACNP Holdings - All 32 versions

Title: Over-parameterized variational optical flow

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:T Nir, AM Bruckstein, R Kimmel - International Journal of Computer Vision, 2008 - SpringerAbstract A novel optical flow estimation process based on a spatio-temporal model with varying coefficients multiply- ing a set of basis functions at each pixel is introduced. Previ- ous optical flow estimation methodologies did not use such an over parameterized representation of ... Cited by 22 - Related articles - BL Direct - All 18 versions

Title: MRF solutions for probabilistic optical flow formulations

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:S Roy, V Govindu - icpr, 2000 - computer.orgIn this paper we propose an efficient, non-iterative method for estimating optical flow. We develop a probabilistic framework that is appropriate for describing the inherent uncertainty in the brightness constraint due to errors in image derivative computation. We separate the flow into two ... Cited by 20 - Related articles - BL Direct - All 21 versions

Title: Colorization using optimization

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:A Levin, D Lischinski, Y Weiss - ACM SIGGRAPH 2004 Papers, 2004 - portal.acm.org... Colors in the vicinity of moving edges are as- signed using optical flow, which often requires manual fixing by the operator. ... More formally, let $v_x(x,y), v_y(x,y)$ denote the optical flow calculated at time t . Then the pixel (x_0, y_0, t) is a neighbor of pixel $(x_1, y_1, t + 1)$ if: ... Cited by 265 - Related articles - BL Direct - All 33 versions

Title: Realtime 3D Optical Flow Generation System.

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:S KAGAMI, KEI OKADA, M INABA, H … - Nippon Robotto Gakkai …, 1999 - sciencelinks.jpAbstract;3D optical flow enables to detect moving object while robot is also moving. This paper describes 3D optical flow generation method by combining depth map generation and 2D optical flow generation. Then three key issues, 1) recursive correlation calculation technique, 2) ... Cited by 15 - Related articles - Cached

Title: Estimating optical flow with cellular neural networks

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:BE Shi, T Roska, LO Chua - International Journal of Circuit …, 1998 - interscience.wiley.comThe cellular neural network is a locally interconnected neural network capable of high-speed computation when implemented in analog VLSI. This work describes a CNN algorithm for estimating the optical flow from an image sequence. The algorithm is based on the spatio-temporal ... Cited by 21 - Related articles - BL Direct - All 3 versions

Title: Detecting and tracking multiple moving objects using temporal integration

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:M Irani, B Rousso, S Peleg - Computer Vision—ECCV'92, 1992 - Springer... 1 Introduction Motion analysis, such as optical flow [7], is often performed on the smallest possible re- gions, both in the temporal domain and in the spatial domain. ... Analysis of multiple moving objects based on optical flow.[1] suffers from this inaccuracy. ... Cited by 200 - Related articles - All 8 versions

Title: Discrete, spatiotemporal, wavelet multiresolution analysis method for computing optical flow (Journal Paper)

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:TJ Burns, SK Rogers, DW Ruck, ME Oxley - Optical Engineering - spie.orgA wavelet-based system for computing localized velocity fields associated with time-sequential imagery is described. The approach combines the mathematical rigor of the multiresolution wavelet analysis with well-known spatiotemporal frequency flow computation principles. The ... Cited by 18 - Related articles - Cached - ACNP Holdings - BL Direct - All 4 versions

Title: Optical flow using textures* 1

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:MA Arredondo, K Lebart, D Lane - Pattern Recognition Letters, 2004 - ElsevierMotion estimation is a key problem in the analysis of image sequences. From a sequence of images we can only estimate an approximation of the image motion field called optical flow. We propose to improve optical flow estimation by including information from images of ... Cited by 17 - Related articles - ACNP Holdings - All 10 versions

Title: Development of a precipitation nowcasting algorithm based upon optical flow techniques

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:NEH Bowler, CE Pierce, A Seed - Journal of Hydrology, 2004 - ElsevierA new advection-based nowcasting scheme for precipitation has been developed for the Gandolf system. The method employed removes the need to split the radar analysis into contiguous rain areas (CRA's) and uses a smoothness constraint. Thus, it is similar to the Variational ... Cited by 20 - Related articles - All 6 versions

Title: Optical flow from constraint lines parametrization

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:D Ben-Tzvi, A Del Bimbo, P Nesi - Pattern Recognition, 1993 - ElsevierOptical flow is a measure of the change of image brightness in a frame sequence and is commonly used as an approximation of the velocity field, which is the perspective projection of the three-dimensional (3D) real velocity on the image plane. One method for evaluating ... Cited by 20 - Related articles - ACNP Holdings - BL Direct - All 2 versions

Title: [PDF] Real-time moving obstacle detection using optical flow models

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:C Braillon, C Pradalier, JL Crowley, C … - IEEE Intelligent Vehicle …, 2006 - Citeseer... Abstract—In this paper, we propose a real-time method to detect obstacles using theoretical models of optical flow fields. The idea of our approach is to segment the image in two layers: the pixels which match our optical flow model and those that do not (ie the obstacles). ... Cited by 18 - Related articles - View as HTML - All 10 versions

Title: On functionals with greyvalue-controlled smoothness terms for determining optical flow

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:C Schnoerr - IEEE Transactions on Pattern Analysis and Machine …, 1993 - computer.orgREFERENCES M. Abramowitz and IA Stegun, Handbook of Mathematical Functions. Boulder, CO: Nat. Bur. Stds., 1964, vol. 55, Appl. Math. Ser. MF Barnsley et al., The Science of Fractals. New York: Springer- Verlag, 1988. PJ Burt and EH Ad&on, "The Laplacian ... Cited by 19 - Related articles - BL Direct - All 6 versions

Title: A Mathematical Study of the Relaxed Optical Flow Problem in the Space $BV(\Omega)$

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:G Aubert, P Kornprobst - SIAM Journal on Mathematical Analysis, 1999 - link.aip.orgThis paper describes a variational approach for estimating a discontinuous optical flow from a sequence of images. Defined as the apparent motion of the image brightness pattern, the optical flow is very important in the computer vision community, where its accurate estimation is ... Cited by 17 - Related articles - ACNP Holdings - BL Direct - All 9 versions

Title: [PDF] A fully automated content-based video search engine supporting spatiotemporal queries

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:SF Chang, W Chen, HJ Meng, H Sundaram, D … - IEEE Transactions on …, 1998 - Citeseer... A hierarchical pixel-domain motion estimation method [3] is used to extract the optical flow. ... Edge information is also incorporated into the segmentation process to improve the accuracy. Optical flow is utilized to project and track color regions through a video sequence. ... Cited by 356 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 14 versions

Title: Optical flow-based real-time object tracking using non-prior training active feature model

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:J Shin, S Kim, S Kang, SW Lee, J Paik, B Abidi, M … - Real-time imaging, 2005 - ElsevierThis paper presents a feature-based object tracking algorithm using optical flow under the non-prior training (NPT) active feature model (AFM) framework. The proposed tracking procedure can be divided into three steps: (i) localization of an object-of-interest, (ii) prediction and ... Cited by 19 - Related articles - ACNP Holdings - All 12 versions

Title: A probabilistic approach to large displacement optical flow and occlusion detection

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:C Strecha, R Fransens, L Van Gool - Statistical methods in video …, 2004 - SpringerAbstract. This paper deals with the computation of optical flow and occlusion detection in the case of large displacements. We propose a Bayesian approach to the optical flow problem and solve it by means of differential techniques. The images are regarded as noisy ... Cited by 19 - Related articles - All 12 versions

Title: Refinement of optical flow estimation and detection of motion edges

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:A Giachetti, V Torre - Computer Vision—ECCV'96, 1996 - SpringerAbstract. In this paper a multi-scale method for the estimation of optical flow and a simple technique for the extraction of motion edges from an image sequence are presented. The proposed method is based on a differential neighborhood-sampling technique combined with a multi-scale ... Cited by 18 - Related articles - BL Direct - All 4 versions

Title: [PDF] A data-driven method for choosing smoothing parameters in optical flow problems

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:L Ng, V Solo - Proc. IEEE ICIP97, 1997 - CiteseerAbstract In optical flow estimation, an additional constraint to the constant brightness assumption is required to uniquely determine both components of the flow. Typically, these constraints impose a smoothness requirement on the flow estimate. Since the smoothness constraint may be ... Cited by 16 - Related articles - View as HTML - All 8 versions

Title: [PDF] Tracking and recognizing rigid and non-rigid facial motions using local parametric models of image motion

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:MJ Black, Y Yacoob - Proc. International Conference on Computer Vision (… - Citeseer... First, we describe a method for tracking rigid and non-rigid facial motions using a collection of local parameterized optical flow models. ... In this paper we explore a middle ground between the template-based approaches and the optical flow-based approaches. ... Cited by 370 - Related articles - View as HTML - All 30 versions

Title: [PDF] The perception of heading during eye movements

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:CS Royden, MS Banks, JA Crowell - Nature, 1992 - wexler.free.fr... Figure 2 shows that both observers responded very differently FIG. 1 Optical flow fields for an observer moving across a ground plane, a, Flow field for a translational movement; the observer has moved forward while holding the eye and head fixed. ... Cited by 199 - Related articles - ACNP Holdings - BL Direct - All 9 versions

Title: Motion-Based Background Subtraction Using Adaptive Kernel Density Estimation (PDF)

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:A Mittal, N Paragios - computer.org... Most of the dynamic scenes exhibit persistent motion characteristics. Therefore, a natural approach to model their behavior is via optical flow. ... Section 4 describes methods for computation of optical flow and illumination- invariant intensity transformation. ... Cited by 239 - Related articles - BL Direct - All 20 versions

Title: Uncertainty models of the gradient constraint for optical flow computation

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:N Ohta - IEICE TRANSACTIONS on Information and Systems, 1996 - search.ieice.orgSummary: The uncertainty involved in the gradient constraint for optical flow detection is often modeled as constant Gaussian noise added to the time-derivative of the image intensity. In this paper, we examine this modeling closely and investigate the error behavior by ... Cited by 14 - Related articles - Cached - BL Direct - All 2 versions

Title: An experimental investigation of estimation approaches for optical flow fields

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:W Enkelmann, R Kories, HH Nagel, G … - … : robot and human …; 1996 - books.google.comCHAPTER 6 An Experimental Investigation of Estimation Approaches for Optical Flow Fields W. Enkelmann R. Kories H.-H. Nagel G. Zimmermann 6.1 Introduction The halftone image of a scene can be described by giving the gray value as a function of the image plane ... Cited by 18 - Related articles - All 2 versions

Title: A fast and accurate tensor-based optical flow algorithm implemented in FPGA

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:Z Wei, DJ Lee, B Nelson, M Martineau - 2007 - computer.orgMany computer vision applications require real- time processing of image data. This requirement is especially critical for autonomous vehicles performing obstacle avoidance, path planning, and target tracking tasks. A quickly calculated and relatively rough motion estimate is ... Cited by 17 - Related articles - All 5 versions

Title: [PDF] Bayesian real-time optical flow

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:JS Zelek - Proc VI, 2002 - kepler.ia.ac.cnOptical flow can be used to compute motion detection, time to collision, structure, focus of expansion as well as object segmentation. Unfortunately, most optical flow techniques do not provide accurate and dense measures that are use- ful for these types of computations. In addition, most ... Cited by 17 - Related articles - View as HTML - All 4 versions

Title: [PDF] Ultrasonic Strain Imaging of the Female Breast Using Phase Root Seeking and Three-Dimensional" Optical Flow";

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:M Krueger, A Pesavento, H Ermert, KM … - ULTRASONICS …; 1998 - ruhr-uni-bochum.deAbstract — We implemented an ultrasonic strain im- aging system to support the tissue characterization of the female breast. The breast is compressed between two plates of polyethylene and of steel, respectively. 3D

elastographic raw data of the breast can be acquired. The ... Cited by 15 - Related articles - View as HTML - BL Direct - All 2 versions

Title: Cooperative integration of stereopsis and optic flow computation

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:G Sudhir, S Banerjee, KK Biswas, R …; - Journal of the Optical …;, 1995 - opticsinfobase.org... G. Sudhir ... 2). Hence for point a the corresponding point is constrained to lie near point b, which can be computed from the two optic flow 0740-3232/95/122564-09\$06.00 © 1995 Optical Society of America Page 2. ... Cited by 16 - Related articles - ACNP Holdings - BL Direct - All 9 versions

Title: Moving object detection from optical flow without empirical thresholds

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:N Ohta, K Kanatani, K Kimura - IEICE TRANSACTIONS on …;, 1998 - search.ieice.orgSummary: We show that moving objects can be detected from optical flow without using any knowledge about the magnitude of the noise in the flow or any thresholds to be adjusted empirically. The underlying principle is viewing a particular interpretation about the flow ... Cited by 14 - Related articles - Cached - BL Direct - All 3 versions

Title: Stochastic tracking of 3D human figures using 2D image motion

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:H Sidenbladh, M Black, D Fleet - Computer Vision—ECCV 2000, 2000 - Springer... The approach extends previous work on para- meterized optical flow estimation to exploit a complex 3D articulated motion model. ... In so doing we exploit recent work on the probabilistic esti- mation of optical flow using particle filtering [1,2]. The method has been applied Page 3. ... Cited by 502 - Related articles - BL Direct - All 13 versions

Title: Probabilistic estimation of optical flow in multiple band-pass directional channels

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:O Nestares, R Navarro - Image and Vision Computing, 2001 - ElsevierBand-pass directional filters are not normally used as pre-filters for optical flow estimation because their orientation selectivity tends to increase the aperture problem. Despite this fact, here we obtain multiple estimates of the velocity by applying the classic gradient constraint to the ... Cited by 19 - Related articles - ACNP Holdings - All 5 versions

Title: [PDF] Image analysis using multigrid relaxation methods

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:D Terzopoulos - IEEE Transactions on Pattern Analysis and Machine …;, 1986 - cs.ucla.edu... reconstruction. In this paper, we develop multiresolution iterative algorithms for computing lightness, shape-from-shading, and optical flow, and we examine the efficiency of these algorithms using synthetic image inputs. The ... Cited by 322 - Related articles - All 9 versions

Title: Detecting the image boundaries between optical flow fields from several moving planar facets

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:DW Murray, NS Williams - Pattern Recognition Letters, 1986 - ElsevierA novel method of image and scene segmentation is presented which detects boundaries in the image between optical flow fields from different moving planar facets in the scene. It is based on parts of recent structure-from-motion algorithm and with simple quasi image ... Cited by 15 - Related articles - ACNP Holdings - All 4 versions

Title: Single-step stereolithography of complex anatomical models for optical flow measurements

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:D De Zelicourt, K Pekkan, H Kitajima, D …; - Journal of …;, 2005 - link.aip.orgTransparent stereolithographic rapid prototyping (RP) technology has already demonstrated in literature to be a practical model

construction tool for optical flow measurements such as digital particle image velocimetry (DPIV), laser doppler velocimetry (LDV), and flow visualization. ... Cited by 16 - Related articles - All 7 versions

Title: Characterisation of a gas-diffusion membrane-based optical flow-through sensor exemplified by the determination of nitrite

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:W Frenzel, J Schulz-Brüssel, B Zinvirt - Talanta, 2004 - ElsevierA membrane-based optical flow-through sensor is described which can be alternatively used for absorbance and reflectance detection within the receiver channel of a sandwich-type gas-diffusion separation cell. Using the common spectrophotometric detection scheme for ... Cited by 16 - Related articles - ACNP Holdings - All 4 versions

Title: [PDF] FPGA-based real-time optical flow algorithm design and implementation

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:Z Wei, DJ Lee, BE Nelson - Journal of Multimedia, 2007 - CiteseerAbstract—Optical flow algorithms are difficult to apply to robotic vision applications in practice because of their extremely high computational and frame rate requirements. In most cases, traditional general purpose processors and sequentially executed software cannot compute optical ... Cited by 17 - Related articles - View as HTML - All 10 versions

Title: On the information in optical flows

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:K Prazdny - Computer Vision, Graphics, and Image Processing, 1983 - Elsevier... The main purpose of this paper is to outline in a simple way how information about a rigid, 3D environment is contained in the optical flow: the instantaneous distribution of angular velocities of projecting rays. ... K. Prazdny, Egomotion and relative depth map from optical flow, Biol. ... Cited by 130 - Related articles - ACNP Holdings - All 2 versions

Title: Illumination-robust variational optical flow with photometric invariants

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:Y Mileva, A Bruhn, J Weickert - … of the 29th DAGM conference on …; 2007 - portal.acm.orgAbstract. Since years variational methods belong to the most accurate tech- niques for computing the optical flow in image sequences. However, if based on the grey value constancy assumption only, such techniques are not robust enough to cope with typical illumination changes in ... Cited by 16 - Related articles - BL Direct - All 9 versions

Title: Automatic extraction and description of human gait models for recognition purposes

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:D Cunado, MS Nixon, JN Carter - Computer Vision and Image …; 2003 - Elsevier... As such, it would appear difficult to confirm that the metric was indeed purely related to a subject's gait. Later, dense optical flow was used to derive a gait signature [15 and 16]. ... From a sequence of n+1 images, n dense optical flow images are generated. ... Cited by 149 - Related articles - ACNP Holdings - BL Direct - All 14 versions

Title: Real-time tracking of image regions with changes in geometry and illumination

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:GD Hager, PN Belhumeur - cvpr, 1996 - computer.org... as SSD matching. SSD-based methods have been employed in a variety of contexts including stereo matching [12], optical flow computation [a], hand-eye coordination [13], and visual motion analysis [16]. In general, any tracking ... Cited by 206 - Related articles - BL Direct - All 20 versions

Title: Comparing optimal three-dimensional reconstruction for finite motion and optical flow

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:K Kanatani, N Ohta - Journal of Electronic Imaging, 2003 - link.aip.orgComputing the 3-D structure and motion from an image sequence is one of the most important of computer vision tasks and also one of the research areas that are making rapid progress. A vast literature has already appeared on this subject (see, eg, Refs. and for the latest ... Cited by 17 - Related articles - BL Direct - All 8 versions

Title: [PDF] Cloth motion from optical flow

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:V Scholz, MA Magnor - Proc. Vision, Modeling and Visualization, 2004 - CiteseerThis paper presents an algorithm for capturing the motion of deformable surfaces, in particular textured cloth. In a calibrated multi-camera setup, the optical flow between consecutive video frames is determined and 3D scene flow is computed. We use a deformable surface ... Cited by 14 - Related articles - View as HTML - All 18 versions

Title: Optic flow

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:JJ Koenderink - Vision Research, 1986 - ElsevierThis paper offers a quick review of the subject of "optic flow" in its conceptual and computational aspects. The theory is evaluated in terms of possible applications in the neurophysiology and experimental psychology of spatial sensorymotor behaviour and perception. The problem ... Cited by 434 - Related articles - ACNP Holdings - All 3 versions

Title: VideoQ: an automated content based video search system using visual cues

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:SF Chang, W Chen, HJ Meng, H Sundaram … - Proceedings of the fifth …, 1997 - portal.acm.org... Sawhney 951. A hierarchical pixel-domain motion estimation method [Bierling 881 is used to extract the optical flow. The affine ... Optical flow is utilized to project and track color regions through a video sequence. , The optical flow of ... Cited by 349 - Related articles - All 28 versions

Title: Multi-modal speech recognition using optical-flow analysis for lip images

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:S Tamura, K Iwano, S Furui - The Journal of VLSI Signal Processing, 2004 - SpringerJournal of VLSI Signal Processing 36, 117-124, 2004 cс 2004 Kluwer Academic Publishers. Manufactured in The Netherlands. ... Multi-Modal Speech Recognition Using Optical-Flow Analysis for Lip Images ... SATOSHI TAMURA, KOJI IWANO AND SADAOKI FURUI Department of ... Cited by 16 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: [PDF] A biomimetic reactive navigation system using the optical flow for a rotary-wing uav in urban environment

Author: K Sugihara, N Sugie - Computer Vision, Graphics, and Image Processing, 1984 - Elsevier

Year:1984

Content:L Muratet, S Doncieux, JA Meyer - Proceedings of the International …, 2004 - CiteseerAbstract—Flying insects, such as houseflies or bees, have sensory-motor abilities that still outperform those of UAV. Beyond their flying manoeuvrability, they benefit from a reactive navigation system that enables them to wander in cluttered environments thanks to visual information. Their ... Cited by 17 - Related articles - View as HTML - All 2 versions

Title: Registration and fusion of multispectral images using a new control point assessment method derived from optical flow ideas

Author: LF Fonseca, GA Hower, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:A new method of automatically determining control points for registration and fusion of multispectral images is presented. This method was motivated by the question of whether it is possible to computationally assess the quality of optical flow estimates at various points throughout the image without ... Cited by 13 - Related articles - ACNP Holdings - All 6 versions

Title: [PDF] Multiple plane segmentation using optical flow

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:M Zucchelli, J Santos-Victor, HI Christensen - British Machine Vision Conf, 2002 - CiteseerIn this paper we present a motion based segmentation algorithm to automatically detect multiple planes from sparse optical flow information. An optimal estimate for planar motion in the presence of additive Gaussian noise is first proposed, including directional uncertainty of the ... Cited by 17 - Related articles - View as HTML - All 14 versions

Title: Efficient visual event detection using volumetric features

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:Y Ke, R Sukthankar, M Hebert - 2005 - computer.org... Applying this framework on the video's optical flow, we learn activity detectors that perform event detection in real time. ... Page 3. Figure 4: An example of the stand-up action and its optical flow. We separate the optical flow into the horizontal (vx) and vertical (vy) components. ... Cited by 198 - Related articles - All 24 versions

Title: A hierarchical optical flow estimation algorithm based on the interlevel motion smoothness constraint

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:SH Hwang, SU Lee - Pattern Recognition, 1993 - ElsevierAn optical flow estimation algorithm is proposed based on the multiresolution representation of the image, ie the image pyramid. Since the image pyramid consists of several low-pass filtered versions of the image sequence, the motion vector at each pyramid level is also the low- ... Cited by 17 - Related articles - ACNP Holdings - BL Direct - All 2 versions

Title: The Optic Flow Field: The Foundation of Vision [and Discussion]

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:DN Lee, H Kalmus - Philosophical Transactions of the Royal Society of …, 1980 - JSTORAs a basis for understanding the visual system, we need to consider the functions that vision has to perform, which are pre-eminently in the service of activity, and the circumstances in which it normally operates, namely when the head is moving. The fundamental ecological ... Cited by 349 - Related articles - ACNP Holdings - All 8 versions

Title: Multi-stage segmentation of optical flow field

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:JG Choia, SD Kim - Signal processing, 1996 - ElsevierThis paper presents object-based segmentation of optical flow field and its motion estimation method. A major difficulty in estimating general motion is that it requires a large area of support in order to achieve a good estimation. Unfortunately, when the supporting area is large, it ... Cited by 16 - Related articles - BL Direct - All 6 versions

Title: [PDF] Analog integrated 2-D optical flow sensor with programmable pixels

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:A Stocker, R Douglas - Int. Symposium on Circuits and Systems …, 2004 - sas.upenn.eduWe present a framework for real-time visual motion perception consisting of a novel analog VLSI optical flow sensor with reconfigurable pixels, connected in feedback with a controlling processor. The 2-D sensor array is composed of motion processing pixels that can be ... Cited by 13 - Related articles - View as HTML - All 7 versions

Title: Cortical surface alignment using geometry driven multispectral optical flow

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:D Tosun, JL Prince - Information Processing in Medical Imaging, 2005 - SpringerAbstract. Spatial normalization is frequently used to map data to a standard coordinate system by removing inter-subject morphological differences, thereby allowing for group analysis to be carried out. In this paper, we analyze the geometry of the cortical surface using two ... Cited by 16 - Related articles - All 6 versions

Title: [PDF] Facial expression recognition using a dynamic model and motion energy

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:IA Essa, A Pentland - Proceedings of the International Conference on …; 1995 - Citeseer... tracking of facial expressions [19, 2, 8, 12, 16, 6]. In this paper we present two new methods for recogniz- ing facial expressions, both of which attempt to improve over previous approaches by using a better model of facial motion and by using facial optical flow more efficiently. ... Cited by 229 - Related articles - View as HTML - All 13 versions

Title: High speed computation of the optical flow

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:H Niitsuma, T Maruyama - Image Analysis and Processing-ICIAP 2005, 2005 - SpringerAbstract. In this paper, we describe a compact system for high speed computation of the optical flow. This system consists of one off-the-shelf PCI board with one Field Programmable Gate Array (FPGA) chip, and its host computer. With this system, we can generate dense vector maps ... Cited by 16 - Related articles - BL Direct - All 3 versions

Title: Automatic facial expression analysis: a survey

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:B Fasel, J Luetttin - Pattern Recognition, 2003 - Elsevier... This may be achieved eg by using 3D muscle models that allow to map extracted optical flow into muscle actions [59 and 60]. ... Lien [34] analyzed holistic face motion with the aid of wavelet-based, multi-resolution dense optical flow. ... Cited by 510 - Related articles - ACNP Holdings - All 12 versions

Title: Exploiting discontinuities in optical flow

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:WB Thompson - International Journal of Computer Vision, 1998 - SpringerAbstract. Most optical flow estimation techniques have substantial difficulties dealing with flow discontinuities. Methods which simultaneously detect flow boundaries and use the detected boundaries to aid in flow estimation can produce significantly improved results. Current approaches ... Cited by 16 - Related articles - BL Direct - All 15 versions

Title: Gramians, generalized inverses, and the least-squares approximation of optical flow* 1

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:RW Brockett - Journal of Visual Communication and Image …; 1990 - ElsevierThis paper deals with the recovery of optical flow, that is to say, with the identification of a vector field, defined on some subset of the image plane, which accounts for the infinitesimal time evolution of the image of a particular object. Our formulation is general in that it allows for the vector ... Cited by 16 - Related articles - ACNP Holdings - All 3 versions

Title: Image representations for visual learning

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:D Beymer, T Poggio - Science, 1996 - sciencemag.org... Correspon- dence isa difficult problem in computer vision that can be solved for sufficiently similar images by techniques such as optical flow algorithms, which find corresponding pixels in two or more images and compute their displacement vectors (in the image plane). ... Cited by 255 - Related articles - ACNP Holdings - BL Direct - All 9 versions

Title: Direct passive navigation

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:S Negahdaripour, BKP Horn - AIM-821, 1985 - dspace.mit.edu... We do not compute the optical flow as an intermediate step. ... Key Words: Passive Navigation, Optical Flow, Structure and Motion, Least Squares, Planar Surface, Non-Linear Equations, Dual Solution, Planar Motion Field Equations. ... Cited by 228 - Related articles - All 20 versions

Title: [PDF] Coding facial expressions with gabor wavelets

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

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Title: Sensitivity of MST neurons to optic flow stimuli. I. A continuum of response selectivity to large-field stimuli

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:CJ Duffy, RH Wurtz - Journal of Neurophysiology, 1991 - Am Physiological SocSUMMARY AND CONCLUSIONS 1. Neurons in the dorsomedial region of the medial superior temporal area (MSTd) have large receptive fields that include the fovea, are directionally selective for moving visual stimuli, prefer the motion of large fields to small spots, and respond to ... Cited by 547 - Related articles - ACNP Holdings - All 9 versions

Title: [PDF] Clustering methods for video browsing and annotation

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:HJZ Di Zhong, SF Chang - SPIE Conference on Storage and Retrieval for …, 1996 - Citeseer... Since variations and motions around a key frame are usually small and continuous, it is reasonable to assume that the computed optical flow can reflect motions around a key frame properly. Based on the motion information ... Cited by 183 - Related articles - View as HTML - All 17 versions

Title: On the evaluation of optical flow algorithms

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:B McCane, B Galvin, K Novins - Fifth International Conference on Control, …, 1998 - CiteseerEvaluating the performance of optical flow algorithms has been difficult because of the lack of ground-truth data sets for complex scenes. We describe a simple modification to a ray tracer that allows us to generate ground-truth motion fields for scenes of arbitrary complexity. ... Cited by 12 - Related articles - Cached

Title: Fundamental matrix from optical flow: optimal computation and reliability evaluation

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:K Kanatani, Y Shimizu, N Ohta, MJ Brooks, W … - Journal of Electronic …, 2000 - link.aip.orgThe optical flow observed by a moving camera satisfies, in the absence of noise, a special equation analogous to the epipolar constraint arising in stereo vision. Computing the "flow fundamental matrix" of this equation is an essential prerequisite to undertaking three-dimensional ... Cited by 15 - Related articles - BL Direct - All 13 versions

Title: Salient video stills: Content and context preserved

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:L Teodosio, W Bender - Proceedings of the first ACM international …, 1993 - portal.acm.org... A by-product of the salient still process is a structured representation of moving image data. [Keywords: image processing, optical flow, structured video, image reproduction] INTRODUCTION ... Figure 5: System block diagram. Optical Flow Affine Warp Temp. Median Next Frame ... Cited by 175 - Related articles - All 8 versions

Title: Real-time parallel computation of disparity and optical flow using phase difference

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:F Valentinotti, G Di Caro, B Crespi - Machine Vision and Applications, 1996 - SpringerAbstract. A phase-difference-based algorithm for disparity and optical flow estimation is implemented on a TI-C40- based parallel DSP system. The module performs real-time computation of disparity maps on images of size 128 x 128 pixels and

computation of optical flows on images of ... Cited by 16 - Related articles - ACNP Holdings - BL Direct - All 9 versions

Title: A two-stage algorithm for motion discontinuity-preserving optical flow estimation

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:DG Sim, RH Park - Computer vision and image understanding, 1997 - ElsevierThis paper proposes a two-stage optical flow estimation algorithm for video sequences based on feature-based matching and module-fusion. In the first stage, the algorithm computes initial translation and rotation parameters using a relaxation scheme at feature points and ... Cited by 13 - Related articles - ACNP Holdings - BL Direct - All 7 versions

Title: The optical flow of planar surfaces

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:S Ullman - Spatial vision, 1986 - ingentaconnect.comAbstract-The human visual system can recover the 3-D shape of moving objects on the basis of motion information alone. Computational studies of this capacity have considered primarily non-planar rigid objects. With respect to moving planar surfaces, previous studies have ... Cited by 18 - Related articles - ACNP Holdings - All 8 versions

Title: [PDF] Image velocity, not tau, explains arrival-time judgments from global optical flow

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:D Kerzel, H Hecht, NG Kim - Journal of Experimental …, 1999 - psycho.sowi.uni-mainz.de... From Global Optical Flow Dirk Kerzel Max-Planck-Institut fur Psychologische Forschung ... Simulated observer motion through a cloud of extensionless point lights that give rise to an optic flow field serve this purpose (Kaiser & Hecht, 1995; Kaiser & Mowafy, 1993). ... Cited by 18 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 6 versions

Title: [PDF] Optimal structure-from-motion algorithm for optical flow

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:N Ohta, K Kanatani - IEICE TRANSACTIONS ON …, 1995 - suri.it.okayama-u.ac.jpIEICE TRANS. INF. & SYST., VOL. E78-D, NO. 12 DECEMBER 1995 1566 (A), = ■u("Wn>T (A-5) If $r = r\'$, the rank-constrained generalized inverse $\{A\}^{\sim}$, coincides with the generalized inverse A^{\sim} . The rank-constrained generalized inverse of a three-dimensional tensor A can also ... Cited by 14 - Related articles - BL Direct - All 5 versions

Title: Use of global optical flow rate and discontinuity rate depends on their validity as determinants of egospeed

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:TG Ballard, T Roach, BP Dyre - Human Factors and …, 1998 - ingentaconnect.comPrevious research found both discontinuity rate and global optical flow rate contribute to the perception of egospeed but differed in estimates of which source of information dominated. This research examined two methodological differences that may explain the conflicting results: frame ... Cited by 13 - Related articles - BL Direct - All 2 versions

Title: Distributed algorithms and architectures for optical flow switching in WDM networks

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:B Ganguly, E Modiano - iscc, 2000 - computer.orgThis paper is about the design and quantitative analysis of distributed approaches for optical flow switching (using dynamic lightpath setup) in a wide area WDM backbone network. The major contribution of this work is to design realistic integrated approaches for flow routing, ... Cited by 14 - Related articles - All 6 versions

Title: [PDF] Moving objects segmentation using optical flow estimation

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:F Ranchin, F Dibos - Workshop on Mathematics and Image Analysis, 2004 - CiteseerPage 1. Moving Objects Segmentation Using Optical Flow Estimation ... We use one of the most powerful variational method for computing the optical flow and we exploit this information in the segmentation. This segmentation lies on well-known techniques of active contours. ... Cited by 14 - Related articles - View as HTML - All 3 versions

Title: Optical flow from eye movement with head immobilized

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:GP Bingham - Vision research, 1993 - ElsevierThe point of observation translates with eye movement because it is not coincident with the center of rotation in the eye. "Ocular occlusion" results. The amount of optical structure revealed by eye rotation depends on the distances of the occluding and occluded surfaces. The method of ... Cited by 18 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: Real-time object tracking for augmented reality combining graph cuts and optical flow

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:J Mooser, S You, U Neumann - 2007 - computer.orgFigure 1: Tracking and annotating an object using graph cut segmentation. A building sign on the USC campus is first detected using simple recognition, after which no additional information is needed. As the camera moves, we segment and track the sign through significant scale ... Cited by 15 - Related articles - ACNP Holdings - All 7 versions

Title: Recovery of nonrigid motion and structure

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:A Pentland, B Horowitz - IEEE Transactions on Pattern Analysis and …, 1991 - computer.org... I. INTRODUCTION T 0 date, almost all research on recovering global, whole- body structure from optical flow has been based on rigid motion. ... 3(a) shows a box, and Fig. 3(b) shows the complex optical flow field generated as the box undergoes both rigid and nonrigid motion. ... Cited by 366 - Related articles - All 7 versions

Title: Computing observer motion from optical flow

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:EC Hildreth, CS Royden - High-Level Motion Processing: … - books.google.comComputing Observer Motion from Optical Flow Ellen C Hildreth and Constance S. Royden When an observer moves through the world, images of objects in the scene flow across the surface of the eye. The resulting pattern of image motion projected onto the eye, often referred to ... Cited by 16 - Related articles

Title: Optical flow computation on compute unified device architecture

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:Y Mizukami, K Tadamura - 2007 - computer.orgIn this study, the implementation of an image processing technique on Compute Unified Device Architecture (CUDA) is discussed. CUDA is a new hardware and software architecture developed by NVIDIA Corporation for the general-purpose computation on graphics processing ... Cited by 16 - Related articles - All 4 versions

Title: Optical flow techniques applied to video coding

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:R Krishnamurthy, P Moulin, J Woods - … (Vol. 1)-Volume 1-Volume 1, 1995 - portal.acm.orgMotion estimation is an important part of most video coding schemes because it enables us to exploit the high degree of temporal redundancy present. Though block matching algorithms (BMA) yield coarse and piecewise-constant fields, they are very popular due to their ... Cited by 14 - Related articles - All 4 versions

Title: Smoothness in Layers: Motion segmentation using nonparametric mixture estimation.

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:Y Weiss - cvpr, 1997 - computer.org... A cylinder is partially occluded by two bars. Figure 1b shows a cross section of the horizontal component of optical flow when a camera, viewing the scene head on, is rotated horizontally about a distant point. ... Determining optical flow. *Art\$ Intell.*, 17(1-3):185-203, August 1981. ... Cited by 194 - Related articles - BL Direct - All 26 versions

Title: Motion segmentation and pose recognition with motion history gradients

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:GR Bradski, JW Davis - Machine Vision and Applications, 2002 - Springer... Key words: Motion segmentation - Normal optical flow 1 Introduction and related work ... Hierarchical [2] and/or robust estimation [5] is often needed, and optical flow frequently signals unwanted motion in regions such as those containing loose and textured clothing. ... Cited by 149 - Related articles - ACNP Holdings - BL Direct - All 22 versions

Title: Unified optical flow field approach to motion analysis from a sequence of stereo images

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

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Title: From orientation selection to optical flow

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:SW Zucker, L Iverson - Computer Vision, Graphics, and Image Processing, 1987 - ElsevierOptical flow can be thought of as a generalization of orientation selection to include time, and this is a first attempt to develop this generalization. This paper is informal, and begins with an overview of a computational theory of orientation selection that has been developed in ... Cited by 16 - Related articles - ACNP Holdings - All 3 versions

Title: A robust multimodal speech recognition method using optical flow analysis

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:S Tamura, K Iwano, S Furui - Spoken Multimodal Human-Computer …, 2005 - SpringerAbstract We propose a new multimodal speech recognition method using optical flow analysis and evaluate its robustness to acoustic and visual noises. Optical flow is defined as the distribution of apparent velocities in the movement of brightness patterns in an image. Since the ... Cited by 14 - Related articles - All 9 versions

Title: Dissipative optical flow in a nonlinear Fabry-Pérot cavity

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

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Content:EL Bolda, RY Chiao, WH Zurek - Physical Review Letters, 2001 - APSWe describe a classical nonlinear optical system that displays superfluidity and its breakdown. The system consists of a self-defocusing refractive medium inside a Fabry-Pérot cavity with a cylindrical obstacle. We have numerically solved for the transmitted beam ... Cited by 13 - Related articles - ACNP Holdings - BL Direct - All 9 versions

Title: Optical flow estimation from monogenic phase

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:M Felsberg - Complex Motion, 2007 - SpringerAbstract. The optical flow can be estimated by several different methods, some of them require multiple frames some make use of just two frames. One approach to the latter problem is optical flow from phase. However, in contrast to (horizontal) disparity from phase, this method ... Cited by 15 - Related articles - BL Direct - All 8 versions

Title: [PDF] Monocular optical flow for real-time vision systems

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:SM Benoit, FP Ferrie - … CONFERENCE ON PATTERN …;, 1996 - digitool.library.mcgill.ca...
Page 2. • • • MONOCULAR OPTICAL FLOW FOR REAL-TIME VISION SYSTEMS Stephen M. Benoit Department of
Electrical Engineering ... 2.1. Optical Flow by Differential Relations 2.2. Optical Flow by Feature Point
Correspondence 2.3. Optical Flow by Region Matching . 2.4. ... Cited by 18 - Related articles - View as HTML - BL
Direct - All 9 versions

Title: [PDF] A vision system for observing and extracting facial action parameters
Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
Year:1999

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metric and a physical (muscle) model describing the facial structure. ... Mase [10, 11] has introduced another method
to track action units using optical flow. ... Cited by 145 - Related articles - View as HTML - BL Direct - All 8 versions

Title: Guidance of locomotion on foot uses perceived target location rather than optic flow
Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
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Content:SK Rushton, JM Harris, MR Lloyd, JP Wann - Current Biology, 1998 - ElsevierWhat visual information do
we use to guide movement through our environment? Self-movement produces a pattern of motion on the retina,
called optic flow. During translation, the direction of movement (locomotor direction) is specified by the point in the
flow field from which the ... Cited by 141 - Related articles - ACNP Holdings - BL Direct - All 11 versions

Title: Calculating time-to-collision with real-time optical flow
Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
Year:1999

Content:TA Camus - Proceedings of SPIE, 1994 - link.aip.orgCurrently two major limitations to applying
computer vision to real-time robotic vision tasks are robustness in unsimulated and uncontrolled environments,
and the computational resources required for real-time operation. In particular, many current visual motion
detection ... Cited by 13 - Related articles - ACNP Holdings - All 2 versions

Title: [PDF] Computing optical flow distributions using spatio-temporal filters
Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
Year:1999

Content:EP Simoncelli, EH Adelson - … , MA, MIT Media Laboratory Vision and …;, 1991 -
CiteseerAbstract We describe the relationship between gradient methods for computing optical ow and lter-based
spatio-temporal energy models of biological motion processing, revealing that these techniques are equivalent
under certain conditions. We discuss extensions of these ... Cited by 17 - Related articles - View as HTML - All 11
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Title: Spline-based image registration
Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
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Optical Flow Tech- niques ... Cited by 318 - Related articles - BL Direct - All 60 versions

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Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
Year:1999

Content:D Sun, S Roth, J Lewis, M Black - Computer Vision–ECCV 2008, 2008 - SpringerAbstract. Assumptions of
brightness constancy and spatial smoothness underlie most optical flow estimation methods. In contrast to standard
heuristic formulations, we learn a statistical model of both brightness constancy error and the spatial properties of
optical flow using image ... Cited by 15 - Related articles - All 17 versions

Title: [PDF] Dynamically consistent optical flow estimation

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
Year:1999

Content:N Papadakis, T Corpetti, E M  min - IEEE Int. Conf. Comp. Vis.(ICCV'07), 2007 - CiteseerIn this paper, we present a framework for dynamic consistent estimation of dense motion fields over a sequence of images. The originality of the approach is to exploit recipes related to optimal control theory. This setup allows performing the estimation of an unknown state function ... Cited by 15 - Related articles - View as HTML - All 9 versions

Title: [PDF] On-line optical flow feedback for mobile robot localization/navigation
Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
Year:1999

Content:DK Sorensen - 2003 - etd.tamu.eduPage 1. ON-LINE OPTICAL FLOW FEEDBACK FOR MOBILE ROBOT LOCALIZATION/ NAVIGATION A Thesis by ... May 2003 Major Subject: Mechanical Engineering Page 2. ON-LINE OPTICAL FLOW FEEDBACK FOR MOBILE ROBOT LOCALIZATION/NAVIGATION A Thesis by ... Cited by 15 - Related articles - View as HTML - All 10 versions

Title: Dominant plane detection from optical flow for robot navigation
Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
Year:1999

Content:N Ohnishi, A Imiya - Pattern Recognition Letters, 2006 - ElsevierDominant plane is an area which occupies the largest domain in the image. In this paper, we develop an algorithm for dominant plane detection using the optical flow. The dominant plane estimation is an essential task for the autonomous navigation and the path planning of the ... Cited by 15 - Related articles - ACNP Holdings - All 6 versions

Title: Computation of coherent optical flow by using multiple constraints
Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
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Content:M Tistarelli - Proceedings of the Fifth International Conference on …, 1995 - portal.acm.orgThe optical flow constitutes one of the most widely adopted representations to define and characterize the evolution of image features over time. In order to compute the velocity field, it is necessary to define a set of constraints on the temporal change of image features. We consider the ... Cited by 12 - Related articles - All 3 versions

Title: The interpretation of a moving retinal image
Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
Year:1999

Content:HC Longuet-Higgins, K Prazdny - Proceedings of the Royal Society of …, 1980 - JSTOR... 1. INTRODUCTION When the eye is in motion relative to the visible environment, a moving pattern of light falls upon the retina, and the resulting 'optical flow field' supplies useful information not only about the motion but also about the three-dimensional structure of the scene ... Cited by 999 - Related articles - ACNP Holdings - All 4 versions

Title: [PDF] Optical normal flow estimation on log-polar images. a solution for real-time binocular vision
Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
Year:1999

Content:J Dias, H Ara  jo, C Paredes, J Batista - Real Time Imaging, 1997 - mail.isr.uc.ptThe development of computational solutions for simulation of visual behavior deals with the problem of integration and co-operation between different computational processes for control of active vision systems. In general these computational processes could emulate different and ... Cited by 15 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: [PDF] Investigation into optical flow super-resolution for surveillance applications
Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org
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Content:F Lin, C Fookes, V Chandran, S Sridharan - Proceedings of APRS …, 2005 - CiteseerLin, Frank C. and Fookes, Clinton B. and Chandran, Vinod and Sridharan, Sridha (2005) Investigation into optical flow super-resolution for surveillance applications. In: APRS Workshop on Digital Image Computing: Pattern Recognition and Imaging for Medical Applications, 21 ... Cited by 12 - Related articles - View as HTML - All 6 versions

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Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

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Content:D Zoccolan, A Giachetti, V Torre - Journal of neuroscience methods, 2001 - ElsevierMuscle contraction is usually measured and characterized with force and displacement transducers. The contraction of muscle fibers, however, evokes in the tissue a two and even three-dimensional displacement field, which is not properly quantified by these ... Cited by 15 - Related articles - ACNP Holdings - All 5 versions

Title: Video matting of complex scenes

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:YY Chuang, A Agarwala, B Curless, DH … - Proceedings of the …, 2002 - portal.acm.org... The framework builds upon techniques in natural image matting, optical flow computation, and background estimation. ... The segmentations, called trimaps, are interpolated across the video volume using forward and backward optical flow. ... Cited by 158 - Related articles - ACNP Holdings - BL Direct - All 36 versions

Title: Optical flow cell and apparatus for solubility, salt deposition and Raman spectroscopic studies in aqueous solutions near the water critical point

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:WS Hurst, MS Hodes, WJ Bowers... - The Journal of Supercritical Fluids, 2002 - ElsevierA flow cell fitted with large diameter optical ports suitable for visual observation and Raman spectroscopic studies of aqueous solutions to temperatures of 500 °C and pressures to 25 MPa is described. The cell uses commercially available compression fittings that have proven to ... Cited by 14 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: A scaled multigrid optical flow algorithm based on the least RMS error between real and estimated second images

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

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Title: Edge detection in optical flow fields

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:WB Thompson, KM Mutch, V Berzins - Proc. of the Second National …, 1982 - aaai.orgPage 1. EDGE DETECTION IN OPTICAL FLOW FIELDS William B. Thompson Kathleen M. Mutch Valdis Berzins Optical flow is ABSTRACT potentially ... This paper describes a technique for locating discontinuities in optical flow, which typically correspond to object boundaries. ... Cited by 12 - Related articles - All 2 versions

Title: Effects of the spatio-temporal structure of optical flow on postural readjustments in man

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:G Masson, DR Mestre, J Pailhous - Experimental Brain Research, 1995 - SpringerAbstract How does the spatio-temporal structure of an oscillating radial optical flow affect postural stability? In order to investigate this problem, two different types of stimulus pattern were presented to human subjects. These stimuli were generated either with a constant spatial ... Cited by 15 - Related articles - ACNP Holdings - BL Direct - All 3 versions

Title: Evaluating optical-flow algorithms on a parallel machine

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

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of the algorithm). To ease the problem, parallel implementation on a convenient general-purpose parallel machine is possible. A generic parallel pipeline ... Cited by 14 - Related articles - ACNP Holdings - All 6 versions

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Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:SN Gupta, JL Prince, S Androutsellis-Theotokis - Proceedings of the 1997 … - CiteseerMyocardial motion analysis is playing an increasingly important role in the diagnosis of abnormal heart function. MR tagging methods [1] have shown great promise for detailed noninvasive cardiac motion imaging. Most tagging methods use line or grid tags to yield crisp, but ... Cited by 11 - Related articles - View as HTML - All 8 versions

Title: An adaptive optical flow technique for person tracking systems

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:S Denman, V Chandran, S Sridharan - Pattern recognition letters, 2007 - ElsevierOptical flow can be used to segment a moving object from its background provided the velocity of the object is distinguishable from that of the background, and has expected characteristics. Existing optical flow techniques often detect flow (and thus the object) in ... Cited by 13 - Related articles - ACNP Holdings - All 6 versions

Title: [PDF] A self-tuning system for realtime Optical Flow detection

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:G Adorni, A Broggi, G Conte, V D'Andrea - Proceedings IEEE System, …, 1993 - ce.unipr.itA self-tuning system for real-time Optical Flow detection Giovanni Adorni, Alberto Broggi, Gianni Conte, Vincenzo D'Andrea Dipartimento di Ingegneria dell'Informazione Università di Parma Parma, 1-43100, ITALY Abstract The work presented in this paper is aimed towards the ... Cited by 13 - Related articles - All 3 versions

Title: Coarse to over-fine optical flow estimation

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:T Amiaz, E Lubetzky, N Kiryati - Pattern recognition, 2007 - ElsevierWe present a readily applicable way to go beyond the accuracy limits of current optical flow estimators. Modern optical flow algorithms employ the coarse to fine approach. We suggest to upgrade this class of algorithms, by adding over-fine interpolated levels to the pyramid. ... Cited by 13 - Related articles - ACNP Holdings - All 14 versions

Title: [PDF] On-road vehicle detection using optical sensors: A review

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:Z Sun, G Bebis, R Miller - IEEE International Conference on Intelligent …, 2004 - Citeseer... between vehicles and background. Another important cue that can be used is the relative motion obtained via the calculation of optical flow. Optical flow information can provide strong information for HG. Approaching vehicles at an ... Cited by 66 - Related articles - View as HTML - All 11 versions

Title: Computational approaches to image understanding

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:M Brady - AIM-653, 1981 - dspace.mit.edu... for example [WE1S73]. It is less clear whether we compute depth directly, as opposed to indirectly through integrating over surface orientations, or what use we make of directional selectivity or optical flow. The change of focus ... Cited by 176 - Related articles - All 13 versions

Title: [PDF] A generalized motion model for estimating optical flow using 3-d hermite polynomials

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:H Liu, TH Hong, M Herman, R Chellappa - … CONFERENCE ON PATTERN …, 1994 - nist.govRewrite (4) and (5) as $I(x,y,t) = F(x(1-st) - pt, y(\backslash-st) - qt)$ (6) $(u,v) = (p + sx, q + sy)$ (7) Intuitively, (7) states that optical flow has two components: translation (p, q) , and expansion (sx, sy) . Translation is induced by (U_x, U_y)

only, and expansion by Uz only. Note that when $s = 0$, then $(u, v) = \dots$ Cited by 13 - Related articles - BL Direct - All 3 versions

Title: MOVING TARGET TRACKING BASED ON FEATURE OPTICAL FLOW [J]

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:Y Yang, Z Tianwen - Journal of Astronautics, 2000 - en.cnki.com.cn... MOVING TARGET TRACKING BASED ON FEATURE OPTICAL FLOW. Yang Yang\ Zhang Tianwen ... shortens the tracking time. 【Key Words】： Moving target tracking\ Motion segmentation\ Feature optical flow 【Fund】： 国家自然科学基金! ... Cited by 12 - Related articles - Cached

Title: [PDF] Tracking and modeling non-rigid objects with rank constraints

Author: LF Fonseca, GA Hewer, C Kenney, BS … - Proceedings of SPIE, 1999 - link.aip.org

Year:1999

Content:L Torresani, DB Yang, EJ Alexander, C … - IEEE Computer Society …;, 2001 - Citeseer... The rank constraint is used to achieve robust and precise low-level optical flow estimation without prior knowledge of the 3D shape of the object. ... 2. Without point feature tracks or robust optical flow, how can we derive a model? ... Cited by 164 - Related articles - View as HTML - BL Direct - All 28 versions

Title: [PDF] Obstacle detection using optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …;, 2005 - araa.asn.au

Year:2005

Content:Motion has been examined in biology to be a critical component for obstacle avoidance and navigation. In particular, optical flow is a powerful motion cue that has been exploited in many biological systems for survival. In this paper, we investigate an obstacle detection sys- ... Cited by 14 - Related articles - View as HTML - All 3 versions

Title: A system for tracking laboratory animals based on optical flow and active contours

Author: T Low, G Wyeth - Australasian Conference on Robotics and …;, 2005 - araa.asn.au

Year:2005

Content:Z Kalafatic, S Ribaric, V Stanisavljevic - iclap, 2001 - computer.orgWe present a working system for real-time tracking of multiple laboratory animals. As it is usually possible to ensure good contrast between the animals and the background, the tracking of a single animal or several physically separated animals can be obtained by relatively sim- ... Cited by 12 - Related articles - All 5 versions

Title: Analog integrated 2-D optical flow sensor

Author: T Low, G Wyeth - Australasian Conference on Robotics and …;, 2005 - araa.asn.au

Year:2005

Content:AA Stocker - Analog Integrated Circuits and Signal Processing, 2006 - SpringerAbstract. I present a new focal-plane analog very-large-scale-integrated (aVLSI) sensor that estimates optical flow in two visual dimensions. Its computational architecture consists of a two-layer network of locally connected motion units that collectively estimate the optimal ... Cited by 14 - Related articles - ACNP Holdings - BL Direct - All 9 versions

Title: Response of monkey MST neurons to optic flow stimuli with shifted centers of motion

Author: T Low, G Wyeth - Australasian Conference on Robotics and …;, 2005 - araa.asn.au

Year:2005

Content:CJ Duffy, RH Wurtz - Journal of Neuroscience, 1995 - Soc NeuroscienceWhile moving through the environment, the visual world streams around observers in a pattern which reflects their motion. These optic flow fields combine the effects of all observer movements in three-dimensional space to provide visual information that can guide self-motion, ... Cited by 209 - Related articles - BL Direct - All 7 versions

Title: Efficient multiresolution algorithms for computing lightness, shape from shading, and optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …;, 2005 - araa.asn.au

Year:2005

Content:D Terzopoulos - Proceedings 4th Nat. Conf. Artif. Intell - aaai.orgProblems in machine vision that are posed as variational principles or partial differential equations can often be solved by local, iterative, and parallel algorithms. A disadvantage of these algorithms is that they are inefficient at propagating constraints across large visual representations. ... Cited by 13 - Related articles - All 2 versions

Title: An estimation-based approach to the reconstruction of optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:A Rougée, B Levy, AS Willsky - … for Information and …, 1987 - en.scientificcommons.orgPublication View. 13212488. An estimation-based approach to the reconstruction of optical flow (1987). ... Cited by 15 - Related articles - Cached - All 6 versions

Title: A "theory" of optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:F Bergholm, S Carlsson - CVGIP: Image Understanding, 1991 - portal.acm.org... . Source, CVGIP: Image Understanding archive Volume 53 , Issue 2 (March 1991) table of contents. Pages: 171 - 188. Year of Publication: 1991. ISSN:1049-9660. ... Cited by 15 - Related articles - ACNP Holdings - All 3 versions

Title: Average brain models: A convergence study

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:A Guimond, J Meunier, JP Thirion - Computer vision and image …, 2000 - Elsevier... 29. BKP Horn and BG Schunck, Determining optical flow. Artificial Intelligence 17 (1981), pp. 185-203. ... 30. JL Barron, DJ Fleet and SS Beauchemin, Performance of optical flow techniques. Internat. J. Comput. Vision 12 (1994), pp. 43-77. ... Cited by 180 - Related articles - ACNP Holdings - BL Direct - All 14 versions

Title: Using optical flow to characterize sensory-motor interactions in a segment of the medicinal leech

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:D Zoccolan, V Torre - Journal of Neuroscience, 2002 - neuro.cjb.netActivation of motoneurons innervating leech muscles causes the appearance of a two-dimensional vector field of deformations on the skin surface that can be fully characterized using a new technique (Zoccolan et al., 2001) based on the computation of the optical flow, the two-dimensional ... Cited by 14 - Related articles - BL Direct - All 9 versions

Title: The angular velocity associated with the optical flowfield arising from motion through a rigid environment

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:SJ Maybank - Proceedings of the Royal Society of London. Series A, …, 1985 - JSTOR... These changes, termed optical flow, have been intensively studied by workers in psychology and computer vision because they contain valuable information about the environment. ... Ballard, DH & Kimball, OA 1983 Rigid body motion from depth and optical flow. ... Cited by 43 - Related articles - ACNP Holdings - All 6 versions

Title: [PDF] The robust estimation of multiple motions: Parametric and piecewise-smooth flow fields

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:MJ Black, P Anandan - Computer Vision and Image …, 1996 - vision.ucsd.edu... The assump- Most approaches for estimating optical flow assume that, within a finite image region, only a single motion is present. ... To robustly the flow within a neighborhood changes gradually since it estimate optical flow, the single motion assumption must be ... Cited by 908 - Related articles - ACNP Holdings - BL Direct - All 10 versions

Title: [PS] Oscillations in corn seedling growth as measured by optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:A Liptay, JL Barron, T Jewett, I Van … - Journal of the American …, 1995 - csd.uwo.caThe coherency function, $R_{2 \times 2}(fk)$, estimates the proportion of the temporal variance of X_2 , which can be explained by

XI as a function of frequency. The coherency function was calculated for the growth rate vs. angle data for the coleoptile and leaf tip. Confidence limits for the ... Cited by 11 - Related articles - ACNP Holdings - BL Direct - All 5 versions

Title: Adaptive grid refinement procedures for efficient optical flow computation

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:J Condell, B Scotney, P Morrow - International Journal of Computer …, 2005 - SpringerInternational Journal of Computer Vision 61(1), 31-54, 2005 cс 2005 Springer Science + Business Media, Inc. Manufactured in The Netherlands. ... Adaptive Grid Refinement Procedures for Efficient Optical Flow Computation ... JOAN CONDELL School of Computing and Intelligent ... Cited by 14 - Related articles - BL Direct - All 7 versions

Title: Finding the epipole from uncalibrated optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:A Verri, E Trucco - Image and Vision Computing, 1999 - ElsevierThis article presents a novel method for determining the location of the instantaneous epipole in a sequence of images acquired by an uncalibrated camera and containing a single, rigid motion (eg the camera moves in a static environment). The method uses the full perspective ... Cited by 11 - Related articles - ACNP Holdings - All 12 versions

Title: On the use of optical flow methods with spin-tagging magnetic resonance imaging

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:KW Moser, JG Georgiadis, RO Buckius - Annals of Biomedical …, 2001 - SpringerAbstract—Magnetic resonance imaging (MRI) is a versatile noninvasive tool for achieving full-field quantitative visualization of biomedical fluid flows. In this study, two MRI velocity techniques (spin tagging and phase contrast) are used to obtain velocity measurements ... Cited by 12 - Related articles - ACNP Holdings - BL Direct - All 3 versions

Title: [PDF] Informedia: News-on-demand multimedia information acquisition and retrieval

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:AG Hauptmann, MJ Witbrock - Intelligent multimedia information retrieval, 1997 - Citeseer... 2. Optical flow analysis is an important method of visual segmentation and description based on interpreting camera motion. We can identify camera motion as a pan or zoom by examining the geometric properties of the optical flow vectors. ... Cited by 154 - Related articles - View as HTML - All 10 versions

Title: [PDF] Mobile robot localization using optical flow sensors

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:S Lee, JB Song - International Journal of Control, Automation, and …, 2004 - ijcas.comAbstract: Open-loop position estimation methods are commonly used in mobile robot applications. Their strength lies in the speed and simplicity with which an estimated position is determined. However, these methods can lead to inaccurate or unreliable estimates. ... Cited by 12 - Related articles - View as HTML - All 7 versions

Title: [PDF] Video skimming for quick browsing based on audio and image characterization

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:MA Smith, T Kanade - Computer Science Technical Report, Carnegie …, 1995 - Citeseer... We can interpret camera motion as a pan or zoom by examining the geometric properties of the optical flow vectors[1]. Using the Lucas-Kanade gradient descent method for optical flow[5], we can track individual regions from one frame to the next and create a vector ... Cited by 173 - Related articles - View as HTML - All 13 versions

Title: A probabilistic framework for matching temporal trajectories: Condensation-based recognition of gestures and expressions

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:MJ Black, AD Jepson - Computer Vision—ECCV'98, 1998 - Springer... These might be simply horizontal and vertical velocity or the parameters of a more sophisticated parameterized model of optical flow [3]. Over time the estimated parameter vectors form temporal trajectories that characterize the gesture or expression. ... Cited by 168 - Related articles - BL Direct - All 28 versions

Title: [PDF] Simultaneous higher-order optical flow estimation and decomposition

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:J Yuan, C Schörr, G Steidl - SIAM Journal on Scientific …, 2007 - ipa.iwr.uni-heidelberg.deAbstract. We study the estimation and decomposition of optical flows from highly nonrigid motions. To this end, recent methods from image decomposition into structural and textural parts are combined with variational optical flow estimation. The approaches we suggest ... Cited by 13 - Related articles - View as HTML - ACNP Holdings - All 10 versions

Title: Information in optical flows induced by curved paths of observation

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:JH Rieger - Journal of the Optical Society of America, 1983 - opticsinfobase.org... Obstacles and their temporal separation from a curvilinearly moving observer are specified in the optical flow, as is the angle of collision. ... If Eqs. (24) can be written as a function of t , and optical expressions, t_z is specified in the optical flow. [If Eqs. ... Cited by 43 - Related articles - ACNP Holdings - All 6 versions

Title: [PDF] Optical flow estimation from noisy data using differential techniques

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:CJ Tsai, NP Galatsanos, AK Katsaggelos - … ON ACOUSTICS SPEECH …, 1999 - CiteseerPage 1. OPTICAL FLOW ESTIMATION FROM NOISY DATA USING DIFFERENTIAL TECHNIQUES Chun-Jen Tsai, Nikolas P. Galatsanos +, and Aggelos K. Katsaggelos ... ABSTRACT Many optical flow estimation techniques are based on the differential optical flow equation. ... Cited by 11 - Related articles - BL Direct - All 15 versions

Title: Quantitative study of dynamic behavior of cell monolayers during in vitro wound healing by optical flow analysis

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:X Ronot, A Doisy, P Tracqui - Cytometry Part A, 2000 - interscience.wiley.comReceived 28 June 1999; Revision Received 8 May 2000; Accepted 19 May 2000 ... Background: In vitro wound healing assays are experimental models commonly used to analyze cell behavior during the migration process. A new approach is proposed for the ... Cited by 13 - Related articles - ACNP Holdings - BL Direct - All 4 versions

Title: Joint optical flow estimation, segmentation, and 3d interpretation with level sets

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:H Sekkati, A Mitche - Computer Vision and Image Understanding, 2006 - ElsevierThis paper describes a variational method with active curve evolution and level sets for the estimation, segmentation, and 3D interpretation of optical flow generated by independently moving rigid objects in space. Estimation, segmentation, and 3D interpretation are performed ... Cited by 14 - Related articles - ACNP Holdings - All 4 versions

Title: A hierarchical approach for obtaining structure from two-frame optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:H Liu, R Chellappa, A Rosenfeld - 2002 - computer.orgA hierarchical iterative algorithm is proposed for extracting structure from two-frame optical flow. The algorithm exploits two facts: one is that in many applications, such as face and gesture recognition, the depth variation of the visible surface of an object in a scene is small ... Cited by 11 - Related articles - All 5 versions

Title: Two-stage robust optical flow estimation

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:M Ye, RM Haralick - cvpr, 2000 - computer.orgWe formulate optical flow estimation as a two-stage regression problem. Based on characteristics of these two regression models and conclusions on modern regression methods, we choose a Least Trimmed Squares followed by weighted Least Squares estimator to solve the ... Cited by 11 - Related articles - BL Direct - All 6 versions

Title: Bias-corrected optical flow estimation for road vehicle tracking

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:HH Nagel, M Haag - 1998 - computer.orgPage 1. Proceedings of the Sixth International Conference on Computer Vision (ICCV'03) 81-7319-221-9/98 \$17.00 © 2003 IEEE Page 2. Proceedings of the Sixth International Conference on Computer Vision (ICCV'03) 81-7319-221-9/98 \$17.00 © 2003 IEEE Page 3. ... Cited by 20 - Related articles - All 4 versions

Title: Heading direction of a mobile robot from the optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:BJ Kröse, A Dev, FCA Groen - Image and Vision Computing, 2000 - ElsevierIf a camera, mounted on a mobile robot, moves on a straight line, the optic flow field is a diverging vector field, of which the singularity is called "focus of expansion" (FOE). An object that is seen in this FOE is located on the future path of the camera. However, a mobile robot usually ... Cited by 12 - Related articles - ACNP Holdings - All 3 versions

Title: Using optical flow fields for polyp detection in virtual colonoscopy

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:B Acar, S Napel, D Paik, B Göktürk, C Tomasi, C … - … Image Computing and …, 2010 - SpringerAbstract. Since the introduction of Computed Tomographic Colonography (CTC), research has mainly focused on visualization and navigation techniques. Recently, efforts have shifted towards computer aided detection (CAD) of polyps. We propose a new approach to CAD in CT ... Cited by 11 - Related articles - BL Direct - All 18 versions

Title: [PDF] Improving shadow suppression in moving object detection with HSV color information

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:R Cucchiara, C Grana, M Piccardi, A Prati, S … - Proc. IEEE Int'l Conf. …, 2001 - Citeseer... All blobs are then processed by image analysis tasks able to extract some features, such as the area, centroid and external extent, and a motion value, in particular the average optical flow [10]. ... 4(d)) because its average optical flow is near to zero. ... Cited by 221 - Related articles - View as HTML - All 6 versions

Title: Facts on optic flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:JJ Koenderink, AJ Doorn - Biological Cybernetics, 1987 - SpringerAbstract. We employ an optimal solution to both the "shape from motion problem" and the related problem of the estimation of self-movement on a purely optical basis to deduce practical rules of thumb for the limits of the optic flow information content in the presence of perturbation ... Cited by 169 - Related articles - ACNP Holdings - All 3 versions

Title: [BOOK] Image and video compression for multimedia engineering: fundamentals, algorithms, and standards

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:YQ Shi, H Sun - 2000 - books.google.com... They are block matching, pel recursion, and optical flow, which are presented in detail in Chapters 11, 12, and 13, respectively. ... Optical flow, the third technique in motion estimation for video coding, is covered in Chapter 13. ... Cited by 227 - Related articles - All 12 versions

Title: Computer vision for interactive computer graphics

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:WT Freeman, DB Anderson, PA Beardsley, … - IEEE Computer …, 1998 - computer.org... Motion Analysis. Back to Top. Often a person's motion signals the important interface information to the computer. Computer vision methods to analyze "optical flow" can be used to sense movements or gestures. ... 7. Fast Optical Flow. ... Cited by 148 - Related articles - ACNP Holdings - BL Direct - All 9 versions

Title: Acceleration and validation of optical flow based deformable registration for image-guided radiotherapy

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:KØ Noe, BD De Senneville, UV Elstrøm, K … - Acta …, 2008 - informahealthcare.comMaterials and methods. Two registration methods based on optical flow estimation have been programmed to run on a graphics programming unit (GPU). One of these methods by Horn & Schunck is tested on a 4DCT thorax data set with 10 phases and 41 landmarks identified ... Cited by 11 - Related articles - ACNP Holdings - All 4 versions

Title: Noise-resilient estimation of optical flow by use of overlapped basis functions

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:S Srinivasan, R Chellappa - JOSA A, 1999 - opticsinfobase.orgReceived December 18, 1997; accepted September 17, 1998; revised manuscript received November 3, 1998 Conventional techniques for the computation of optical flow from image gradients are used to formulate the problem as a nonlinear optimization that comprises a gradient ... Cited by 12 - Related articles - ACNP Holdings - BL Direct - All 26 versions

Title: [PDF] Optical flow estimation using discontinuity conforming filters

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:ME Spetsakis - Computer Vision and Image Understanding, 1997 - CiteseerThe discontinuities and the large image displacements pose some of the hardest problems in flow estimation. This paper uses a set of filters that change shape to avoid blending of the constraints across discontinuity boundaries. This is done by using an incompatibility ... Cited by 11 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 11 versions

Title: Phase-resolved optical coherence tomography and optical Doppler tomography for imaging blood flow in human skin with fast scanning speed and high velocity …

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:Y Zhao, Z Chen, C Saxer, S Xiang, JF de Boer, JS … - Optics …, 2000 - opticsinfobase.org114 OPTICS LETTERS / Vol. 25, No. 2 / January 15, 2000 ... Phase-resolved optical coherence tomography and optical ... Doppler tomography for imaging blood flow in human ... Yonghua Zhao, Zhongping Chen, Christopher Saxer, Shaohua Xiang, Johannes F. de Boer, and J. ... Cited by 243 - Related articles - ACNP Holdings - BL Direct - All 19 versions

Title: Finite element method for determination of optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:H Kirchner, H Niemann - Pattern Recognition Letters, 1992 - ElsevierIn this paper the application of the finite element method is presented to compute the optical flow field. Using this approach homogeneous areas are roughly triangulated. And vice versa, a fine partition at motion boundaries ensures a flow field with high resolution. This ... Cited by 11 - Related articles - ACNP Holdings - All 4 versions

Title: Tracking of LV endocardial surface on real-time three-dimensional ultrasound with optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:Q Duan, ED Angelini, SL Herz, O Gerard, P …; - Functional Imaging and …;, 2005 - SpringerAF Frangi et al. (Eds.): FIMH 2005, LNCS 3504, pp. 434–445, 2005. © Springer-Verlag Berlin Heidelberg 2005 ... Tracking of LV Endocardial Surface on Real-Time ... Qi Duan¹, Elsa D. Angelini², Susan L. Herz¹, Olivier Gerard³, Pascal Allain³, Christopher M. Ingrassia¹, Kevin D. ... Cited by 11 - Related articles - All 8 versions

Title: Recovering 3-D motion parameters from optical flow field using randomized Hough transform
Author: T Low, G Wyeth - Australasian Conference on Robotics and …;, 2005 - araa.asn.au
Year:2005

Content:J Heikkonen - Pattern Recognition Letters, 1995 - ElsevierPattern Recognition LetterS ELSEVIER Pattern Recognition Letters 16 (1995) 971978 Recovering 3D motion parameters from optical flow field using randomized Hough transform Jukka Heikkonen *'1 European Commission, Joint Research Centre, Institute for Systems Engineering and ... Cited by 11 - Related articles - ACNP Holdings - All 5 versions

Title: [PDF] Errors-in-variables modeling in optical flow problems
Author: T Low, G Wyeth - Australasian Conference on Robotics and …;, 2005 - araa.asn.au
Year:2005

Content:L Ng, V Solo - IEEE INTERNATIONAL CONFERENCE ON …;, 1998 - Citeseer... ICASSP98, Seattle, Washington, May 1998, vol V, pp2773-2776. c IEEE 1998 ERRORS-IN- VARIABLES MODELLING IN OPTICAL FLOW PROBLEMS Lydia Ng ... ABSTRACT Althoughstill in practice, the use of total least squares (TLS) in optical flow estimation is unreliable. ... Cited by 9 - Related articles - View as HTML - BL Direct - All 5 versions

Title: Optical flow using overlapped basis functions for solving global motion problems
Author: T Low, G Wyeth - Australasian Conference on Robotics and …;, 2005 - araa.asn.au
Year:2005

Content:S Srinivasan, R Chellappa - Computer Vision—ECCV'98, 1998 - SpringerAbstract. Motion problems in which the scene motion largely con- forms to a low order global motion model are called global motion problems, examples of which are stabilization, mosaicking and motion super- resolution. In this paper, we propose a two-step solution for robustly ... Cited by 11 - Related articles - BL Direct - All 5 versions

Title: [PDF] Adaptive background estimation and foreground detection using kalman-filtering
Author: T Low, G Wyeth - Australasian Conference on Robotics and …;, 2005 - araa.asn.au
Year:2005

Content:C Ridder, O Munkelt, H Kirchner - Proceedings of International …;, 1995 - Citeseer... This is similar to approaches based on the optical flow [2]. The cal- culation of the optical flow is computationally expensive, and usually special hardware is used for real-time applications. Es- pecially detecting non-rigid objects ... Cited by 236 - Related articles - View as HTML - All 6 versions

Title: Multiperspective panoramas for cel animation
Author: T Low, G Wyeth - Australasian Conference on Robotics and …;, 2005 - araa.asn.au
Year:2005

Content:DN Wood, A Finkelstein, JF Hughes, CE …; - Proceedings of the …;, 1997 - portal.acm.org... We want this true for every w, but because Pt must be a linear map, we compromise by requiring it only on average: we compute the similarity transform that is the least-squares approximation of the optical flow, the flow of world-space points across the image plane of the camera ... Cited by 171 - Related articles - ACNP Holdings - All 33 versions

Title: 3D Reconstruction from SECCHI-EUVI Images Using an Optical-Flow Algorithm: Method Description and Observation of an Erupting Filament

Author: T Low, G Wyeth - Australasian Conference on Robotics and …;, 2005 - araa.asn.au
Year:2005

Content:SF Gissot, JF Hochedez, P Chainais, JP Antoine - Solar physics, 2008 - SpringerAbstract SECCHI-EUVI telescopes provide the first EUV images enabling a 3D recon- struction of solar coronal structures. We present a stereoscopic reconstruction method based on the Velociraptor algorithm, a multiscale optical-flow method that estimates displacement maps in ... Cited by 9 - Related articles - ACNP Holdings - All 7 versions

Title: Simulation of self-motion in tethered flying insects: an optical flow field for locusts

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au
Year:2005

Content:A Baader - Journal of neuroscience methods, 1991 - ElsevierA low-cost solution for a visual flow field device is described. The apparatus generates progressive and regressive patterns of motion with variable angular speeds and intensities. Additionally, rotational stimuli can be applied. First results show the efficiency of the flow field in ... Cited by 12 - Related articles - ACNP Holdings - All 3 versions

Title: Dendritic structure and receptive-field organization of optic flow processing interneurons in the fly
Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au
Year:2005

Content:HG Krapp, B Hengstenberg, R … - Journal of …, 1998 - Am Physiological SocLocomotion of animals or robots through varying surroundings may affect their body equilibrium and the orientation toward their goal. To stabilize gait and course, reliable information about self-motion is required continuously. Locomotion through optically structured ... Cited by 152 - Related articles - ACNP Holdings - BL Direct - All 12 versions

Title: Locating the Singular Point in First-Order Optical Flow Fields* 1
Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au
Year:2005

Content:SF te Pas, AML Kappers, JJ Koenderink - Journal of Experimental …, 1998 - ElsevierThe authors investigated how well participants were able to locate the singular point in an expanding or rotating flow field. The participants's responses gave insight into the magnitude and direction of possible deviations from the veridical point and into the reproducibility of the ... Cited by 12 - Related articles - ACNP Holdings - BL Direct - All 3 versions

Title: Optical flow based model for scene cut detection
Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au
Year:2005

Content:O Fatemi, S Zhang, S Panchanathan - CAN CONF ELECTR COMPUT …, 1996 - csa.com. O Fatemi, S Zhang, S Panchanathan CAN CONF ELECTR COMPUT ENG 1, 470-473, 1996. ... This paper presents an optical flow based model with linear prediction to realize cut detection in various transition conditions. ... Cited by 10 - Related articles - All 2 versions

Title: Lucas/Kanade meets Horn/Schunck: Combining local and global optic flow methods
Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au
Year:2005

Content:A Bruhn, J Weickert, C Schnörr - International Journal of Computer Vision, 2005 - SpringerInternational Journal of Computer Vision 61(3), 211-231, 2005 c 2005 Springer Science + Business Media, Inc. Manufactured in The Netherlands. ... Lucas/Kanade Meets Horn/Schunck: Combining Local and Global Optic Flow Methods ... ANDR 'ES BRUHN AND JOACHIM WEICKERT' ... Cited by 247 - Related articles - BL Direct - All 29 versions

Title: [PDF] Focal-plane optical flow computation by foveated CNNs
Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au
Year:2005

Content:M Balsi - Proc. of Fifth IEEE International Workshop on Cellular …, 1998 - CiteseerABSTRACT: Optical flow computation is instrumental in robot guidance. Optoelectronic smart-pixel sensors for such computation may be realized on a single chip, by making use of a suitable Cellular Neural Network architecture defined on a log-polar space-variant grid. ... Cited by 10 - Related articles - View as HTML - All 5 versions

Title: [PDF] Evaluation of optical flow algorithms for tracking endocardial surfaces on three-dimensional ultrasound data
Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au
Year:2005

Content:Q Duan, ED Angelini, SL Herz, CM Ingrassia, O … - SPIE International …, 2005 - CiteseerWith relatively high frame rates and the ability to acquire volume data sets with a stationary transducer, 3D ultrasound systems, based on matrix phased array transducers, provide valuable three-dimensional information, from which quantitative measures of cardiac function can ... Cited by 10 - Related articles - View as HTML - All 10 versions

Title: Diffusion of general data on non-flat manifolds via harmonic maps theory: The direction diffusion case

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:B Tang, G Sapiro, V Caselles - International Journal of Computer Vision, 2000 - Springer... manifolds. We present a number of theoretical results, open questions, and examples for gradient vectors, optical flow, and color images. Keywords ... regu- lar. This is the case for example for smooth 2D image gradients and 2D optical flow. ... Cited by 171 - Related articles - BL Direct - All 21 versions

Title: An improved algorithm for TV-L 1 optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:A Wedel, T Pock, C Zach, H Bischof, D … - Statistical and Geometrical …, 2009 - SpringerAbstract. A look at the Middlebury optical flow benchmark [5] reveals that nowadays variational methods yield the most accurate optical flow fields between two image frames. In this work we propose an improvement variant of the original duality based TV-L1 optical flow algorithm ... Cited by 14 - Related articles - All 7 versions

Title: Optical Doppler tomographic imaging of fluid flow velocity in highly scattering media

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:Z Chen, TE Milner, D Dave, JS Nelson - Optics letters, 1997 - opticsinfobase.org... 22, No. 1 / January 1, 1997 Optical Doppler tomographic imaging of fluid flow velocity in highly scattering media ... ODT combines Doppler velocimetry with the high spatial resolution of low-coherence optical interferometry to measure fluid flow velocity at discrete spatial locations. ... Cited by 224 - Related articles - ACNP Holdings - BL Direct - All 12 versions

Title: [PDF] Optical flow based structure from motion

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:M Zucchelli - Numerical Analysis and Computer Science - CiteseerAkademisk avhandling som med tillstånd av Kungliga Tekniska Högskolan framlägges till offentlig granskning för avläggande av teknisk doktorsexamen torsdagen den 13 juni 2002 kl 14.00 i hörsal E1, Lindstedtsvägen 3, Kungliga Tekniska Högskolan, Valhallavägen 79, Stockholm. Cited by 13 - Related articles - All 13 versions

Title: [PDF] A reliable optical flow algorithm using 3-d hermite polynomials

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:H Liu, T Hong, M Herman, R Chellappa - NIST IR-5333, December, 1993 - nist.gov1. Introduction During the past decade, a great deal of effort has been spent on the computation of optical flow. Three methodologies have been explored: spatio-temporal energy based[1,12,13,23], correlation based[3,20,25], and gradient based methods[6,14,18,19,10] ... Cited by 11 - Related articles - All 5 versions

Title: [BOOK] Machine vision

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:ER Davies - 2005 - library.wisc.edu... 493 17.4.1 Solution of the 3-Point Problem 497 17.4.2 Using Symmetrical Trapezia for Estimating Pose 498 17.5 Concluding Remarks 498 17.6 Bibliographical and Historical Notes 501 17.7 Problems 502 CHAPTER 18 Motion 18.1 Introduction 505 18.2 Optical Flow 505 18.3 ... Cited by 152 - Related articles - All 2 versions

Title: Optical flow 3d segmentation and interpretation: A variational method with active curve evolution and level sets

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:A Mitiche, H Sekkati - IEEE transactions on pattern analysis and …, 2006 - computer.orgAbstract—This study investigates a variational, active curve evolution method for dense three-dimensional (3D) segmentation and interpretation of optical flow in an image sequence of a scene containing

moving rigid objects viewed by a possibly moving camera. This ... Cited by 12 - Related articles - BL Direct - All 8 versions

Title: [PDF] Comparison between geometry-based and gabor-wavelets-based facial expression recognition using multi-layer perceptron

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:Z Zhang, M Lyons, M Schuster, S Akamatsu - Proceedings of the 3rd. …, 1998 - Citeseer... Mase [13] uses the means and variances of optical flow data at evenly divided small blocks. Yacoob and Davis [22] use the interframe motion of edges extracted in the area of the mouth, nose, eyes, and eyebrows. ... [2] use the combination of optical flow and principal compo- ... Cited by 215 - Related articles - View as HTML - All 12 versions

Title: Automated face analysis by feature point tracking has high concurrent validity with manual FACS coding

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:JF Cohn, AJ Zlochower, J Lien, T … - Psychophysiology, 1999 - interscience.wiley.com... Facial features were auto- matically tracked in digitized image sequences using a hierarchical algorithm for estimating optical flow. ... Descriptors: Facial expression, FACS, Computer vision, Optical flow The face is a rich source of information about human behavior. ... Cited by 154 - Related articles - ACNP Holdings - BL Direct - All 13 versions

Title: Optical flow-based motion compensation algorithm for very low-bit-rate video coding

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:YQ Shi, S Lin, YQ Zhang - International Journal of Imaging …, 1998 - interscience.wiley.comPage 1. Optical Flow-Based Motion Compensation Algorithm for Very Low-Bit-Rate Video Coding ... The proposed algorithm uses optical flow (dense motion vector field) instead of I. INTRODUCTION block matching (block motion vector field) for motion compensa- ... Cited by 10 - Related articles - ACNP Holdings - BL Direct - All 12 versions

Title: In vivo bidirectional color Doppler flow imaging of picoliter blood volumes using optical coherence tomography

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:JA Izatt, MD Kulkarni, S Yazdanfar, JK Barton, AJ … - Optics …, 1997 - opticsinfobase.org... Received May 2, 1997 We describe a novel optical system for bidirectional color Doppler imaging of flow in biological tissues with micrometer-scale resolution and demonstrate its use for in vivo imaging of blood flow in an animal model. ... Cited by 256 - Related articles - ACNP Holdings - BL Direct - All 15 versions

Title: Parametric estimation of optical flow from two perspective views

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:N TAGAWA, A INAGAKI, A … - IEICE TRANSACTIONS on …, 2001 - search.ieice.orgSummary: Since the detection of optical flow (two-dimensional motion field on an image) from image sequences is essentially an ill-posed problem, most of the conventional methods use a smoothness constraint for optical flow heuristically and detect reasonable optical flow. ... Cited by 8 - Related articles - Cached - BL Direct - All 2 versions

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Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:SF Gissot, JF Hochedez - Astronomy and Astrophysics, 2007 - edpsciences. orgAbstract Context. Movies of the solar atmosphere reveal motion and variations in brightness. In particular, sequences of coronal images exhibit the plane-of-the-sky component of the velocity combined with other variations in the signal. The present work analyses solar extreme- ... Cited by 11 - Related articles - ACNP Holdings - BL Direct - All 13 versions

Title: Detection of motion during tomographic acquisition by an optical flow algorithm

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:R Noumeir, GE Mailloux, R Lemieux - Computers and Biomedical …, 1996 - ElsevierAn automatic procedure to detect and quantify patient motion during the acquisition of the tomographic views in single photon emission computerized tomography (SPECT) is proposed. This method first computes the optical flow vector field which assigns to each pixel of a tomographic ... Cited by 9 - Related articles - ACNP Holdings - All 6 versions

Title: Evaluation of body motion by optical flow analysis

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:K Nakajima, A Osa, T Maekawa, H MllKE - Jpn. J. Appi. Phys. Vol, 1997 - jjap.ipap.jpJpn. J. Appi. Phys. Vol. 36 (1997) pp. 2929-2937 Part 1, No. 5A, May 1997 Evaluation of Body Motion by Optical Flow Analysis Kazuki Nakajima, Atsushi Osa1, Tsuyoslii Maekawa2 and Hidetoshi MllKE Department of Kansei Design and Engineering, Faculty of Engineering, Yamaguchi ... Cited by 10 - Related articles - ACNP Holdings - BL Direct - All 3 versions

Title: On unified optical flow field

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

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Content:CQ Shu, YQ Shi - Pattern recognition, 1991 - ElsevierA new approach to motion analysis from a sequence of stereo images has been developed recently (CQ Shu and YQ Shi, A new approach to motion analysis from a sequence of stereo images, Technical Report No. 18, Electronic Imaging Laboratory, Department of Electrical and ... Cited by 10 - Related articles - ACNP Holdings - All 5 versions

Title: The use of optical flow for the analysis of non-rigid motions

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

Year:2005

Content:A Giachetti, V Torre - International Journal of Computer Vision, 1996 - SpringerInternational Journal of Computer Vision 18(3), 255-279 (1996) © 1996 Kluwer Academic Publishers. Manufactured in The Netherlands. ... The Use of Optical Flow for the Analysis of Non-Rigid Motions ... ANDREA GIACHETTI AND VINCENT TORRE Dipartimento di ... Cited by 11 - Related articles - BL Direct - All 8 versions

Title: [PDF] Fast computation of a boundary preserving estimate of optical flow

Author: T Low, G Wyeth - Australasian Conference on Robotics and …, 2005 - araa.asn.au

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Content:R El-Feghali, A Mitiche - Proceedings of The Eleventh British Machine …, 2000 - CiteseerThe analysis of motion in image sequences can serve a useful purpose in numerous applications. These applications include vision-guided robot autonomous navigation, augmented reality rendering of visual communications data, and visual monitoring of sites of activity. ... Cited by 9 - Related articles - View as HTML - All 9 versions

Title: [PDF] Analyzing facial expressions for virtual conferencing

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Title: Bayesian clustering of optical flow fields

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:We present a method for unsupervised learning of classes of motions in video. We project optical flow fields to a complete, orthogonal, a-priori set of basis functions in a probabilistic fashion, which improves the estimation of the projections by incorporating uncertainties ... Cited by 11 - Related articles - All 22 versions

Title: Optical flow fields and Bernstein's modeling of the future

Author: J Hoey, JJ Little - 2003 - computer.org

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Title: Large displacement optical flow
Author: J Hoey, JJ Little - 2003 - computer.org
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Content:T Brox, C Bregler, J Malik - 2009 - computer.orgThe literature currently provides two ways to establish point correspondences between images with moving objects. On one side, there are energy minimization methods that yield very accurate, dense flow fields, but fail as displacements get too large. On the other side, ... Cited by 11 - Related articles - ACNP Holdings - All 8 versions

Title: Three-dimensional shape analysis using moments and Fourier descriptors
Author: J Hoey, JJ Little - 2003 - computer.org
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Content:AP Reeves, RJ Prokop, SE Andrews, FP ... - IEEE Transactions on ..., 1988 - computer.orgPage 1. IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, VOL. 10, NO. 6, NOVEMBER 1988 937 TABLE VII EXECUTION TIMES OF OPERATORS. MEASUREMENTS ARE FOR OPERATION ON A 256 x 256 PIXEL IMAGE ... Cited by 157 - Related articles - All 8 versions

Title: A 3D optical flow approach to addition of deformable PET volumes
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:GJ Klein, RH Huesman - nam, 1997 - computer.orgA method for combining datasets from gated cardiac PET acquisitions is described. Optical flow techniques are used to accurately model non-rigid motion present during the cardiac cycle so that a one-to-one mapping is found between each voxel of two gated volumes. Using this ... Cited by 10 - Related articles - All 11 versions

Title: [PDF] Estimating fluid optical flow
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:T Corpetti, E M  min, P P  rez - INTERNATIONAL CONFERENCE ON ..., 2000 - CiteseerAbstract In this paper, we address the problem of fluid motion estimation in image sequences. For such motions, standard optical flow methods, based on intensity conservation and spatial coherence of motion field, are not suitable. This is due to the highly ... Cited by 9 - Related articles - View as HTML - BL Direct - All 10 versions

Title: How much does color information help optical flow computation?
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:N Ohta, S Nishizawa - IEICE TRANSACTIONS on Information and ..., 2006 - search.ieice.orgSummary: Optical flow is usually computed only on the basis of intensity information of images. Therefore, if we use color information in addition to the intensity, it is expected that more accurate optical flow can be computed. However, this intuition will be correct only when ... Cited by 8 - Related articles - Cached - BL Direct - All 4 versions

Title: Evaluation of differential optical flow techniques on synthesized echo images
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:P Baraldi, A Sarti, C Lamberti, A Prandini, F ... - IEEE Transactions on ..., 1996 - cat.inist.frThe performance of three methods for evaluation of motion on synthesized 2-D echo image sequences with features similar to real ones are examined. The selected techniques based on the computation of optical flow are of the differential type and assume that the image brightness pattern is ... Cited by 49 - Related articles - ACNP Holdings - BL Direct - All 3 versions

Title: Noninvasive imaging of in vivo blood flow velocity using optical Doppler tomography

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

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Title: [PDF] FPGA implementation of Santos-Victor optical flow algorithm for real time image processing: an useful attempt

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:PC Arribas, FMH Maciá - Proceedings of SPIE, 2003 - Citeseer... Camera control Actions calculus Optical Flow Figure 1: Blocks diagram of the vision system. FPGA implementation of Santos-Victor optical flow algorithm for real time image processing: an useful attempt. P. Cobos Arribas 1 * a , F. Monasterio Huelin Maciá b a Dpto. SEC. ... Cited by 10 - Related articles - View as HTML - ACNP Holdings - All 7 versions

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Author: J Hoey, JJ Little - 2003 - computer.org

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Title: Featureless robot navigation using optical flow

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:N Ohnishi, A Imiya - Connection Science, 2005 - informaworld.comIn this paper, we aim to develop an algorithm for featureless navigation of an autonomous robot using optical flow observed through a vision system mounted on a mobile robot. Furthermore, we show that this optical flow observed from a mobile robot for navigation of ... Cited by 11 - Related articles - ACNP Holdings - BL Direct - All 5 versions

Title: A combinatorial optimization approach to extract piecewise linear structure from non-linear data and an application to optical flow segmentation

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:E Amaldi, M Mattavelli - 1997 - CiteseerMany tasks arising in the analysis of visual information have been considered as ill-posed linear inverse problems. Due to the importance of discontinuities, piecewise linear models are often appropriate. However, although there have been several attempts to extend ... Cited by 8 - Related articles - Cached - All 2 versions

Title: Variational optic flow computation with a spatio-temporal smoothness constraint

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:J Weickert, C Schnörr - Journal of Mathematical Imaging and Vision, 2001 - SpringerAbstract. Nonquadratic variational regularization is a well-known and powerful approach for the discontinuity- preserving computation of optic flow. In the present paper, we consider an extension of flow-driven spatial smoothness terms to spatio-temporal regularizers. Our method ... Cited by 168 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: [PDF] Optical flow for validating medical image registration

Author: J Hoey, JJ Little - 2003 - computer.org

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Content:JR Cooper, N Ritter - Proc. 9th IASTED Int. Conf. Signal Image Process - CiteseerABSTRACT Many approaches to the task of computing medical image registration have been presented, but there is little knowledge

of how to evaluate the quality of the models of transformation these approaches use, or accuracy of the computed parameters. There is the ... Cited by 10 - Related articles - View as HTML - All 5 versions

Title: Experience with 3D optical flow on gated MRI cardiac datasets

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:JL Barron - 2004 - computer.orgExperience with 3D Optical Flow on Gated MRI Cardiac Datasets John L. Barron Dept.of Computer Science University of Western Ontario London, Ontario, Canada barron@csd.uwo.ca Abstract: We report on the computation of 3D volumetric optical flow on gated MRI ... Cited by 10 - Related articles - All 4 versions

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Author: J Hoey, JJ Little - 2003 - computer.org

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Author: J Hoey, JJ Little - 2003 - computer.org

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Title: Constrained structure and motion estimation from optical flow

Author: J Hoey, JJ Little - 2003 - computer.org

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Content:M Zucchelli, J Santos-Victor, HI Christensen - Pattern Recognition, 2002 - computer.orgUnbiased and consistent estimates of structure and motion can be obtained by least squares minimization of the differential epipolar constraint. Previous work on this subject does not make use of geometrical constraints that often are present in natural and man built scenes. ... Cited by 9 - Related articles - ACNP Holdings - BL Direct - All 15 versions

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Title: Three-dimensional space from optical flow correspondence*

Author: J Hoey, JJ Little - 2003 - computer.org

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Content:A Mitiche - Computer Vision, Graphics, and Image Processing, 1988 - ElsevierThis study considers the use of two distinct images of a number of points at which optical flow is known, to recover the relative displacement of the viewing systems and the position and motion of the points in space. The viewing systems are assumed immobile and the points rigidly ... Cited by 9 - Related articles - ACNP Holdings - All 4 versions

Title: Combined space-variant maps for optical-flow-based navigation

Author: J Hoey, JJ Little - 2003 - computer.org

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Content:G Barattoff, C Toepfer, H Neumann - Biological Cybernetics, 2000 - SpringerAbstract. A robot navigating in an unstructured environment needs to avoid obstacles in its way and determine free spaces through which it can safely pass. We present here a set of optical-flow-based behaviors that allow a robot moving on a ground plane to perform ... Cited by 13 - Related articles - ACNP Holdings - BL Direct - All 13 versions

Title: [PDF] Determining optical flow for large motions using parametric models in a hierarchical framework
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Title: [PDF] Obstacle avoidance for unmanned air vehicles using optical flow probability distributions
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Year:2003

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Title: Silicon microchannel optical flow cytometer
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:EH Altendorf, P Yager - US Patent 5,726,751, 1998 - Google PatentsUS Patent Mar. 10, 1998 Sheet 1 of 6 5,726,751 Fig. 1 ... US Patent Mar. 10, 1998 Sheet 2 of 6 5,726,751 1160—A neb 1220 Fig. 2a 1160,1220 Fig. 2b ... US Patent Mar. 10, 1998 Sheet 3 of 6 5,726,751 20 Fig. 3 50 ... US Patent Mar. 10, 1998 Sheet 4 of 6 5,726,751 II r Fig. 4 Cited by 9 - Related articles - All 3 versions

Title: Dense structure estimation via regularised optical flow
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

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Title: [PDF] Exploiting texture-motion duality in optical flow and image segmentation
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:MG Ross - 2000 - Citeseer... 1.3 What is Optical Flow? According to Horn, the optical flow of a sequence is “the apparent motion of the brightness pattern”[15]. ... optical flow and segmentation. 2.1 Optical Flow Optical flow is useful because it is a crucial part of many other perceptual tasks, ... Cited by 10 - Related articles - View as HTML - All 8 versions

Title: Improved Reservoir Management with Intelligent Multi-Zone WAG Injectors and Downhole Optical Flow Monitoring

Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:B Sandoy, T Tjomsland, D Barton, G Daae, E … - SPE Annual Technical …, 2005 - onepetro.orgCopyright 2005, Society of Petroleum Engineers This paper was prepared for presentation at the 2005 SPE Annual Technical Conference and Exhibition held in Dallas, Texas, USA, 9 – 12 October 2005. This paper was selected for presentation by an SPE Program Committee ... Cited by 9 - Related articles

Title: Wind estimation using an optical flow sensor on a miniature air vehicle
Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

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Title: 3D optical flow computation using a parallel variational multigrid scheme with application to cardiac C-arm CT motion

Author: J Hoey, JJ Little - 2003 - computer.org

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Title: Layered representation for motion analysis

Author: J Hoey, JJ Little - 2003 - computer.org

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Title: Ego-motion estimation using optical flow fields observed from multiple cameras

Author: J Hoey, JJ Little - 2003 - computer.org

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Title: An edge and color oriented optical flow estimation using block matching

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:D Zhāng, G Lu - Proc. of International Conference on Signal Processing …, 2000 - CiteseerAbstract: For most tasks in image sequence analysis, the estimation of optical flow is the primary step towards the final solution. Block matching, which is adopted by many current coding standards, is the most popular method among other approaches. Research in this area ... Cited by 8 - Related articles - Cached - All 6 versions

Title: Accurate optical flow in noisy image sequences using flow adapted anisotropic diffusion

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:H Scharr, H Spies - Signal Processing: Image Communication, 2005 - ElsevierIn this paper, we combine 3D anisotropic diffusion and motion estimation for image denoising and improvement of motion estimation. We compare different continuous isotropic nonlinear and anisotropic diffusion processes, which can be found in literature, with a process ... Cited by 9 - Related articles - All 6 versions

Title: Domain decomposition for parallel variational optical flow computation

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:T Kohlberger, C Schnörr, A Bruhn, J Weickert - Pattern Recognition, 2003 - SpringerAbstract. We present an approach to parallel variational optical flow computation by using an arbitrary partition of the image plane and

iteratively solving related local variational problems associated with each sub-domain. The approach is particularly suited for ... Cited by 8 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: An optical flow MTV based technique for measuring microfluidic flow in the presence of diffusion and Taylor dispersion

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Year:2003

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Title: Performance evaluation of optical flow estimators: Assessment of a new affine flow method

Author: J Hoey, JJ Little - 2003 - computer.org

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Content:E Grossmann, J Santos-Victor - Robotics and Autonomous Systems, 1997 - ElsevierOver the years, computer vision researchers have developed a number of algorithms to solve a large number of problems. However, most of the existing algorithms are not characterized in terms of their performance, accuracy, cost, etc. Consequently, it is hardly ever possible to ... Cited by 9 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: Dense optical flow estimation from the monogenic curvature tensor

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:D Zang, L Wietzke, C Schmaltz, G Sommer - Scale Space and Variational …, 2010 - SpringerAbstract. In this paper, we address the topic of estimating two-frame dense optical flow from the monogenic curvature tensor. The monogenic curvature tensor is a novel image model, from which local phases of image structures can be obtained in a multi-scale way. We adapt the ... Cited by 9 - Related articles - BL Direct - All 6 versions

Title: Sources of optical information and their metrics for detecting loss in altitude

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Title: [PDF] Perception of self-motion from visual flow

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:M Lappe, F Bremmer, AV Van … - Trends in Cognitive …, 1999 - wwwpsy.uni-muenster.de... Visual feedback about self-motion is provided by optic flow. Optic flow can be used to estimate the direction of self-motion ('heading') rapidly and efficiently. ... The dorsal stream of primate cortex contains motion processing areas that are selective for optic flow and self-motion. ... Cited by 140 - Related articles - View as HTML - ACNP Holdings - All 8 versions

Title: On refractive optical flow

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:S Agarwal, S Mallick, D Kriegman, S … - Computer Vision-ECCV …, 2004 - SpringerAbstract. This paper presents a novel generalization of the optical flow equation to the case of refraction, and it describes a method for recovering the refractive structure of an object from a video sequence acquired as the background behind the refracting object moves. By ... Cited by 9 - Related articles - BL Direct - All 10 versions

Title: Optical flow

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:B Neumann - ACM SIGGRAPH Computer Graphics, 1984 - portal.acm.orgA large number of contributions to this workshop is concerned with computing or making use of optical flow . This is the term now commonly used for an intermediate representation of time-varying imagery where each pixel is assigned a velocity vector describing its ... Cited by 7 - Related articles - ACNP Holdings - All 2 versions

Title: Optical flow sensor

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:RS Conero, TL Landis - US Patent 4,680,977, 1987 - Google PatentsUnited States Patent [19] Conero et al. [ii] Patent Number: [45] Date of Patent: 4,680,977 Jul. 21, 1987 [54] OPTICAL FLOW SENSOR [75] Inventors: Ronald S. Conero; Terry L. Landis, both of San Diego, Calif. [73] Assignee: Ivac Corporation, San Diego, Calif. [21] Appl. No.: ... Cited by 8 - Related articles

Title: Inherent ambiguities in recovering 3-D motion and structure from a noisy flow field

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:G Adiv - IEEE Transactions on Pattern Analysis and Machine …, 1989 - computer.org... be integrated, as an additional knowledge source, into an image understanding system, such as the VISIONS system [5]. The most common approach for the analysis of visual motion is based on two phases: computation of an optical flow field and interpretation of this field. ... Cited by 277 - Related articles - All 8 versions

Title: Optical flow based super-resolution: A probabilistic approach

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:R Fransens, C Strecha, L Van Gool - Computer vision and image …, 2007 - ElsevierThis paper deals with the computation of a single super-resolution image from a set of low-resolution images, where the motion fields are not constrained to be parametric. In our approach, the inversion process, in which the super-resolved image is inferred from the input data, is interleaved ... Cited by 8 - Related articles - ACNP Holdings - All 6 versions

Title: On the computation of optical flow using the 3-D Gabor transform

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:TR Reed - Multidimensional Systems and Signal Processing, 1998 - SpringerAbstract. The motion of brightness patterns in an image sequence (optical flow) is most intuitively considered as a spatiotemporal phenomenon. It has been shown, however, that motion has a characteristic signature in the spatiotemporal-frequency (Fourier) domain. This fact can ... Cited by 7 - Related articles - ACNP Holdings - BL Direct - All 4 versions

Title: Stochastic formulations of optical flow algorithms under variable brightness conditions (PDF)

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:SN Gupta, JL Prince - computer.orgPage 1. STOCHASTIC FORMULATIONS OF OPTICAL FLOW ALGORITHMS UNDER VARIABLE BRIGHTNESS CONDITIONS ... email : jprince@jhu.edu ABSTRACT In this paper, we examine optical flow methods applicable under variable brightness conditions. In particular, we ... Cited by 7 - Related articles - All 6 versions

Title: In vivo dynamic human retinal blood flow imaging using ultra-high-speed spectral domain optical coherence tomography

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:B White, M Pierce, N Nassif, B Cense, B Park, G … - Optics …, 2003 - opticsinfobase.orgIn vivo dynamic human retinal blood flow ... Brian R. White, Mark C. Pierce, Nader Nassif, Barry Cense, B. Hyle Park, Guillermo J. Tearney, Brett E. Bouma Harvard Medical School & Wellman Center for Photomedicine, Massachusetts General Hospital 50 Blossom St., BAR 724, ... Cited by 144 - Related articles - ACNP Holdings - All 15 versions

Title: Model for the extraction of image flow
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:DJ Heeger - Journal of the Optical Society of America A, 1987 - opticsinfobase.orgReceived April 28, 1986; accepted April 1, 1987 A model is presented, consonant with current views regarding the neurophysiology and psychophysics of motion perception, that combines the outputs of a set of spatiotemporal motion-energy filters to extract optical flow. The ... Cited by 499 - Related articles - ACNP Holdings - All 10 versions

Title: Multi-point optical measurements of simultaneous vectors in unsteady flow--a review
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:RJ Adrian - International Journal of Heat and Fluid Flow, 1986 - ElsevierOptical techniques for measuring large numbers of simultaneous velocity vectors in two- and three-dimensional regions of fluid flows are reviewed. These nonobtrusive methods provide spatial information of the type that is available from flow visualization with accuracy ... Cited by 181 - Related articles - ACNP Holdings - BL Direct - All 2 versions

Title: [PDF] Motion displacement estimation using an affine model for image matching
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:CS Fuh, P Maragos - Optical Engineering, 1991 - csie.ntu.edu.tw... For example, Horn and Schunck⁴ used the optical flow constraint $\frac{dI}{dt} = 0 \Rightarrow (8I/8x)v + (8I/8y)v = -31/at$, where v_x, v_y are the x,y velocity components. ... Brockett⁶ developed a least-squares approach to approximate optical flow by affine vector fields using shape gramians. ... Cited by 53 - Related articles - View as HTML - ACNP Holdings - All 5 versions

Title: Measuring hearing organ vibration patterns with confocal microscopy and optical flow
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:A Fridberger, J Widengren, J Boutet de Monvel - Biophysical journal, 2004 - ElsevierA new method for visualizing vibrating structures is described. The system provides a means to capture very fast repeating events by relatively minor modifications to a standard confocal microscope. An acousto-optic modulator was inserted in the beam path, generating brief ... Cited by 8 - Related articles - ACNP Holdings - BL Direct - All 12 versions

Title: Piecewise-quadrilateral registration by optical flow--applications in contrast-enhanced MR imaging of the breast

Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:M Froh, D Barber, K Brock, D Plewes, A ... - Medical Image Computing ... 2006 - SpringerAbstract. In this paper we propose a method for the nonrigid registration of contrast-enhanced dynamic sequences of magnetic resonance(MR) images. The algorithm has been developed with accuracy in mind, but also has a clinically viable execution time (ie a few minutes) as ... Cited by 8 - Related articles - BL Direct - All 2 versions

Title: Micromachined flow cytometers with embedded etched optic fibers for optical detection
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:CH Lin, GB Lee - Journal of Micromechanics and ... 2003 - iopscience.iop.org... Compact flow cytometry with optical detection was reported by Altendorf et al [8]. Their study demonstrated a bench top optical flow cytometer utilizing silicon V-groove flow channels, in which a laser diode and a photodiode detector were used for cell counting. ... Cited by 57 - Related articles - ACNP Holdings - BL Direct - All 12 versions

Title: Optical flow computation of infrared image [J]
Author: J Hoey, JJ Little - 2003 - computer.org
Year:2003

Content:LI Xi-ying, NI Guo-qiang - Infrared and Laser Engineering, 2002 - en.cnki.com.cnIn the process of computing optical flow, the corresponding relationship among features of sequent images isn't required. So the technique is widely used in many fields of computer vision, such as parameter estimation of moving object and target tracking. But it's rarely used in ... Cited by 6 - Related articles - Cached

Title: A superior estimator to the maximum likelihood estimator on 3-D motion estimation from noisy optical flow

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:T ENDOH, T TORIU, N TAGAWA - IEICE TRANSACTIONS on …, 1994 - search.ieice.orgSummary: We prove that the maximum likelihood estimator for estimating 3-D motion from noisy optical flow is not optimal", ie, there is an unbiased estimator whose covariance matrix is smaller than that of the maximum likelihood estimator when a Gaussian noise distribution is ... Cited by 6 - Related articles - Cached - BL Direct

Title: Stenosis parameter assessment from contrast medium tracking in cineangiography with an optical flow method

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:B Imbert, J Meunier, R Mongrain, G Hudon, MJ … - Proceedings of …, 1997 - link.aip.orgIn this paper, we present an optical flow method to infer the blood flow in arteries by tracking the contrast medium in angiography. In our approach, the velocity field is constrained to be parabolic to take into account this particular property of laminar blood flows. With this method, we ... Cited by 7 - Related articles - ACNP Holdings - All 3 versions

Title: Plenoptic modeling: An image-based rendering system

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:L McMillan, G Bishop - Proceedings of the 22nd annual conference …, 1995 - portal.acm.org... to avoid optical distortion. Also, the planar mapping does not represent a uniform sampling, but instead, is considerably oversampled in the edges and corners. However, the greatest difficulty of a cube-oriented planar projection set is describing the behavior of the image flow ... Cited by 1315 - Related articles - ACNP Holdings - All 50 versions

Title: Undersea optical stationkeeping: Improved methods

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:S Negahdaripour, J Fox - Journal of Robotic Systems, 1991 - interscience.wiley.com... Several improvements to our previously reported optical flow methods for the detection of vehicle motion have been investigated. ... Setting $A_t = 1$, we obtain $E_t - E_{t-1} = c + E_t$, $A_t = 0$. (5b) This is our generalized optical flow equation. ... Cited by 21 - Related articles - ACNP Holdings - All 2 versions

Title: Fluid flow and optical flow

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:T Liu, L Shen - Journal of Fluid Mechanics, 2008 - journals.cambridge.orgThe connection between fluid flow and optical flow is explored in typical flow visualizations to provide a rational foundation for application of the optical flow method to image-based fluid velocity measurements. The projected-motion equations are derived, and the physics-based ... Cited by 8 - Related articles - All 6 versions

Title: Concurrent optical imaging spectroscopy and laser-Doppler flowmetry: the relationship between blood flow, oxygenation, and volume in rodent barrel cortex

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:M Jones, J Berwick, D Johnston, J Mayhew - Neuroimage, 2001 - ElsevierFunctional magnetic resonance imaging (fMRI) is based on the coupling between neural activity and changes in the concentration of the endogenous paramagnetic contrast agent deoxygenated hemoglobin. Changes in the blood oxygen level-dependent (BOLD) signal result from a ... Cited by 115 - Related articles - ACNP Holdings - BL Direct - All 8 versions

Title: Computing depth from stereo images by using optical flow

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:A Scheuing, H Niemann - Pattern Recognition Letters, 1986 - ElsevierThis paper presents an approach to depth determination which uses two stereo images and a combination of iteratively computing optical flow with a local correspondence criterion. The method is a low-level solution to depth determination in the sense that no contours, no features, ... Cited by 7 - Related articles - ACNP Holdings - All 3 versions

Title: Real-time assessment of retinal blood flow with ultrafast acquisition by color Doppler Fourier domain optical coherence tomography

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:R Leitgeb, L Schmetterer, W Drexler, A Fercher, … - Optics …, 2003 - opticsinfobase.orgAbstract: We interfaced color Doppler Fourier domain optical coherence tomography (CD-FDOCT) with a commercial OCT system to perform in vivo studies of human retinal blood flow in real time. FDOCT does not need reference arm scanning and records one full ... Cited by 118 - Related articles - ACNP Holdings - All 16 versions

Title: [BOOK] Local approximation techniques in signal and image processing

Author: J Hoey, JJ Little - 2003 - computer.org

Year:2003

Content:VIA Katkovnik, V Katkovnik, K Egiazarian, J Astola - 2006 - books.google.com... viii Contents 8.5 Shading from Depth 253 8.6 Optical Flow Estimation 256 8.6.1 Optical flow equation 257 8.6.2 Velocity estimation 259 8.6.3 Experiments 261 9 Image Reconstruction 263 9.1 Image Deblurring 264 9.1.1 Blur modeling and deblurring 264 9.1.2 LPA deblurring ... Cited by 35 - Related articles - All 3 versions

Title: … movements of pigeons in response to a rotating pattern: characteristics and tool to analyse mechanisms underlying detection of rotational and translational optical flow

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:Summary. Pigeons freely standing in the centre of a two-dimensionally textured cylinder not only rotate but also laterally translate their head in response to the pattern sinusoidally oscillating or unidirectionally rotating around their vertical axis. The translational head movement ... Cited by 9 - Related articles - ACNP Holdings - BL Direct - All 3 versions

Title: [PDF] Marker-less motion capture of skinned models in a four camera set-up using optical flow and silhouettes

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:L Ballan, G Cortelazzo - 3DPVT, Atlanta, GA, USA, 2008 - cc.gatech.eduMotion capture finds application in a variety of fields such as character animation in film and game industries, bio-mechanical analysis, ergonomics and surveillance. Current commercial motion capture products typically use optical, magnetic, inertial or mechanical motion ... Cited by 9 - Related articles - View as HTML - All 4 versions

Title: Optical information for detecting loss in one's own forward speed

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:DH Owen, R Warren, RS Jensen, SJ Mangold, LJ … - Acta Psychologica, 1981 - Elsevier... variables. Deceleration rate, initial forward velocity, and altitude were varied so as to isolate initial optical flow rate, optical flow deceleration, and optical flow damping invariants specified in observer-relevant metrics. The candidate ... Cited by 19 - Related articles - ACNP Holdings - All 4 versions

Title: [PDF] Characterization of fluid flow velocity by optical Doppler tomography

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:XJ Wang, TE Milner, JS Nelson - Optics letters, 1995 - cost.georgiasouthern.eduOptical low-coherence reflectometry (OLCR) is a non-contact technique used in tomographic imaging1-3 and nondestructive testing4-6 of static structures. OLCR determines the location and relative strength of optically scattering structures by

measuring the inter- ference ... Cited by 90 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 11 versions

Title: Visual responses to vorticity and the neural analysis of optic flow

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:D Regan, KI Beverley - Journal of the optical Society of America …, 1985 - opticsinfobase.orgReceived May 4, 1983; accepted October 1, 1984 While an observer is moving forward, his retinal image of the outside world contains a flow field. This optical flow field carries information both about external objects and about where the observer is going relative to these objects. ... Cited by 56 - Related articles - ACNP Holdings - All 9 versions

Title: The selective use of functional optical variables in the control of forward speed

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:W JOHNSON, C AWE - 1994 - csa.com... Previous work on the perception and control of simulated vehicle speed has examined the contributions of optical flow rate (angular visual speed) and texture, or edge rate (frequency of passing terrain objects or markings) on the perception and control of forward speed. ... Cited by 10 - Related articles

Title: Dynamic consistent correlation-variational approach for robust optical flow estimation

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:D Heitz, P Héas, E Mémin, J Carlier - Experiments in fluids, 2008 - SpringerAbstract We present in this paper a novel combined scheme dedicated to the measurement of velocity in fluid experimental flows through image sequences. The proposed technique satisfies the Navier–Stokes equations and combines the robustness of correlation techniques with ... Cited by 8 - Related articles - ACNP Holdings - All 8 versions

Title: Shape from specular reflection and optical flow

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:J Lellmann, J Balzer, A Rieder, J Beyerer - International Journal of …, 2008 - Springer... Shape from Specular Reflection and Optical Flow J. Lellmann · J. Balzer · A. Rieder · J. Beyerer ... This data is exemplarily provided by optical flow measurements obtained by small scale motion of the specular object, with camera and scene remaining stationary. ... Cited by 8 - Related articles - All 8 versions

Title: The TINS Lecture The parietal association cortex in depth perception and visual control of hand action

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:H Sakata, M Taira, M Kusunoki, A Murata, Y … - Trends in …, 1997 - Elsevier... VIP) area in the fundus of the IPS. Other workers have recorded neurons in the dorsal part of area V5A that are sensitive to radial movement of optical flow stimulation[36, 37]. These properties were similar to the opponent vector ... Cited by 323 - Related articles - ACNP Holdings - BL Direct - All 8 versions

Title: [BOOK] A wavelet tour of signal processing

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:SG Mallat - 1999 - books.google.com... 544 11.4 Image Compression 2 548 1.4.1 Deterministic Distortion Rate 548 1.4.2 Wavelet Image Coding 557 1.4.3 Block Cosine Image Coding 561 1.4.4 Embedded Transform Coding 566 1.4.5 Minimax Distortion Rate 3 571 11.5 Video Signals 2 577 1.5.1 Optical Flow 577 1.5 ... Cited by 8757 - Related articles - All 14 versions

Title: Depth from zooming

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:J Ma, SI Olsen - Journal of the Optical Society of America A, 1990 - opticsinfobase.org... The case in which the translation is made along the optical axis is just a special case of the general theory relating the optical flow and the 3-D motion. ... A well-known motion constraint equation is often used to calculate optical flow with certain additional constraints. ... Cited by 42 - Related articles - ACNP Holdings - All 7 versions

Title: A survey of the Hough transform

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:J Illingworth, J Kittler - Computer vision, graphics, and image processing, 1988 - Elsevier... In: S. Levialdi, Editor, Image Analysis, Pitman (1983). DH Ballard and OA Kimball, Rigid body motion from depth and optical flow, CVGIP 22 (1983), pp. 95-115. Article | PDF (6785 K) | View Record in Scopus | Cited By in Scopus (17). ... Cited by 1118 - Related articles - ACNP Holdings - All 4 versions

Title: A note on "Perception of surface slant and edge labels from optical flow"

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:S Prazdny - Perception, 1981 - perceptionweb.com $\mathbf{A} = \mathbf{AT} + \mathbf{AR}$, where \mathbf{AT} is the angular velocity vector of the ray due to translation only, and \mathbf{AR} is the angular velocity due to rotation. It is then easy to see that $\mathbf{bA}/\mathbf{b(3} = \mathbf{bAT}/\mathbf{bp}$. This is because $\mathbf{^4R}$ is the same for all texture elements on a given object. Similarly, $\mathbf{bA}/\mathbf{ba} = \mathbf{bAT}/\mathbf{ba}$. In ... Cited by 6 - Related articles - ACNP Holdings - All 3 versions

Title: [PDF] Using optical flow to control mobile robot navigation

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:M Sarcinelli-Filho, HJA Schneebeli, EMO Caldeira - Proceedings of the, 2002 - nt.ntnu.no Abstract: This paper proposes to use optical flow to get visual feedback to control the navigation of a mobile robot using only the onboard computational set-up. A very fast algorithm is proposed to compute the optical flow, and a confidence measure is applied to the resulting optical ... Cited by 6 - Related articles - View as HTML - All 2 versions

Title: Determination of volumetric flow in capillary tubes using an optical Doppler velocimeter* 1

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:MJ Davis - Microvascular research, 1987 - Elsevier The purpose of this study was to use the optical Doppler velocimeter of Borders and Granger [(1984), Microvasc. Res. 27, 117-127] to determine the ratio of centerline red cell velocity to mean velocity of blood flowing in small glass tubes. Red blood cell suspensions were perfused ... Cited by 109 - Related articles - All 3 versions

Title: [PDF] Monitoring periodic and episodic flow events at Monterey Bay seeps using a new optical flow meter

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:AL LaBonte, KM Brown, MD Tryon - J. Geophys. Res, 2007 - tryonlab.ucsd.edu Received 25 March 2006; revised 7 September 2006; accepted 18 September 2006; published 15 February 2007. [1] To enable testing of the hypothesis that fluid flow from cold seeps responds to episodic tectonic events, we have developed a flow meter with a temporal resolution on ... Cited by 7 - Related articles - View as HTML - ACNP Holdings - All 10 versions

Title: Moving Target Detection in Infrared Imagery Using a Regularised CDWT Optical Flow

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:G Castellano, J Boyce, M Sandler - Proceedings of the IEEE …, 1999 - portal.acm.org A modified version of the CDWT (complex discrete wavelet transform) optical flow algorithm developed by Magarey et al. is applied to the problem of moving target detection in noisy infrared image sequences. The optical flow algorithm is a hierarchical, phase-based approach. The ... Cited by 6 - Related articles - All 3 versions

Title: [PDF] Mechanisms for providing optical bypass in WDM-based networks

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:E Modiano, A Narula-Tam - Optical Networks Magazine, 2000 - Citeseer... ion may be utilized to reduce the load on the electronic routers in a packet-switched network via dynamic load balancing. Lastly, for large volume transmissions, it is possible to bypass all network electronics and provide an all-optical connection through optical flow switching. ... Cited by 21 - Related articles - View as HTML - All 5 versions

Title: Measurement of the velocity of blood flow (in vivo) using a fiber optic catheter and optical mixing spectroscopy

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:T Tanaka, GB Benedek - Applied optics, 1975 - opticsinfobase.org1. Introduction We present a new method to measure the blood speed in vessels using a fiber optic catheter and the technique of optical mixing spectroscopy. We introduce laser light into a vessel through the fiber optic catheter. The light scattered back from the moving ... Cited by 97 - Related articles - ACNP Holdings - All 6 versions

Title: [PDF] A real-time, miniaturized optical sensor for motion estimation and time-to-crash detection

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:N Ancona, G Creanza, D Fiore, R Tangorra, B … - … FOR OPTICAL …, 1996 - caelest.eu... The sensing principle is that of computing and analyzing the optical flow projected by the scene on the sensor focal plane, through a novel algorithmic technique, based on sparse sampling of the image and one-dimensional correlation. ... Performance of optical flow techniques. ... Cited by 15 - Related articles - BL Direct - All 7 versions

Title: Spatial updating of self-position and orientation during real, imagined, and virtual locomotion

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:RL Klatzky, JM Loomis, AC Beall, SS … - Psychological …, 1998 - pss.sagepub.com... cues), imagining oneself walking along a verbally described path (neither proprioceptive nor visual cues), watching someone else walk and trying to take that person's perspective (visual cues not coupled with self-locomotion), and watching optical flow fields generated by a ... Cited by 182 - Related articles - ACNP Holdings - BL Direct - All 19 versions

Title: Flow-field variables trigger landing in flies

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:H Wagner - 1982 - nature.com... Information contained in this 'optical flow field' can be extracted to control movement 1−4 . I present here evidence that pre-landing deceleration in flies is determined by such information: onset of deceleration is triggered when the ratio of the image expansion of a target on the ... Cited by 165 - Related articles - All 3 versions

Title: A morphable model for the synthesis of 3D faces

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:V Blanz, T Vetter - Proceedings of the 26th annual conference on …, 1999 - portal.acm.org... models. One class of techniques is based on optic flow algorithms [5, 4] and another on an active model matching strategy [12, 16]. Combinations of both techniques have been applied to the problem of image matching [36]. ... Cited by 1488 - Related articles - ACNP Holdings - All 52 versions

Title: Diffuse optical measurement of blood flow, blood oxygenation, and metabolism in a human brain during sensorimotor cortex activation

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:T Durduran, G Yu, MG Burnett, JA Detre, JH … - Optics …, 2004 - opticsinfobase.org1766 OPTICS LETTERS / Vol. 29, No. 15 / August 1, 2004 ... Diffuse optical measurement of blood flow, blood ... Department of Physics and Astronomy, University of Pennsylvania, Philadelphia, Pennsylvania 19104 Mark G.

Burnett, John A. Detre, Joel H. Greenberg, ... Cited by 70 - Related articles - ACNP Holdings - BL Direct - All 38 versions

Title: [PDF] A mathematical study of regularized optical flow problem in space BV

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:G Aubert, R Deriche, P Kornprobst - SIAM. Journal on Mathematical …;, 1999 - CiteseerAbstract

This paper describes a variational approach devised for the purpose of estimating optical flow from a sequence of images with the constraint to preserve the possible existing flow discontinuities. Denoted as the apparent motion of the image brightness pattern, the optical ... Cited by 7 - Related articles - View as HTML - ACNP Holdings - All 4 versions

Title: Principles of laser Doppler anemometers

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:F Durst - In Von Karman Inst. of Fluid Dyn. Meas. and …;, 1980 - adsabs.harvard.edu...

TECHNIQUES, LASER ANEMOMETERS, LASER DOPPLER VELOCIMETERS, VELOCITY MEASUREMENT, COMBUSTIBLE FLOW, LAMINAR FLOW, METEOROLOGICAL INSTRUMENTS, OPTICAL MEASURING INSTRUMENTS, SEPARATED FLOW, TURBULENT FLOW. ... Cited by 900 - Related articles - All 8 versions

Title: [PDF] A nonlinear terrain-following controller for a VTOL Unmanned Aerial Vehicle using translational optical flow

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:B Herisse, T Hamel, R Mahony, FX …; - IEEE Conference on …;, 2009 -

brunoherisse.free.frAbstract—This paper presents a nonlinear controller for terrain following of a vertical take-off and landing vehicle (VTOL). The VTOL vehicle is assumed to be a rigid body, equipped with a minimum sensor suite (camera and IMU) along with a measure of the forward speed ... Cited by 6 - Related articles - View as HTML - All 3 versions

Title: Optical flow field investigations for design improvements of an ultrasonic gas meter

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:H Köchner, A Melling, M Baumgärtner - Flow Measurement and …;, 1996 - ElsevierFlow Meas.

Instrum., Vol. 7, No. 3 4, pp. 133140, 1996 1997 Elsevier Science Ltd All rights reserved. Printed in Great Britain. 09555986 96 15.00 + 0.00 PII: S09555986(96)000192 Optical flow field investigations for design improvements of an ultrasonic gas meter H. Kochner*, ... Cited by 6 - Related articles - ACNP Holdings - BL Direct

Title: Lung tumor tracking in fluoroscopic video based on optical flow

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:Q Xu, RJ Hamilton, RA Schowengerdt, B Alexander, …; - Medical physics, 2008 -

link.aip.orgRespiratory gating and tumor tracking for dynamic multileaf collimator delivery require accurate and real-time localization of the lung tumor position during treatment. Deriving tumor position from external surrogates such as abdominal surface motion may have large uncertainties ... Cited by 6 - Related articles - ACNP Holdings - All 7 versions

Title: [PDF] Ground plane obstacle detection with a stereo vision system

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:J Gaspar, J Santos-Victor, J …; - International workshop on …;, 1994 - users.isr.ist.utl.pt...

For the purpose being envisaged, the main approaches would either be based on optical flow (as in [7]), or on correspondence/disparity mechanisms (such as the stereo setup described in [5]). The optical flow approach uses a single camera mounted on a moving platform, but ... Cited by 15 - View as HTML

Title: [PDF] Measurements of scattered light on a microchip flow cytometer with integrated polymer based

optical elements

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:Z Wang, J El-Ali, M Englund, T Gotsaed, IR Perch- … - Lab on a Chip, 2004 - rsc.orgFlow cytometry is widely used for analyzing microparticles, such as cells and bacteria. In this paper, we report an innovative microsystem, in which several different optical elements (waveguides, lens and fiber-to-waveguide couplers) are integrated with microfluidic ... Cited by 92 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 9 versions

Title: Optical snow

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:MS Langer, R Mann - International Journal of Computer Vision, 2003 - Springer... Abstract. Classical methods for measuring image motion by computer have concentrated on the cases of optical flow in which the motion field is continuous, or layered motion in which the motion field is piecewise continuous. ... At one end of this continuum is optical flow. ... Cited by 21 - Related articles - BL Direct - All 7 versions

Title: Real-time measurement of< i>in vitro</i> flow by Fourier-domain color Doppler optical coherence tomography

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:RA Leitgeb, L Schmetterer, CK Hitzenberger, AF … - Optics …, 2004 - opticsinfobase.org... There are various approaches based on time-domain optical coherence tomography to measure Doppler flow data, and in recent works in vivo Doppler imaging in different biological tissues was reported.3-7 Depth scanning is performed by changing the path length of the ... Cited by 77 - Related articles - ACNP Holdings - BL Direct - All 23 versions

Title: [PDF] Optical snow and the aperture problem

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:R Mann, M Langer - International conference on pattern recognition, 2002 - Citeseer... Abstract Classical studies of measuring image motion by computer have concentrated on the case of optical flow, in which there is a unique velocity near each point of the image. ... tion ambiguity much like the aperture problem in classical optical flow. ... Cited by 13 - Related articles - View as HTML - BL Direct - All 6 versions

Title: A local relaxation method for optical flow estimation

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:JD Kim, SK Mitra - Signal Processing: Image Communication, 1997 - ElsevierThe application of the local relaxation (LR) method to the optical flow estimation has been shown to provide much better performance than the Gauss-Seidel method. However, the direct application of the existing LR method results in a relatively slow convergence because of the ... Cited by 6 - Related articles - All 2 versions

Title: An adaptive confidence measure for optical flows based on linear subspace projections

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:C Kondermann, D Kondermann, B Jähne, C Garbe - Pattern Recognition, 2007 - Springer... 1 Introduction Optical flow calculation is a crucial step for a wide variety of applications ranging from scientific data analysis and medical imaging to autonomous vehicle control and video compression. ... 121-130 (1981) 8. Horn, B., Schunk, B.: Determining Optical Flow. ... Cited by 9 - Related articles - ACNP Holdings - BL Direct - All 11 versions

Title: Increasing spatial resolution through temporal super-sampling of digital video

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:JM Schuler, DA Scribner - Optical Engineering, 1999 - link.aip.org... original video. Fundamental to this technique is the computation of optical flow. This technique ... between frames. In general, digital video acquired

from moving platforms will contain optical flow that is not uniform across the scene. In this ... Cited by 12 - Related articles - ACNP Holdings - BL Direct - All 4 versions

Title: Rheo-optical study of worm-like micelles undergoing a shear banding flow

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:R Makhloufi, JP Decruppe, A Ait-Ali, R …; - EPL (Europhysics …;, 1995 - iopscience.iop.org... Lett., 32 (3), pp. 253-258 (1995) 20 October 1995 Rheo-optical Study of Worm-like Micelles Undergoing a Shear Banding Flow. ... Fig. 5. - Optical visualization of the plane flow at $\dot{\gamma} = 6 \text{ s}^{-1}$ for a 0.07 M/1 CTAC sample (NaSal/CTAC = 0.6 and 0.1 M/1 NaCl) at 30 °C. Page 7. 258 ... Cited by 75 - Related articles - ACNP Holdings - BL Direct - All 4 versions

Title: Microfluidic sorting in an optical lattice

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:MP MacDonald, GC Spalding, K Dholakia - Nature, 2003 - nature.com... Three mechanisms account for reductions from 100% efficiency: if the polydisperse flow is not well covered by the optical lattice, if the flow is beyond the semi-dilute limit (particularly if large aggregates are present), or if the flow rate is not optimized for the laser power (which ... Cited by 317 - Related articles - ACNP Holdings - BL Direct - All 11 versions

Title: Active vision

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:J Aloimonos, I Weiss, A Bandyopadhyay - International Journal of …;, 1988 - Springer... Optic flow (area based) ill posed. Needs to be Well-posed problem. Unique regularized. ... (1) Measure the change at every point x_i, y_i of the image, ie, find the partial derivatives of E with respect to x_i, y_i , and also with respect to x, y . This leads to optical flow-like methods. ... Cited by 941 - Related articles - All 7 versions

Title: Diffractionless flow of light in all-optical microchips

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:A Chutinan, S John, O Toader - Physical review letters, 2003 - APSWe introduce the concept of a hybrid 2D-3D photonic band gap (PBG) heterostructure which enables both complete control of spontaneous emission of light from atoms and planar light-wave propagation in engineered wavelength-scale microcircuits. Using three-dimensional (3D) ... Cited by 75 - Related articles - ACNP Holdings - BL Direct - All 8 versions

Title: Features for optical flow based gait classification using HMMs

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:D Meyer, H Niemann - University of Erlangen-Nuremberg, Chair for Pattern …; - CiteseerThis paper describes several features used in a system for automatic gait analysis. In most clinical systems markers are used to determine the trajectories. We use features derived from the optical flow field to recognize different kinds of gait like walking, hopping, running, and limping. ... Cited by 5 - Related articles - Cached - All 2 versions

Title: Optical Doppler tomography: imaging in vivo blood flow dynamics following pharmacological intervention and photodynamic therapy

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:Z Chen, TE Milner, X Wang, S …; - Photochemistry and …;, 1998 - interscience.wiley.comA noninvasive optical technique has been developed for imaging in vivo blood flow dynamics and vessel structure with high spatial resolution. The technique is based on optical Doppler tomography, which combines Doppler velocimetry with optical coherence tomography to ... Cited by 68 - Related articles - ACNP Holdings - BL Direct - All 9 versions

Title: Eigentracking: Robust matching and tracking of articulated objects using a view-based representation

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:MJ Black, AD Jepson - International Journal of Computer Vision, 1998 - Springer... The approach builds on and extends work on eigenspace representations, robust estimation techniques, and parameterized optical flow estimation. ... Changes in viewpoint will be represented as optical flow and if the initial view completely disappears, tracking will fail. ... Cited by 843 - Related articles - BL Direct - All 53 versions

Title: Optical tomography for flow field diagnostics

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:RJ Santoro, HG Semerjian, PJ Emmerman, R … - International Journal of …, 1981 - ElsevierOptical tomography has been applied to an off-axis turbulent methane-air free jet to determine the mean methane concentration throughout the mixing region. Optical tomography is a multi-angular absorption technique which involves making M line of sight absorption ... Cited by 73 - Related articles - ACNP Holdings - All 8 versions

Title: [PDF] Snakes, shapes, and gradient vector flow

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:C Xu, JL Prince - IEEE transactions on image processing, 1998 - Citeseer... This parameter should be set according to the amount of noise present in the image (more noise, increase). We note that the smoothing term—the first term within the integrand of (12)—is the same term used by Horn and Schunck in their classical formulation of optical flow [21]. ... Cited by 1945 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 56 versions

Title: Optical manipulation of microscale fluid flow

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:N Garnier, RO Grigoriev, MF Schatz - Physical review letters, 2003 - APSA novel optical method is used both to probe and to control dynamics in experiments on the spreading of microscale liquid films over solid substrates. The flow is manipulated by thermally induced surface-tension gradients that are regulated by controlling the absorption of light in the ... Cited by 63 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: Imaging blood flow in human port-wine stain in situ and in real time using optical Doppler tomography

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:JS Nelson, KM Kelly, Y Zhao, Z Chen - Archives of dermatology, 2001 - Am Med AssocObservations We present a case in which ODT was used on a patient with a port-wine stain (PWS) birthmark to document the change of blood flow in response to laser therapy. It might be possible to use ODT blood flow measurements in situ to assist in assessing the efficacy of ... Cited by 53 - Related articles - ACNP Holdings - BL Direct - All 5 versions

Title: Sensitive determination of mercury in tap water by cloud point extraction pre-concentration and flow injection-cold vapor-inductively coupled plasma optical emission …

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:JCA de Wuilloud, RG Wuilloud, MF Silva, RA … - … Acta Part B: Atomic …, 2002 - ElsevierA pre-concentration and determination methodology for mercury at trace levels in water samples was developed. Cloud point extraction was successfully employed for the pre-concentration of mercury prior to inductively coupled plasma optical emission spectrometry coupled to a ... Cited by 69 - Related articles - ACNP Holdings - All 5 versions

Title: Local structure of movement parallax of the plane

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:JJ Koenderink, AJ Van Doorn - JOSA, 1976 - opticsinfobase.org... Gibson (Ref. 1) stresses the importance of "gradients" of the optical flow, hence of the local structure. Gordon's (Ref. 2) "positional velocity field" is a structured entity, but this is not explicit in his formulation. Nakayama and Loomis (Ref. ... Cited by 222 - Related articles - ACNP Holdings - All 4 versions

Title: Tuning of MST neurons to spiral motions

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:MS Graziano, RA Andersen, RJ … - Journal of …, 1994 - Soc Neuroscience... These same motions are generated as we move through the environment, leading investigators to suggest that area MSTd analyzes the optical flow. ... The idea of basis vectors has a direct bearing on how optical flow may be analyzed. ... Cited by 329 - Related articles - BL Direct - All 15 versions

Title: Non-parametric local transforms for computing visual correspondence

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:R Zabih, J Woodfill - Computer Vision—ECCV'94, 1994 - Springer... 1 Introduction The correspondence problem is a fundamental problem in vision, as it forms the basis for stereo depth computation and most optical flow algorithms. ... 3. Michael Black and P Anandan. A framework for the robust estimation of optical flow. ... Cited by 409 - Related articles - All 22 versions

Title: Real-time human motion analysis by image skeletonization

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:H Fujiyoshi, AJ Lipton - 1998 - computer.org... Page 2. frame) [1], background subtraction [4, 9] and optical flow (see [2] for an excellent discussion). Temporal differencing is very adaptive to dynamic environments, but generally does a poor job of extracting all relevant feature pixels. ... Cited by 324 - Related articles - BL Direct - All 32 versions

Title: Light emitting diode based flow-through optical absorption detectors

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:PK Dasgupta, HS Bellamy, H Liu, JL Lopez, EL Loree, … - Talanta, 1993 - ElsevierSimple inexpensive high performance optical absorption detectors are possible using light emitting diodes (LEDs) as light sources. The designs presented in the literature are reviewed. Designs used by the investigators are described in detail with respect to construction, electronic ... Cited by 68 - Related articles - ACNP Holdings - All 3 versions

Title: [PDF] Recognizing people by their gait: the shape of motion

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:J Little, J Boyd - Videre: Journal of Computer Vision Research, 1998 - Citeseer... For each image in a sequence, we derive dense optical flow, $(u(x, y), v(x, y))$. Scale-independent scalar features of each flow, based on moments of the moving point weighted by $|u|$, $|v|$, or $|(u, v)|$, characterize the spatial distribution of the flow. ... optical flow time−varying scalars ... Cited by 327 - Related articles - View as HTML - All 9 versions

Title: Diffuse optical measurement of blood flow in breast tumors

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:T Durduran, R Choe, G Yu, C Zhou, JC Tchou, BJ … - Optics …, 2005 - opticsinfobase.orgArjun G. Yodh Department of Physics and Astronomy, University of Pennsylvania, Philadelphia, Pennsylvania 19104 Received May 20, 2005; accepted June 17, 2005 Blood flow contrast between tumor and normal tissues in patients with malignant and benign breast ... Cited by 44 - Related articles - ACNP Holdings - BL Direct - All 35 versions

Title: A Computational Algebraic Topology Approach for Optical Flow

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:MF Auclair-Fortier, P Poulin, D Ziou, M Allili - Pattern Recognition, 2002 - computer.org[qO[g S!q:] uo ss:)oJd !W!1 L.q p qo 3ad q:]Z J:) ... -S!P Jo p sU! uo 1mb[1!qO[g q:] sn o sodoJd u q:]MJm U L.q uwop [oqA\ uo P![AS! ! q:] s wq:!)qA\ UO! AJsuo:) f.j]U Jo [d!:)U!ld q:] wol] pnss! S! I .b3ps q-SUO!gJ JO pSt!qs[X!d J q:]! q L. w SU! wop-qns sql .[q !A uo ... Cited by 7 - Related articles - ACNP Holdings - BL Direct - All 10 versions

Title: … /determination of cadmium in drinking water on activated carbon using 8-hydroxyquinoline in a flow injection system coupled to an inductively coupled plasma optical …

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:S Cerutti, MF Silva, JA Gasquez, RA Olsina, LD … - … Acta Part B: Atomic …, 2003 - ElsevierAn on-line cadmium preconcentration and determination system implemented with inductively coupled plasma optical emission spectrometry associated to flow injection was studied. Cadmium was retained as Cd-8-hydroxyquinoline complex at pH 10.0. The cadmium complex was ... Cited by 59 - Related articles - ACNP Holdings - All 6 versions

Title: Robust multiresolution estimation of parametric motion models

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:JM Odobez, P Bouthemy - Journal of visual communication and image …, 1995 - Elsevier... for the use of such models are, on one hand, their efficiency, which has been demonstrated in numerous contexts such as estimation, segmentation, tracking, and interpretation of motion, and on the other hand, their low computational cost compared to optical flow estimation. ... Cited by 499 - Related articles - ACNP Holdings - BL Direct - All 12 versions

Title: Five kinds of self-knowledge

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:U Neisser - Philosophical psychology, 1988 - informaworld.com... Another important type of optical flow occurs when the observer moves parallel to an extended surface. ... Nevertheless, the wealth of egomovement-specifying information available in normally occurring patterns of optical flow cannot be disputed (Cutting, 1986). ... Cited by 505 - Related articles - ACNP Holdings - All 3 versions

Title: Neuromorphic optical flow sensing for nap-of-the-earth flight

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:T Netter, N Franceschini - SPIE proceedings series, 1999 - cat.inist.frNap-of-the-Earth (NOE) flight and the development of advanced Unmanned Air Vehicles (UAV) require further integration of environmental sensors and onboard processing equipment. Flying insects feature a panoramic eye which relies on Optical Flow for ... Cited by 17 - Related articles - All 2 versions

Title: High-resolution image reconstruction from digital video by exploitation of nonglobal motion

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:TR Tuinstra, RC Hardie - Optical Engineering, 1999 - link.aip.org... A technique proposed by Schultz and Stevenson to address the problem of nonglobal motion is based on optical flow as calculated using a hierarchical block-matching scheme. Another of ... 3 Problem of Optical Flow. Before moving ... Cited by 16 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: Binary collision of drops in simple shear flow by computer-assisted video optical microscopy

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:S Guido, M Simeone - Journal of Fluid Mechanics, 1998 - Cambridge Univ Press... Copy and paste this link: <http://journals.cambridge.org/action/displayAbstract?aid=13991>. Copy and paste this citation. S. GUIDO and M. SIMEONE (1998). Binary collision of drops in simple shear flow by computer-assisted video optical microscopy. ... Cited by 61 - Related articles - BL Direct - All 4 versions

Title: Parallax and perspective during aircraft landings

Author: HO Nalbach - Experimental Brain Research, 1992 - Springer

Year:1992

Content:JJ Gibson, P Olum, F Rosenblatt - The American Journal of Psychology, 1955 - JSTOR... O's linear velocity (ground speed) is represented in the optical flow- pattern. ... The perpendicular distance from O to the surface (altitude) is also represented in the optical flow-pattern, and so is distance to the surface on the line of locomotion in the case of a landing glide. ... Cited by 209 - Related articles - All 3 versions

Title: Average energy flow of optical pulses in dispersive media
Author: HO Nalbach - Experimental Brain Research, 1992 - Springer
Year:1992

Content:J Peatross, SA Glasgow, M Ware - Physical review letters, 2000 - APSThe arrival time of a light pulse at a point in space is defined using a time expectation integral over the Poynting vector. The delay between pulse arrival times at two distinct points is shown to consist of two parts: a spectral superposition of group delays (inverse of group velocity) ... Cited by 50 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: Direct methods for recovering motion
Author: HO Nalbach - Experimental Brain Research, 1992 - Springer
Year:1992

Content:BKP Horn, EJ Weldon - International Journal of Computer Vision, 1988 - Springer... seen. We do not establish point correspondences, nor do we estimate the optical flow. We use ... Bruss and Horn [1] use this approach to calculate motion parameters assuming that the optical flow is known at each point. Adiv [2] uses ... Cited by 343 - Related articles - All 10 versions

Title: The Visual Analysis of Human Movement: A Survey* 1
Author: DM Gavrilu - Computer vision and image understanding, 1999 - Elsevier
Year:1999

Content:... 1996, 151, 156. 45. H. Kollnig, H.-H. Nagel, M. Otte, Association of motion verbs with vehicle movements extracted from dense optical flow fields, Proc. of European Conference on Computer Vision, 1994, 338, 347. 46. J. Kuch ... Cited by 1350 - Related articles - ACNP Holdings - BL Direct - All 35 versions

Title: [BOOK] Laser-Doppler blood flowmetry
Author: DM Gavrilu - Computer vision and image understanding, 1999 - Elsevier
Year:1999

Content:AP Shepherd, PÅ Öberg - 1990 - books.google.com... Investigators inevitably wanted to know whether the method would measure blood flow in their particular organ or tissue of interest, and they often asked if the fiber optic flow probes could be fashioned into a different configuration for some specialized purpose. ... Cited by 196 - Related articles - All 2 versions

Title: Markov random field models in computer vision
Author: DM Gavrilu - Computer vision and image understanding, 1999 - Elsevier
Year:1999

Content:S Li - Computer Vision—ECCV'94, 1994 - Springer... MRF based approaches have been successful in modeling low level vision problems such as image restoration, segmentation, surface reconstruction, texture analysis, optical flow, shape from X, visual integration and edge detection (There are a long list of references. ... Cited by 1038 - Related articles - All 16 versions

Title: Strongly linked current flow in polycrystalline forms of the superconductor MgB₂
Author: DM Gavrilu - Computer vision and image understanding, 1999 - Elsevier
Year:1999

Content:DC Larbalestier, LD Cooley, MO Rikel, AA Polyanskii, J … - Nature, 2001 - nature.com... we report that, despite the multiphase, untextured, microscale, subdivided nature of our MgB₂ samples, supercurrents flow throughout the material without exhibiting strong sensitivity to weak magnetic fields 3 . Our combined magnetization, magneto-optical, microscopy and X ... Cited by 763 - Related articles - ACNP Holdings - BL Direct - All 14 versions

Title: Near-videorealistic synthetic talking faces: Implementation and evaluation
Author: DM Gavrilu - Computer vision and image understanding, 1999 - Elsevier
Year:1999

Content:BJ Theobald, JA Bangham, IA Matthews, GC & Speech …, 2004 - Elsevier... The set of optical flow vectors that morph the reference image to each mouth shape image are computed, which form the shape component of the MMM. The shape parameters define the linear contribution of the optical flow ... Cited by 23 - Related articles - All 3 versions

Title: Simultaneous intensity, birefringence, and flow measurements with high-speed fiber-based optical coherence tomography

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:MC Pierce, B Hyle Park, B Cense, JF de Boer - Optics letters, 2002 - opticsinfobase.orgOptical coherence tomography (OCT) has become established as a noninvasive technique that is capable of imaging tissue microstructure.1,2 Based on low- coherence interferometry, OCT produces cross-sectional images of tissue by determining the amplitude of interference ... Cited by 42 - Related articles - ACNP Holdings - BL Direct - All 35 versions

Title: A theory of visual control of braking based on information about time-to-collision

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:DN Lee - Perception, 1976 - perceptionweb.com... 2 The locomotor optic flow field The visual stimulus for a driver—as, indeed, for anyone whose head is moving at all relative to the environment—is not a static optic array but an optic flow field, a continuously changing optic array. ... Figure 1. The locomotor optic flow field. ... Cited by 886 - Related articles - ACNP Holdings - All 8 versions

Title: Structure from motion using line correspondences

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:ME Spetsakis, J Aloimonos - International Journal of Computer Vision, 1990 - Springer... 2 Motivation and Previous Work The basic motivation for this research is the fact that optical flow (or discrete displacement) fields produced from real images by existing techniques are corrupted by noise and are partially incorrect [17]. ... Cited by 198 - Related articles - All 4 versions

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Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

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Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

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Title: Phase-resolved functional optical coherence tomography: simultaneous imaging of in situ tissue structure, blood flow velocity, standard deviation, birefringence, and …

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

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Content:H Ren, Z Ding, Y Zhao, J Miao, JS Nelson, Z … - Optics letters, 2002 - opticsinfobase.orgReceived March 15, 2002 We describe a phase-resolved functional optical coherence tomography system that can simultaneously yield in situ images of tissue structure, blood flow velocity, standard deviation, birefringence, and

the Stokes vectors in human skin. Multifunctional images ... Cited by 44 - Related articles - ACNP Holdings - BL Direct - All 13 versions

Title: Rheo-Optical Evidence of a Flow-Induced Isotropic−Nematic Transition in a Thermotropic Liquid-Crystalline Polymer

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:PT Mather, A Romo-Urbe, CD Han, SS Kims - Macromolecules, 1997 - ACS PublicationsA direct rheo-optical characterization of the flow-induced isotropic−nematic (I−N) transition in a semiflexible thermotropic liquid-crystalline polymer (TLCP) was investigated, using a specially constructed apparatus enabling in-situ optical microscopic observations at elevated ... Cited by 49 - Related articles - ACNP Holdings - BL Direct - All 11 versions

Title: Simultaneous recording of task-induced changes in blood oxygenation, volume, and flow using diffuse optical imaging and arterial spin-labeling MRI

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:RD Hoge, MA Franceschini, RJM Covolan, T Huppert, … - Neuroimage, 2005 - ElsevierIncreased neural activity in brain tissue is accompanied by an array of supporting physiological processes, including increases in blood flow and the rates at which glucose and oxygen are consumed. These responses lead to secondary effects such as alterations in blood ... Cited by 43 - Related articles - ACNP Holdings - All 11 versions

Title: Blobworld: Image segmentation using expectation-maximization and its application to image querying

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

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Title: Liquid chromatographic assay using a microcolumn coupled to a U-shaped optical cell for high-sensitivity ultraviolet absorbance detection of oxcarbazepine and its …

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

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Title: High-flow-velocity and shear-rate imaging by use of color Doppler optical coherence tomography

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:TG van Leeuwen, MD Kulkarni, S Yazdanfar, AM … - Optics …, 1999 - opticsinfobase.orgWe and others recently described a novel optical Doppler flow imaging technique, termed color Doppler optical coherence tomography¹ (CDOCT) or optical Doppler tomography,² that is capable of micrometer- scale-spatial-resolution, two-dimensional tomographic velocity mapping in ... Cited by 33 - Related articles - ACNP Holdings - BL Direct - All 10 versions

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Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:DR Mestre - Proc. Driving Assessment, 2001 - drivingassessment.uiowa.edu... Within this framework, we evaluated the ability of human observers to discriminate variations in their direction of heading from optical flow patterns simulating self-motion relative to a simple toric surface (a curved "tunnel"). ... Direction of self-motion is perceived from optical flow. ... Cited by 6 - View as HTML

Title: Polymer Melts under Uniaxial Elongational Flow: Stress & Optical Behavior from Experiments and Nonequilibrium Molecular Dynamics Computer Simulations

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

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Content:M Kroger, C Luap, R Muller - Macromolecules, 1997 - ACS PublicationsTensile stress and birefringence in both real and model amorphous polymer melts have been measured during constant rate uniaxial elongational flow. We focus on investigations where deviations from the linear stress & optical behavior are pronounced. A rate-dependent ... Cited by 47 - Related articles - ACNP Holdings - BL Direct - All 8 versions

Title: Reanimating faces in images and video

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Year:1999

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Title: Time-dependent blood flow and oxygenation in human skeletal muscles measured with noninvasive near-infrared diffuse optical spectroscopies

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:G Yu, T Durduran, G Lech, C Zhou, B Chance, … - Journal of biomedical …, 2005 - link.aip.orgWe have employed near-infrared optical methods to measure noninvasively the dynamics of muscle blood flow and oxygen saturation during cuff occlusion and plantar flexion exercise. Relative muscle oxygen consumption was also computed from these data. Diffuse correlation ... Cited by 45 - Related articles - ACNP Holdings - All 13 versions

Title: Flow velocity estimation using joint Spectral and Time domain Optical Coherence Tomography

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Year:1999

Content:M Szkulmowski, A Szkulmowska, T Bajraszewski, … - Opt. …, 2008 - opticsinfobase.orgWe propose a modified method of acquisition and analysis of Spectral Optical Coherence Tomography (SOCT) data to provide information about flow velocities. The idea behind this method is to acquire a set of SOCT spectral fringes dependent on time followed by a numerical analysis using ... Cited by 31 - Related articles - ACNP Holdings - All 22 versions

Title: Model for laser Doppler measurements of blood flow in tissue

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:R Bonner, R Nossal - Applied Optics, 1981 - opticsinfobase.org... Predictions are verified by measurements of particle flow in model tissues. » View Full Text: Acrobat PDF (1388 KB). References. ... Session or Paper #, Year, © Copyright 2010 Optical Society of America All Rights Reserved | Privacy Statement | Terms of Use. RSS Feed Information Cited by 459 - Related articles - ACNP Holdings - All 7 versions

Title: In vivo blood flow imaging by a swept laser source based Fourier domain optical Doppler tomography

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:J Zhang, Z Chen - Optics Express, 2005 - opticsinfobase.orgRA Leitgeb, CK Hitzenberger, and AF Fercher, "Performance of fourier domain vs. time domain optical coherence tomography," Opt. Express 11, 889-894 (2003). http://www.opticsexpress.org/abstract.cfm?URI= ... Cited by 32 - Related articles - ACNP Holdings - All 27 versions

Title: Flow and controlled rotation of the spontaneous optical hexagon in KNbO₃

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:T Honda - Optics letters, 1995 - opticsinfobase.orgReceived January 3, 1995 The flow and rotation of the optical hexagonal pattern spontaneously formed in a photorefractive KNbO₃ crystal is studied. It is demonstrated that the direction and speed of rotation can be controlled with an additional erase laser beam. Cited by 36 - Related articles - ACNP Holdings - BL Direct - All 7 versions

Title: Rays, stored energy, and power flow in dielectric waveguides

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:H Kogelnik, HP Weber - Journal of the Optical Society of America, 1974 - opticsinfobase.orgFor light propagation in dielectric waveguides, interconnections are established between phase velocity, group velocity, stored energy, power flow, and a zigzag-ray model. The ray model takes account of the Goos-Haenchen shifts that occur at the film boundaries and of the ... Cited by 73 - Related articles - ACNP Holdings - All 10 versions

Title: The visual ambiguity of a moving plane

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:HC Longuet-Higgins - Proceedings of the Royal Society of London. Series A, 1984 - JSTOR... (Received 12 April 1984) It is shown that the optic flow field arising from motion relative to a visually textured plane may be characterized by eight parameters that depend on the observer's linear and angular velocity and the coordinate vector of the plane. ... Cited by 197 - Related articles - ACNP Holdings - All 7 versions

Title: Flow structure and optical beam propagation in high-Reynolds-number gas-phase shear layers and jets

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:PE Dimotakis, HJ Catrakis, DC ... - Journal of Fluid Mechanics, 2001 - Cambridge Univ Press... 105 Flow structure and optical beam propagation in ... As far as light propagation is concerned, the high speed of light, relative to all flow speeds of interest here, permits the description of aero-optical interactions as if the flow is spatially frozen, at any one time. ... Cited by 43 - Related articles - BL Direct - All 10 versions

Title: Advances in computational stereo

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:MZ Brown, D Burschka, GD Hager - IEEE Transactions on Pattern Analysis and Machine Intelligence, 2003 - computer.org... thorough discussion. 3.1.2 Gradient Methods Gradient-based methods or optical flow [35], seek to determine small local disparities between two images by formulating a differential equation relating motion and image brightness. In ... Cited by 485 - Related articles - All 31 versions

Title: Microfabrication inside capillaries using multiphase laminar flow patterning

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:PJA Kenis, RF Ismagilov, GM Whitesides - Science, 1999 - sciencemag.org... E-mail: gwhitesides@gmwgroup.harvard.edu Fig. 1. (A) Optical micrograph of two-phase laminar flow: two aqueous phases, each colored with a different dye (black ink and Congo Red) brought together with a "Y" junction in an elastomeric microfluidic system (PDMS). ... Cited by 345 - Related articles - ACNP Holdings - BL Direct - All 14 versions

Title: The use of optical velocities for distance discrimination and reproduction during visually simulated self motion

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:F Bremmer, M Lappe - Experimental Brain Research, 1999 - Springer... Key words Path integration · Optic flow · Distance discrimination · Distance reproduction ... This utilization of optical flow for estimating displacements is not only found in humans, but also in insects (Esch and Burns 1995; Ronacher and Wehner 1995; Srinivasan et al. 1996). ... Cited by 47 - Related articles - ACNP Holdings - BL Direct - All 5 versions

Title: The optical and mechanical response of flexible polymer solutions to extensional flow

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:CA Cathey, GG Fuller - Journal of Non-Newtonian Fluid Mechanics, 1990 - ElsevierThe optical and mechanical responses of dilute and semidilute solutions of flexible polymer molecules to extensional flow are measured. The optical property of interest, the birefringence, is sensitive to the local orientation of the polymer coil, whereas the ... Cited by 43 - Related articles - All 2 versions

Title: [PDF] Disparity analysis of images

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:ST Barnard, WB Thompson - IEEE Transactions on Pattern Analysis & Machine Intelligence, 1980 - cs.utah.edu... are important sources for the perception of the spatial environment. Gibson described the patterns of optical flow that occur when the observer moves. He argued that binocular disparity and retinal motion are highly informative ... Cited by 675 - Related articles - View as HTML - All 2 versions

Title: Multimodal representation of space in the posterior parietal cortex and its use in planning movements

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:RA Andersen, LH Snyder, DC Bradley, & ... - Annual Review of Psychology, 1997 - Annual Reviews... These rotations were performed in the dark, in order to remove visual landmarks and optic flow patterns as cues to spatial orientation. ... Finally, either the landmarks or the optic flow can also code the location of targets in world coordinates. Auditory Signals ... Cited by 828 - Related articles - ACNP Holdings - BL Direct - All 28 versions

Title: Face recognition based on fitting a 3D morphable model

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:V Blanz, T Vetter - IEEE Transactions on Pattern Analysis and Machine Intelligence, 2003 - computer.org... 3.2 Correspondence Based on Optic Flow. The core step of building a morphable face model is to establish dense point-to-point correspondence between each face and a reference face. ... We employ a modified optic flow algorithm to determine this vector field. ... Cited by 739 - Related articles - BL Direct - All 29 versions

Title: Multicommunication in flow analysis. Part 1. Binary sampling: concepts, instrumentation and spectrophotometric determination of iron in plant digests

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:BF Reis, MF Giné, EAG Zagatto, JLFC Lima, RA & ... - Analytica Chimica Acta, 1994 - Elsevier... This result indicates that the length of the optical path of the flow cell affects the magnitude of measurement in a higher proportion. 135 Table 1 Influence of the volume of sampled aliquot Sampling FI-rate = 930 µl/min Flow-rate = 1510 gl/min time (s) Sampled Standard Sampled ... Cited by 243 - Related articles - ACNP Holdings - All 2 versions

Title: Dynamics of capillary isoelectric focusing in the absence of fluid flow: High-resolution computer simulation and experimental validation with whole column optical & ...

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:Q Mao, J Pawliszyn, W Thormann - Anal. Chem, 2000 - ACS PublicationsA 150-component, dynamic electrophoresis simulator was developed and applied to the description of capillary isoelectric focusing (CIEF) of amphoteric substances in quiescent solution. The simulator is shown to be capable of producing high-resolution pH focusing data with 140 ... Cited by 41 - Related articles - ACNP Holdings - BL Direct - All 5 versions

Title: Multiple-center-of-projection images

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:P Rademacher, G Bishop - & ... of the 25th annual conference on & ... , 1998 - portal.acm.org... range images, resulting in improved rendering quality, •greater flexibility in the acquisition of image-based datasets, for example by sampling different portions of the scene at different resolutions, and •a unique internal epipolar geometry which characterizes optical flow within ... Cited by 222 - Related articles - ACNP Holdings - All 4 versions

Title: Drastic effects of hydrogen flow rate on growth characteristics and electrical/optical properties of InP grown by organometallic vapour phase epitaxy with TMIn and TBP

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:Y Fujiwara, S Furuta, K Makita, Y Ito, Y Nonogaki …; - Journal of Crystal …;, 1995 - ElsevierELSEVIER Journal of Crystal Growth 146 (1995) 544548 , CRYSTAL GROWTH Drastic effects of hydrogen flow rate on growth characteristics and electrical optical properties of InP grown by organometallic vapour phase epitaxy with TMIn and TBP Y. Fujiwara *, S. ... Cited by 31 - Related articles - ACNP Holdings - All 5 versions

Title: A simplified linear optic flow-motion algorithm

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:X Zhuang, TS Huang, N Ahuja, RM Haralick - Computer Vision, Graphics, …;, 1988 - ElsevierThe purpose of the article is to establish the relationship between rigid body motion and the optic flow image and solve motion parameters from optic flow image points. A basic equation relating optic flow image points to rigid body motion which involves only the instantaneous ... Cited by 38 - Related articles - ACNP Holdings - All 2 versions

Title: In vivo total retinal blood flow measurement by Fourier domain Doppler optical coherence tomography

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:Y Wang, BA Bower, JA Izatt, O Tan, D …; - Journal of Biomedical …;, 2007 - link.aip.orgThere is considerable interest in new methods for the assessment of retinal blood flow for the diagnosis of eye diseases. We present in vivo normal human volumetric retinal flow measurement using Fourier domain Doppler optical coherence tomography. We used a dual-plane ... Cited by 33 - Related articles - ACNP Holdings - BL Direct - All 4 versions

Title: Kalman filter-based algorithms for estimating depth from image sequences

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:L Matthies, T Kanade, R Szeliski - International Journal of Computer …;, 1989 - Springer... The algorithm uses correlation to measure the optical flow and to estimate the variance in the flow, then uses the known camera motion to convert the flow field into a depth map. ... The problem of optical flow estimation has been studied extensively. ... Cited by 506 - Related articles - BL Direct - All 22 versions

Title: Optical fibre probe measurements of bubbly flow in hydraulic jumps

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:F Murzyn, D Mouaze, JR Chaplin - …; Journal of Multiphase Flow, 2005 - ElsevierThis paper describes measurements of void fractions, bubble frequencies and bubble sizes in hydraulic jumps with Froude numbers 2.0, 2.4, 3.7 and 4.8. In each case data were obtained with a dual-tip optical fibre probe at a large number of points throughout the jump. Across ... Cited by 34 - Related articles - All 10 versions

Title: Imaging and velocimetry of the human retinal circulation with color Doppler optical coherence tomography

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:S Yazdanfar, AM Rollins, JA Izatt - Optics Letters, 2000 - opticsinfobase.org... In this Letter we report what we believe to be the first application of color Doppler optical coherence tomography4 (CDOCT) for quantitative cross-sectional imaging of bidirectional flow in blood vessels of the human retina.5 CDOCT (also called optical Doppler tomography6) is a ... Cited by 82 - Related articles - ACNP Holdings - BL Direct - All 11 versions

Title: A liquid drop: A windowless optical cell and a reactor without walls for flow injection analysis

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:H Liu, PK Dasgupta - Analytica Chimica Acta, 1996 - ElsevierThe design and characteristics of a dynamically growing and falling liquid drop based optical detection system are described for use with flow injection analysis (FIA). Several aspects of the analytical potential of a liquid drop as an optical cell are demonstrated by the detection of ... Cited by 35 - Related articles - ACNP Holdings - All 4 versions

Title: Toward the Optical Tongue: Flow-Through Sensing of Tannin− Protein Interactions Based on FTIR Spectroscopy

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:A Edelmann, B Lendl - J. Am. Chem. Soc, 2002 - ACS PublicationsThe interaction of polyphenols (tannins) with proline-rich proteins (gelatin) has been studied using an automated flow injection system with Fourier transform infrared spectroscopic detection to gain insight into chemical aspects related to astringency. In the perception of ... Cited by 36 - Related articles - ACNP Holdings - BL Direct - All 6 versions

Title: Temporal Difference Based Local Optical Flow and its Application [J]

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

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Title: Computation of optical flow

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:G Quenot - archives.limsi.frThe method has been enhanced in order to be able to operate not only on image pairs but also on image sequences with arbitrary length. In that case it is additionally assumed that motion is constant during the portion of the sequence used. We search automatically the image ... Cited by 3 - Cached

Title: [PDF] Visual tracking of a moving target by a camera mounted on a robot: A combination of control and vision

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:NP Papanikolopoulos, PK Khosla, T … - IEEE Transactions on …, 1993 - swing.adm.ri.cmu.edu... We propose using the sum- of-squared differences (SSD) optical flow for the computation of the vector of discrete displacements each instant of time. ... They used a modified version of the Horn-Schunk [18] algorithm for the calculation of the optical flow at every pixel. ... Cited by 342 - Related articles - BL Direct - All 6 versions

Title: Measurement of fluid-flow-velocity profile in turbid media by the use of optical Doppler tomography

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:X Wang, TE Milner, Z Chen, JS Nelson - Applied optics, 1997 - opticsinfobase.org1. Introduction Measurements of fluid-flow velocity by the use of mul- tigated ultrasound imaging1 and laser Doppler veloci- metry have found many applications in scientific research and industry. Although multigated ultra- sound imaging can be used to resolve the velocity of ... Cited by 31 - Related articles - ACNP Holdings - BL Direct - All 11 versions

Title: [BOOK] Video processing and communications

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:Y Wang, J Ostermann, YQ Zhang - 2002 - eeweb.poly.edu... 138 P5.3 "a planar patch" -> "any 3-D object", "projective mapping"- >Equation (5.5.13)" P5.4 "Equation 5.5.14"-> "Equation (5.5.14)", "aX+bY+cZ=1"-> "Z= aX+bY+c" 143 T4 After "true 2-D motion." Add "Optical flow depends on not only 2-D motion, but also illumination and ... Cited by 571 - Related articles - View as HTML - All 11 versions

Title: Optical sensing for undersea robotic vehicles

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:S Negahdaripour, A Shokrollahi, CH Yu - Robotics and Autonomous …, 1991 - Elsevier... Ego-motion can also be determined from the variation of image brightness patterns, the so- called optical flow. Let ... These include: (1) The results of applying our technique for estimating optical flow from image sequences. (2 ... Cited by 10 - Related articles - ACNP Holdings - All 2 versions

Title: ASSET-2: Real-time motion segmentation and shape tracking

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:SM Smith - iccv, 1995 - computer.org... It requires no camera calibration and no knowledge of the camera's motion. Keywords: Motion segmentation, optic flow, moving object tracking ... Determining three-dimensional motion and structure from optical flow generated by several moving objects. IEEE Trans. ... Cited by 254 - Related articles - BL Direct - All 12 versions

Title: Electrical microstimulation of cortical area MST biases heading perception in monkeys

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:KH Britten, RJA van Wezel - Nature Neuroscience, 1998 - nature.com... To test whether MST is involved in extracting heading from optic flow, we perturbed its activity in monkeys trained on a heading discrimination task. ... 36, 431-443 (1996) | Article | PubMed | ISI | ChemPort |; Warren, WH & Hannon, DJ Eye movements and optical flow. J. Opt. Soc. ... Cited by 128 - Related articles - ACNP Holdings - All 5 versions

Title: … point extraction of vanadium in parenteral solutions using a nonionic surfactant (PONPE 5.0) and determination by flow injection-inductively coupled plasma optical …

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:GM Wuilloud, JCA de Wuilloud, RG Wuilloud, MF Silva, … - Talanta, 2002 - Elsevier A preconcentration and determination methodology for vanadium at trace levels in parenteral solutions was developed. Cloud point extraction was successfully employed for the preconcentration of vanadium prior to inductively coupled plasma atomic optical emission spectrometry ... Cited by 36 - Related articles - ACNP Holdings - All 4 versions

Title: [PDF] … and preconcentration of vanadium (v) and vanadium (iv) in water samples by flow injection-inductively coupled plasma optical emission spectrometry and …

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:RG Wuilloud, JC Wuilloud, RA Olsina, LD Martinez - The Analyst, 2001 - rsc.org An on-line separation, preconcentration and determination system for vanadium(IV) and vanadium(V) comprising inductively coupled plasma optical emission spectrometry (ICP-OES) coupled to a flow injection (FI) method with an ultrasonic nebulization (USN) ... Cited by 35 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 9 versions

Title: Flow birefringence of persistence length deoxyribonucleic acid. Hydrodynamic properties, optical anisotropy, and hydration shell anisotropy

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:RE Harrington - Journal of the American Chemical Society, 1970 - ACS Publications Abstract: Flow birefringence studies have been conducted upon bihelical fragments of T2 bacteriophage DNA of viscosity molecular weight 9.9×10^4 corresponding to a contour length of 520 Å based upon the Watson-Crick B model. The rotational diffusion constant is estimated as ... Cited by 33 - Related articles - ACNP Holdings - All 2 versions

Title: Flow-through optical biosensor based on the permanent immobilization of an enzyme and transient retention of a reaction product

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:JM Fernandez-Romero, MD Luque de … - Analytical chemistry, 1993 - ACS Publications... A new sensor based on the twofold immobilization of a catalyst and a reaction product in an optical flow cell is proposed. ... An optical flow-through biosensor based on the immobi- lization of two chemical species involved in an enzymatic reaction is proposed. ... Cited by 17 - Related articles - ACNP Holdings - BL Direct - All 4 versions

Title: Laser Doppler blood flow meter and optical plethysmograph
Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier
Year:1999

Content:RW Wunderlich, RL Folger, DB Giddon, BR … - Review of Scientific …;, 1980 - link.aip.orgAn apparatus is described which combines laser Doppler velocimetry and optical plethysmography for a rapid, multi‐parameter characterization of blood flow in cutaneous tissues. The Doppler parameter is determined by analog computation of the square root of the normalized ... Cited by 32 - Related articles - ACNP Holdings - All 4 versions

Title: … localisation and strain distribution during tectonic faulting--new insights from granular-flow experiments and high-resolution optical image correlation techniques
Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier
Year:1999

Content:J Adam, JL Urai, B Wieneke, O Oncken, K … - Journal of Structural …;, 2005 - ElsevierBrittle faults reflect a complex strain history that emerges from contrasting modes of distributed and localised deformation, and their interaction on various spatial and temporal scales. To better understand this process, we monitor the displacement field in scaled tectonic model ... Cited by 35 - Related articles - ACNP Holdings - All 6 versions

Title: On-column capillary flow cell utilizing optical waveguides for chromatographic applications
Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier
Year:1999

Content:AE Bruno, E Gassmann, N Pericles, K … - Analytical Chemistry, 1989 - ACS Publications(24) Pace, C. F.; Maple, J. R. Anal. Chem. 1985, 57. 940-945. (25) Pace, CF; Maple, J. R. J. Opf. SOC. Am. 8 1985, 2 , 1582-1588. querque, NM, 1986. (27) O'Donnell, C. M.; Harbaugh, K. F.; Fisher, R. P.; Winefordner, JD Anal. Chem. 1973, 45, 609-611. (28) Pohland, AE; ... Cited by 33 - Related articles - ACNP Holdings - All 2 versions

Title: [HTML] A rapid bioassay for single bacterial cell quantitation using bioconjugated nanoparticles
Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier
Year:1999

Content:X Zhao, LR Hilliard, SJ Mechery, Y … - Proceedings of the …;, 2004 - National Acad Sciences... The optical detection system in the flow cytometer is a homemade set-up, comprising a micrometer-sized capillary channel to flow the sample at a steady flow rate. ... Single Bacterial Cell Detection with a Simple Optical Flow Cytometer. ... Cited by 166 - Related articles - ACNP Holdings - BL Direct - All 12 versions

Title: Layered representation of motion video using robust maximum-likelihood estimation of mixture models and MDL encoding
Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier
Year:1999

Content:S Ayer, HS Sawhney - iccv, 1995 - computer.org... The essential idea in their work is that. of iteratively clustering motion models computed using pre-computed optical flow. The main drawbacks of the above approach are its use of optical flow as an input representation. clus ... Cited by 266 - Related articles - All 14 versions

Title: Brain areas involved in perception of biological motion
Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier
Year:1999

Content:E Grossman, M Donnelly, R Price, D Pickens, … - Journal of Cognitive …;, 2000 - MIT Press... MT and MST) to visual registration of coherent- translating motion (eg, Shadlen, Britten, Newsome, & Movshon, 1996), 3-D surface shape from motion parallax (eg, Bradley, Chang, & Andersen, 1998; Xiao, Marcar, Raiguel, & Orban, 1997), and complex-optical flow asso- ciated ... Cited by 354 - Related articles - BL Direct - All 22 versions

Title: High speed optical tomography for flow visualization

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:R Snyder, L Hesselink - Applied optics, 1985 - opticsinfobase.org1. Introduction Optical computer assisted tomographic (OCAT) re- construction of a 3-D unsteady object requires simultaneous acquisition of many line-of-sight measurements (projections). A projection represents an integrated measurement of absorption or index ... Cited by 30 - Related articles - ACNP Holdings - All 14 versions

Title: Blood velocity and volumetric flow rate in human retinal vessels

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:CE Riva, JE Grunwald, SH Sinclair, BL Petrig - … ophthalmology & visual …, 1985 - ARVO... obviously, an estimation of the true flow rates. Inaccuracy in the measurements can be expected from errors in the determination of the diameter and the velocity. An uncertainty is associated with the cross-sectional area estimates which assume a unique optical magnification of ... Cited by 192 - Related articles - ACNP Holdings - All 4 versions

Title: [PDF] Motion and structure from motion in a piecewise planar environment

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:O Faugeras, F Lustman - INT. J. PATTERN RECOG. ARTIF. INTELL., 1988 - hal.inria.fr... The case of the motion problem, and more precisely the optical flow based approach to that problem, has been studied in great detail by Waxman and Ullmann [4], Subbarao and Waxman [5], Tziritas [6], and Maybank [7]. The main result is that the motion is ambiguous, ie that ... Cited by 302 - Related articles - ACNP Holdings - All 15 versions

Title: The recognition of human movement using temporal templates

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:AF Bobick, JW Davis - IEEE Transactions on pattern analysis and …, 2001 - doi.ieeecs.org... Computer Vision, Coral Gables, Fla., Nov. 1995. [28] Y. Yacoob and LS Davis, "Recognizing Human Facial Expression from Long Image Sequences Using Optical Flow," IEEE Trans. Pattern Analysis and Machine Intelligence, vol. 18, no. 6, pp. 636-642, June 1996. ... Cited by 813 - Related articles - BL Direct - All 10 versions

Title: Visual tracking of high dof articulated structures: an application to human hand tracking

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:J Rehg, T Kanade - Computer Vision—ECCV'94, 1994 - Springer... They give an example of tracking a single human arm and torso using optical flow features. Pentland and Horowitz [10] give an example of tracking the motion of a human figure using optical flow and an articulated deformable model. ... Cited by 336 - Related articles - All 19 versions

Title: Rheological properties of aramid solutions: Transient flow and rheo-optical measurements

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:HL Doppert, SJ Picken - Molecular Crystals and Liquid Crystals, 1987 - informaworld.comAbstract The rheological properties of a 20% (w/w) solution of poly-para-phenylene-terephthalamide (PpPTA) in concentrated sulfuric acid have been investigated using a Contraves Rheomat 1355 and a device that allows microscopic investigation of the solution during transient shear ... Cited by 26 - Related articles - ACNP Holdings - All 2 versions

Title: Hubble space telescope/STIS spectroscopy of the optical outflow from DG Tauri: Indications for rotation in the initial jet channel

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:F Bacciotti, TP Ray, R Mundt, J Eisloffel, … - The Astrophysical …, 2002 - iopscience.iop.org... ABSTRACT We have carried out a kinematical, high angular resolution ($\sim 1''$) study of the optical blueshifted flow

from DG Tau within 0.5 from the source (ie, 110 AU when deprojected along this flow). We analyzed optical ...
Cited by 183 - Related articles - ACNP Holdings - BL Direct - All 8 versions

Title: Measurement of regional cerebral blood flow with antipyrine-14C in awake cats

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:M Reivich, J Jehle, L Sokoloff, SS … - Journal of Applied …, 1969 - Am Physiological Soc... in replicate optical density measurements plus variations in section thickness were found to be 5.67%. The standards used introduced only a small error since the standard deviation of replicate standards was no greater than 1.1%. Regional cerebral blood flow was measured ... Cited by 260 - Related articles - ACNP Holdings - All 2 versions

Title: Shape factors, two-flow models, and the problem of irradiance inversion in estimating optical parameters

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:RH Stavn, AD Weidemann - Limnology and Oceanography, 1989 - JSTORLimnol. Oceanogr., 34(8), 1989, 1426-1441 © 1989, by the American Society of Limnology and Oceanography, Inc. Shape factors, two-flow models, and the problem of irradiance inversion in estimating optical parameters Robert H. Stavn Department of Biology, University of ... Cited by 33 - Related articles - ACNP Holdings - All 11 versions

Title: [PDF] An integrated scheme for automated video abstraction based on unsupervised cluster-validity analysis

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:A Hanjalic, HJ Zhang - … on Circuits and Systems for Video …, 1999 - repository.tudelft.nl... First, the optical flow is computed for each frame, and then a simple motion metric is used to evaluate the changes in the optical flow along the sequence. Key frames are then found at places where the metric as a function of time has its local minima. ... Cited by 222 - Related articles - View as HTML - ACNP Holdings - BL Direct - All 14 versions

Title: [BOOK] Flow visualization

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:W Merzkirch - 1987 - books.google.com... Surface Flow 82 References 99 3. Optical Flow Visualization 3.1 Fluid Flow as a Refractive Index Field 115 3.2 Visualization by Means of Light Deflection 126 3.3 Interferometry 158 3.4 Phase Contrast and Field Absorption 206 3.5 Streaming Birefringence 210 References 218 ... Cited by 783 - Related articles - All 8 versions

Title: A closed flow chamber for long-term multichannel recording and optical monitoring

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

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Title: [PDF] Motion estimation techniques for digital TV: A review and a new contribution

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content:F Dufaix, F Moscheni - Proceedings of the IEEE, 1995 - tsi.enst.fr... Before going any further, a distinction has to be made between two notions: the 2D motion field and the optical flow [9]. The former is the projection on the 2D image plane of the 3D motion in the scene. ... In the ideal case, the optical flow corresponds to the 2D motion field. ... Cited by 346 - Related articles - ACNP Holdings - BL Direct - All 7 versions

Title: Phase-resolved optical frequency domain imaging

Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier

Year:1999

Content: B Vakoc, S Yun, J de Boer, G Tearney, B Bouma - Opt. Express, 2005 - opticsinfobase.org... CrossRef]; ZP Chen, TE Milner, S. Srinivas, XJ Wang, A. Malekafzali, MJC vanGemert and JS Nelson, "Noninvasive imaging of in vivo blood flow velocity using optical Doppler tomography," Opt. Lett. 22 1119-1121 (1997); MC ... Cited by 67 - Related articles - ACNP Holdings - All 20 versions

Title: On-line preconcentration and determination of nickel in natural water samples by flow injection-inductively coupled plasma optical emission spectrometry (FI-ICP-OES …
Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier
Year: 1999

Content: N Yunes, S Moyano, S Cerutti, JA Gasquez, LD … - Talanta, 2003 - Elsevier An on-line nickel preconcentration and determination system implemented with inductively coupled plasma optical emission spectrometry (ICP-OES) associated to flow injection (FI) was studied. Trace amounts of nickel were preconcentrated by sorption on a conical ... Cited by 30 - Related articles - ACNP Holdings - All 5 versions

Title: Bio-optical inferences from chlorophyll a fluorescence: What kind of fluorescence is measured in flow cytometry?
Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier
Year: 1999

Content: PJ Neale, JJ Cullen, CM Yentsch - Limnology and Oceanography, 1989 - JSTOR Limnol. Oceanogr., 34(8), 1989, 1739-1748 © 1989, by the American Society of Limnology and Oceanography, Inc. Bio-optical inferences from chlorophyll a fluorescence: What kind of fluorescence is measured in flow cytometry? Patrick J. Neale Department of Plant Biology, University of ... Cited by 34 - Related articles - ACNP Holdings - All 11 versions

Title: On-line complexation/cloud point preconcentration for the sensitive determination of dysprosium in urine by flow injection inductively coupled plasma-optical emission …
Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier
Year: 1999

Content: C Ortega, S Cerutti, RA Olsina, MF Silva, LD … - Analytical and …, 2003 - Springer Abstract An on-line dysprosium preconcentration and determination system based on the hyphenation of cloud point extraction (CPE) to flow injection analysis (FIA) as- sociated with ICP-OES was studied. For the preconcentration of dysprosium, a Dy(III)-2-(5-bromo-2-pyridylazo)- 5- ... Cited by 29 - Related articles - BL Direct - All 4 versions

Title: On the unification of line processes, outlier rejection, and robust statistics with applications in early vision
Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier
Year: 1999

Content: MJ Black, A Rangarajan - International Journal of Computer Vision, 1996 - Springer... Received December 1, 1993; Revised August 26, 1994 and April 6, 1995 Abstract. The modeling of spatial discontinuities for problems such as surface recovery, segmentation, image reconstruction, and optical flow has been intensely studied in computer vision. ... Cited by 398 - Related articles - BL Direct - All 33 versions

Title: PIV measurements of a microchannel flow
Author: DM Gavrila - Computer vision and image understanding, 1999 - Elsevier
Year: 1999

Content: CD Meinhart, ST Wereley, JG Santiago - Experiments in Fluids, 1999 - Springer... Meas Sci Technol 4: 619-626 Meinhart CD; Wereley ST; Santiago JG (1999) A PIV algorithm for estimating time-averaged velocity fields. Proc optical methods and image processing in Fluid Flow, 3rd ASME/JSME Fluids Engineering Conf. July 18—23, San Francisco, CA. ... Cited by 385 - Related articles - ACNP Holdings - BL Direct - All 17 versions

Title: Optical resolution by simulated moving-bed adsorption technology
Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
Year: 1992

Content: ... intermittently. The desorbent was a n-hexane-isopropanol (9:1). The racemate used was 1-phenylethanol. The raffinate and extract were collected at certain intervals. Fig. 2. Schematic flow diagram of SMBA system for optical resolution. 1 ... Cited by 78 - Related articles - ACNP Holdings - All 2 versions

Title: Sensitivity of MST neurons to optic flow stimuli. II. Mechanisms of response selectivity revealed by small-field stimuli

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

Year:1992

Content:CJ Duffy, RH Wurtz - Journal of Neurophysiology, 1991 - Am Physiological SocSUMMARY AND CONCLUSIONS 1. In these experiments we examined the receptive field mechanisms that support the optic flow field selective responses of neurons in the dorsomedial region of the medial superior temporal area (MSTd). Our experiments tested the ... Cited by 242 - Related articles - ACNP Holdings - All 9 versions

Title: Microfluidic sorting of mammalian cells by optical force switching

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

Year:1992

Content:MM Wang, E Tu, DE Raymond, JM Yang, H … - Nature …; 2004 - nature.com... Cells in the focused flow pass first through an analysis region and then through the optical switching region. Flow to the two output channels is asymmetrically biased such that, with no optical beam present, all cells flow out to the waste channel. ... Cited by 152 - Related articles - ACNP Holdings - All 6 versions

Title: Dependence of oxygen flow on optical and electrical properties of DC-magnetron sputtered ITO films

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

Year:1992

Content:M Bender, W Seelig, C Daube, H Frankenberger, B … - Thin solid films, 1998 - ElsevierIndium-tin-oxide (ITO) thin films have been prepared by DC-magnetron reactive sputtering in an vertical Inline sputtering system. The oxygen content of the ITO films was changed by variation of the sputtering gas composition. All other deposition parameters were kept constant. ... Cited by 28 - Related articles - ACNP Holdings - All 6 versions

Title: [PDF] Compactly-Encoded Optical Flow Fields for Motion-Compensated Video Compression and Processing

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

Year:1992

Content:R Krishnamurthy - 1997 - CiteseerPage 1. COMPACTLY-ENCODED OPTICAL FLOW FIELDS FOR MOTION-COMPENSATED VIDEO COMPRESSION AND PROCESSING By ... COMPACTLY-ENCODED OPTICAL FLOW FIELDS FOR MOTION-COMPENSATED VIDEO COMPRESSION AND PROCESSING By ... Cited by 4 - Related articles - View as HTML - All 6 versions

Title: High Speed Optical Stopped‐Flow Apparatus

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

Year:1992

Content:RL Berger, B Balko, W Borchardt, W Friauf - Review of Scientific …; 1968 - link.aip.orgA stopped flow apparatus for the study of fast reactions in solution is described. The measured dead time was 270 μsec with an uncertainty in the measurement of 50 μsec. At 410 mμ and an optical density of about 0.09 a change of 0.0044 optical density units could be observed ... Cited by 26 - Related articles - ACNP Holdings - All 3 versions

Title: Surface orientation and time to contact from image divergence and deformation

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Title: Optical imaging of the spatiotemporal dynamics of cerebral blood flow and oxidative metabolism in the rat barrel cortex

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

Year:1992

Content: B Weber, C Burger, MT Wyss, GK Von ... - European Journal ... , 2004 - interscience.wiley.com
Abstract Oxidative metabolism and cerebral blood flow (CBF) are two of the most important measures in neuroimaging. However, results from concurrent imaging of the two with high spatial and temporal resolution have never been published. We used flavoprotein autofluorescence (AF) and ... Cited by 32 - Related articles - BL Direct - All 15 versions

Title: Quantum control of energy flow in light harvesting
Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
Year: 1992

Content: JL Herek, W Wohlleben, RJ Cogdell, D Zeidler, M ... - Nature, 2002 - nature.com... evolutionary algorithm strategy. We excite the carotenoid to the S₂ state with shaped femtosecond pulses 18 from a non-collinear optical parametric amplifier (nc-OPA) 19 and monitor the ensuing energy flow (Fig. 2) by probing ... Cited by 310 - Related articles - ACNP Holdings - BL Direct - All 16 versions

Title: Morphable 3D models from video
Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
Year: 1992

Content: M Brand - 2001 - computer.org
Page 1. Matthew Brand Mitsubishi Electric Research Labs, Cambridge, MA 02139 USA
Abstract Nonrigid 3 D structure-from-motion and 2 D optical flow can both be formulated as tensor factorization problems. ... Cited by 145 - Related articles - BL Direct - All 21 versions

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
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GIBSON SET the basis for modern studies of visual perception by describing the visual input as an optic flow, rather than a succession of static images[1]. When an animal moves, optic flow carries information related to the motion of the animal, as well as to the 3D layout of the ... Cited by 23 - Related articles - ACNP Holdings - BL Direct - All 6 versions

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
Year: 1992

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A model-based method for estimating the shape and motion of 3D objects appearing in a video is described. This technique is used for model-based video coding video compression. The method is based on a new variant of optical flow and uses 3D computer graphics to ... Cited by 3 - Related articles - View as HTML - All 4 versions

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
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In pentobarbital-anesthetized male Sprague-Dawley rats, a small cranial window was trephined, and the cortex was transilluminated with a fine glass fiber inserted into the brain parenchyma. The light intensity at the surface area of 2 × 2 mm was recorded during ... Cited by 20 - Related articles - ACNP Holdings - BL Direct - All 3 versions

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

Year:1992

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Year:1992

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Title: A novel flow through optical fiber biosensor for glucose based on luminol electrochemiluminescence

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Title: Mechanistic similarities between oxidation of hydroethidine by Fremy's salt and superoxide: stopped-flow optical and EPR studies

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Title: Direct measurements of particle velocities in gas-solids suspension flow using a novel five-fiber optical probe

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Title: Diffuse optical monitoring of blood flow and oxygenation in human breast cancer during early stages of neoadjuvant chemotherapy

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Turbulent convection in silicon melts plays a decisive role for the transport of heat and oxygen during the silicon Czochralski crystal growth. Information on the state of turbulence is usually derived from the frequency behaviour of temperature fluctuations. Until now, temperature ... Cited by 22 - Related articles - ACNP Holdings - All 7 versions

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
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Page 1. Cardiac Motion Tracking Using CINE Harmonic Phase (HARP) Magnetic Resonance Imaging Nael F. Osman,¹ William S. Kerwin,¹ Elliot R. McVeigh,^{1,2} and Jerry L. Prince^{1,2*} This article introduces a new image processing ... Cited by 289 - Related articles - ACNP Holdings - BL Direct - All 16 versions

Title: Real-time in vivo blood-flow imaging by moving-scatterer-sensitive spectral-domain optical Doppler tomography
Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
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Optical coherence tomography (OCT) is a noninvasive imaging modality capable of cross-sectional imaging of tissue structures on a micrometer scale.¹ Optical Doppler tomography (ODT) is an extension of OCT, capable of high-resolution, spatially resolved flow imaging of ... Cited by 21 - Related articles - ACNP Holdings - BL Direct - All 28 versions

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Year: 1992

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
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Title: A flow-through optical fibre reflectance sensor for the detection of lead ion based on immobilised gallocynine
Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
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A flow-through spectrophotometric sensor for the determination of lead at trace level using immobilised gallocynine as the reagent phase is proposed. Gallocynine is physically adsorbed onto XAD-7. This method provided a wide linear range of 1×10^{-8} to 1×10^{-3} ppm and ... Cited by 23 - Related articles - ACNP Holdings - All 4 versions

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier
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cortex in primates as well as additional topographic representations in the lateral geniculate body, pulvinar and optic tectum (Allman 1977, Newsome & ... Cited by 643 - Related articles - ACNP Holdings - All 4 versions

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Title: Experimental measurement of a time-varying optical path difference by the small-aperture beam technique

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Title: Image shifting technique to resolve directional ambiguity in double-pulsed velocimetry

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Title: [PDF] The steerable pyramid: A flexible architecture for multi-scale derivative computation

Author: M Negawa, F Shoji - Journal of Chromatography A, 1992 - Elsevier

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Content:EP Simoncelli, WT Freeman - … of the 1995 International Conference on …, 1995 - Citeseer... We have explored the use of this decomposition in a number of applications, including image enhancement, orientation decomposition and junc- tion identification, texture blending, depth-from- stereo, and optical flow. Space ... Cited by 392 - Related articles - View as HTML - All 21 versions

Title: The impact of ocular blood flow in glaucoma

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Title: Honeybee navigation en route to the goal: visual flight control and odometry

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