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3D Representation for Object and Scene Categorization

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Abstract

Object and scene categorization has been a central topic of computer vision research in recent years. The problem is a highly challenging one. A single object or scene may show tremendous variability in appearance and structure under various photometric and geometric conditions. In addition, members of the same class may differ from each other due to various degrees of intra-class variability. Recently, researchers have proposed new models and learning tools towards the goal of: i) finding a suitable representation that can efficiently capture the intrinsic three-dimensional multi-view nature of objects and scenes; ii) taking advantage of this representation to help the recognition and categorization task. In this lecture different approaches aimed at tackling this challenging problem will be analyzed and compared.

Syllabus: Object Categorization, Scene Categorization, 3D Representation, multi-view geometry