



Medical Imaging meets Deep Learning

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AI in Neuroradiology: precision medicine and the challenges of clinical data

Recent developments in artificial intelligence and the availability of large scale medical imaging datasets allow us to learn how the human brain truly looks like from a biological, physiological, anatomical and pathological point-of-view. This learning process can be further augmented by diagnostic and radiological report data available in clinical systems, providing an integrated view of the human interpretation of medical imaging data. This talk will present how these models can learn from big, unstructured and clinical-grade data, and then be used as tools for precision medicine, where we aim to translate advanced imaging technologies and biomarkers to clinical practice in order to streamline the clinical workflow and improve the quality of care. This process of technical translation requires deep algorithmic integration into the radiological workflow, fully automated image processing, quality control and assurance, extensive validation on clinical grade data, and the deployment of an automated reporting system that summarizes a complex set of imaging biomarkers, highlighting the presence of abnormalities, and allows the optimisation of clinical operations.