AI in Medical Imaging: Basics to Research Applications

Dr Lawrence CHAN
Associate Professor of Health Technology and Informatics, Hong Kong Polytechnic University, HKSAR

Artificial Intelligence (AI) and big data analytics have received unprecedented attention in biomedical fields, particularly medical imaging. The analysis of medical images is challenging due to the vast amount and high complexity of latent information. Radiomics and deep learning are two important scientific advances that make the in-depth medical image analysis more available in research and clinical applications. Radiomics is a newly emerged field in radiology, which facilitates high-throughput extraction of image features from medical images and multi-parametric characterization of pathological regions. Stemmed from machine learning, deep learning yields excellent performance in classification and predication through the utilization of multi-layer neural network and designated learning algorithm.

In this talk, the speaker will report and discuss his latest AI studies. To facilitate better understanding of the capability of AI, the basics of deep learning will be introduced before the discussion of these studies. The applications cover lesion detection, lesion classification and effective neuronal connectivity analysis, which essentially reveal the current state and future perspectives of AI in medical imaging.