Toward AI Clinics

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Abstract

With the thriving of deep learning techniques and high-speed graphics processing units, recent years have witnessed the beginning of a golden era of image analysis and signal processing. Practicing smart healthcare and using machine learning techniques to segment, track and classify diseases in medical images and signals, thereby relieving clinicians from the heavy burden of medical diagnosis and improving healthcare quality, have evolved into a global trend. In particular, rapidly growing deep learning techniques, including transfer learning, YOLO, and U-Net, can be combined with traditional machine learning methods for the applications to medical data at varied data volume levels to broaden the spectrum of diagnostic techniques. This talk discusses practical clinical issues concerning the intelligent analysis of heart rhythm abnormalities and atrial fibrillation as examples to explain how important machine learning techniques can be integrated with clinical medical data and professional clinic experience. Thus, the developments of machine learning techniques to medical analysis and diagnosis methods will enhance the establishment of real time, accurate, and comprehensive clinical diagnoses.