

2nd World Congress on

Medical Imaging and Clinical Research

September 11-12, 2017 | Paris, France

Deep Learning in Medical Image Analysis

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Medical image analysis is the science of analysing or solving medical problems using different image analysis techniques for affective and efficient extraction of information. It has emerged as one of the top research area in the field of engineering and medicine. Recent years have witnessed rapid use of machine learning algorithms in medical image analysis. These machine learning techniques are used to extract compact information for improved performance of medical image analysis system, when compared to the traditional methods that use extraction of handcrafted features. Deep learning is a breakthrough in machine learning techniques that has overwhelmed the field of pattern recognition and computer vision research by providing state-of-the-art results. Deep learning provides different machine learning algorithms that model high level data abstractions and do not rely on handcrafted features. Recently, deep learning methods utilizing deep convolutional neural networks have been applied to medical image analysis providing promising results. The application area covers the whole spectrum of medical image analysis including detection, segmentation, classification, and computer aided diagnosis. A brief introduction to the application of deep learning algorithms in medical image retrieval, segmentation, and detection will be presented.

Biography

Syed Muhammad Anwar is assistant professor at department of Software Engineering, University of Engineering, and Technology, Taxila and leading the Signal, image and multimedia, processing, and learning (SIMPLe) group. His research interest includes magnetic resonance imaging, machine learning, deep learning, medical image analysis and wearable and m-health.

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