Special Issue

Deep Learning Methods for Biomedical and Medical Images

Message from the Guest Editors

Deep learning has been an active topic in machine learning and has become the dominant approach in several domains, such as computer vision and natural language processing. In biomedical and medical image processing, machine learning paradigms, including supervised, self-supervised, unsupervised, and reinforcement learning, have been considered for various applications, such as image classification, segmentation, and detection. In supervised learning, convolutional neural networks are one of the most prevalent architectures to train labelled images, and have shown applicability in biomedical and medical image processing. Self-supervised, along with unsupervised learning, allows for the automatic discovery of important image features and assists in the interpretation of image characteristics. In addition, reinforcement learning has a unique approach based on indirect indication, called reward, and can contribute to image analysis and the optimization of hyperparameters including neural network architectures. In this Special Issue, we welcome contributions that address these challenges and could lead to the wider adoption of deep learning in medical imaging.

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The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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