Special Issue

New Trends in Computational Pathology: Advancements in Deep Learning and Artificial Intelligence-Driven Image Analysis

Message from the Guest Editors

Computational pathology is transforming through the integration of deep learning and artificial intelligence (AI) for analyzing pathological images. Recent advancements in convolutional neural networks have significantly improved the accuracy of classifying and segmenting histopathological and cytological images, aiding in the diagnosis of complex diseases like cancer. AI-driven platforms can efficiently process large datasets, reducing inter-observer variability and speeding up diagnostic evaluations. These technologies also contribute to predictive models that leverage multi-modal data, including genomic and radiomic information. Additionally, unsupervised and semi-supervised learning techniques are enhancing automated feature extraction and classification, resulting in more robust diagnostic algorithms. As the field evolves, it has the potential to redefine diagnostic practices and improve patient outcomes through personalized treatment strategies. This Special Issue will highlight these emerging trends and innovative applications at the intersection of AI and pathology.

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