BREAST CANCER HISTOPATHOLOGY IMAGES CLASSIFICATION

Abstract

Breast cancer histopathology image classification is a crucial field within medical image analysis that leverages machine learning and deep learning techniques. Its primary objective is the automated categorization of breast tissue samples as either malignant or benign based on microscopic images. Deep learning, notably Convolutional Neural Networks (CNNs), has emerged as the predominant approach due to its capacity to autonomously extract intricate features from raw image data. Transfer learning, employing pretrained models, further enhances the performance of these models. Ethical considerations and compliance with medical data privacy regulations are paramount in this domain. The continuous refinement and deployment of such models have the potential to profoundly impact early cancer detection and treatment planning in clinical settings.

Machine learning and deep learning represent two fundamental paradigms within artificial intelligence. Machine learning encompasses a spectrum of techniques geared towards teaching algorithms to make data-driven predictions. In contrast, deep learning, a subset of machine learning, concentrates on training deep neural networks to autonomously acquire hierarchical features from raw data. It excels in intricate tasks such as image and speech recognition. Convolutional Neural Networks (CNNs) reign supreme in deep learning for image-related undertakings, while Recurrent Neural Networks (RNNs) shine in sequential data analysis.

DOMAIN : Artificial Intelligence

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