

Applying Machine Learning Algorithms for the Classifications of Sleep Disorder

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Abstract: *The sleep disorders such as sleep apnea and insomnia are severe health issues that impair daily functioning and can lead to severe complications if left untreated. Traditional diagnostic methods are time-consuming and require specialized expertise. The current work proposes a machine learning-based method using MRI imaging for better classification of sleep disorders. According to the XGBoost algorithm, which is highly accurate and efficient, MRI images are preprocessed to obtain appropriate features that indicate sleep abnormalities. The system classifies sleep disorders automatically using the proposed method, giving a reliable and efficient diagnostic method. The novelty of the method is the application of advanced imaging modalities combined with machine learning for enhancing diagnostic accuracy. The results show that XGBoost can classify various sleep disorders, demonstrating its potential in real-world clinical applications. The work emphasizes the role of machine learning in the development of healthcare by offering early detection and improved patient outcomes.*

Keywords: Sleep Disorders, MRI Imaging, Brain Structure, Feature Extraction, Classification, Diagnosis, Healthcare

