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EEG SIGNAL ANALYSIS FOR MENTAL STRESS CLASSIFICATION: A REVIEW

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Abstract
Mental stress has been considered an important issue nowadays. Prolonged stress may lead to many severe diseases like heart attack, diabetes, possible sudden death and mental disorder. The traditional technique of clinical detection and monitoring the stress are mainly based on questionnaires and interviews. However, due to their limitations and data handling obstacles, it is highly needed for more advanced techniques. Recently, many studies have focused to classify mental stress using physiological signals such as heart activity, brain activity, muscle activity, speech, and facial expressions. One way to collect the data from brain activity is using a non-invasive device named Electroencephalograph (EEG). This paper gives a brief introduction of EEG, followed by a comprehensive analysis of artifacts and their removal techniques. Two types of artifacts in EEG and their removal methods are being discussed along with the challenges, advantages, and different obstacles being faced by the experts. The possible machine learning (ML) and deep learning (DL) models for mental stress classification are also discussed. Further, future direction on the possible methods to enhance the accuracy of stress detection is discussed. © 2022 Little Lion Scientific.

Author Keywords
Classification; Deep learning; EEG Signals; Machine learning; Mental Stress

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