

A systematic review of deep learning algorithms utilising electroencephalography signals for epileptic seizure detection

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Abstract: Researchers are diligently endeavouring to integrate artificial intelligence (AI) into medical practice to harness the most recent breakthroughs in these fields. Early identification and accurate disease prediction are the primary goals of healthcare to administer the efficient preventative care at any disease or critical illness like epilepsy. Epilepsy is a condition that is marked by repeated and unpredictable seizure-activity. The difficulty of accurately predicting epileptic seizures has not been fully solved yet. Recently, AI tools have been utilised to help the doctors by providing the disease information extracted from the patient's datasets. This paper discusses the applications of deep learning algorithms (DLA) for epileptic seizure detection utilising electroencephalography (EEG) signals. The significant obstacles associated with accurately detecting automated epileptic seizures have also been studied using DLA in conjunction with EEG-data. It also analyses the advantages, challenges and limitations of the DLA applied for epileptic-seizure detection (ESD).

Keywords: EEG signals; classification; deep learning; DL; machine learning; ML; epileptic seizures; detection and diagnosis; deep learning algorithms; DLA; epileptic seizure detection; ESD.

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