

EEG-Based Screening Tool for School Student's Brain Disorders Using Machine Learning Algorithms

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Abstract : Attention-Deficit/Hyperactivity Disorder (ADHD), epilepsy, and autism affect millions of children worldwide, many of which are undiagnosed despite the fact that all of these disorders are detectable in early childhood. Late diagnosis can cause severe problems due to the late treatment and to the misconceptions and lack of awareness as a whole towards these disorders. Moreover, electroencephalography (EEG) has played a vital role in the assessment of neural function in children. Therefore, quantitative EEG measurement will be utilized as a tool for use in the evaluation of patients who may have ADHD, epilepsy, and autism. We propose a screening tool that uses EEG signals and machine learning algorithms to detect these disorders at an early age in an automated manner. The proposed classifiers used with epilepsy as a step taken for the work done so far, provided an accuracy of approximately 97% using SVM, Naïve Bayes and Decision tree, while 98% using KNN, which gives hope for the work yet to be conducted.

Keywords : ADHD, autism, epilepsy, EEG, SVM

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