ABSTRACT

EEG BASED EPILEPSY DETECTION SYSTEM

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The software system has been developed that detects epileptic crisis from the brain signals. With early warning and prevention mechanisms for patients, this illness offers the possibility to live safely without being abstracted from their social lives. Thus, it is aimed that these people are brought into society and accepted by the society. The diagnostic process of a manual epileptic patient operated by Neurology Doctors takes on the role of an adjunctive decision-making mechanism, helping doctors avoid attention errors that may occur with the created software system. In addition to the abovementioned contributions, the thesis work has also introduced innovations in the field of neuroscience by blending Machine Learning, Data Mining, Signal Processing, Local Binary Patterning methods. While the Signal Processing method is used to determine whether one second of signals on multi-channel data is transmitting epilepsy, the Local Dual Pattern method provides a quick and more precise way to determine whether single-channel received signals are transmitting epilepsy.

Keywords: Signal Processing, Machine Learning, Local Binary Pattern, EEG, Data Mining, Epilepsy, Genetic Algorithm, Histogram.

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