ABSTRACT

The human brain is a wonderful organ that sometimes experiences a chronic neurological disorder. One of the chronic neurological disorders is Epileptic Seizures. Epileptic Seizures affect more than 50 million people worldwide. In the epilepsy brain, electrical rhythms tend to become imbalanced. Traditionally, medical experts have a hard time diagnosing epileptic seizures. However, since the exponential growth of deep learning, specifically convolutional neural networks.

In this final project, a system is designed to classify three classes of EEG signals: condition AB equals healthy (with eyes open and closed), CD equals interictal, and E equals ictal. With a total dataset of 4097 samples per channel. The system is designed with a simple 1D CNN, with a depth of 3 layers, where the filters for each layer are 16, 32, and 64.

The system produces the best performance with an accuracy of 94%. This condition is obtained with Adam's hyperparameter with a learning rate of 0.001.

Keywords: *Epileptic Seizures, Convolutional Neural Network, Time-Series, Electroencephalography.*