**ABSTRACT**

Recognizing genes causing Autism Spectrum Disorder (ASD) is still a complex task. The role played by domain experts is crucial in identifying relevant contributive features and as recognizing hand-crafted attributes occupies a great deal of time, a varying successful solution is necessary. The swift advancements in the design of deep architecture models have shown substantial accomplishment in sequential data processing tasks. Deep learning models examine the data to discover associations among the features and enable faster learning without being explicitly programmed to do so. Hence the principal goal of this work is to categorize the ASD genes by applying deep learning based models without feature engineering. One hot encoding method is used to encode the gene sequences as vector of numerical values and to further simplify the input representation to aid the prediction of ASD gene sequences. Recurrent Neural Network (RNN) models like Bidirectional Recurrent Neural Network (BRNN), Long Short Term Memory (LSTM) and Gated Recurrent Units (GRU) are employed to build the prediction models using user defined and self learned features. The performances of the models evaluated using cross validation with various metrics like precision, recall, accuracy and F-measure confirm that GRU model shows promising results using one hot encoding technique.