RNN are one type of ANN that deals with data that has sequential inputs. This architecture has been used to process speech, language and sentiment data [27], specially predicting the next character and word in a given text [5], and for  
more complex tasks [16]. As mentioned previously, RNNs can process sequential inputs using an internal memory to process these incoming inputs and as Le Cun et al.[16] pointed, this model is able to keep in their hidden units a sort of state vector, which can enclose details of previous parts of the sequence. Therefore RNN can process at the same time the previous and recent flow of inputs data by using this hidden unit or layer to keep a historical record. However, the RNN only takes one sequence at any given time. In this research, three commonly used types of RNN will be tested. The following section will describe the LSTM and the GRU architecture.

Recurrent Neural Networks (RNNs) are a kind of Artificial Neural Network (ANN) that can handle data with sequential input. This structure has been applied to process language, speech and sentiment data [27], particularly forecasting the succeeding character and word in a given passage [5], and for more difficult tasks [16]. As mentioned before, RNNs can process successive inputs through an internal storage to process these incoming inputs. Le Cun et al.[16] highlighted that this model can keep in their hidden units a type of state vector, which can encompass information from preceding sections of the series. Consequently, RNN is able to manage the history of previous and current inputs simultaneously by employing a hidden unit or layer. Yet, RNN can only manage one sequence at any given moment. For this research, three recurrent neural networks that are normally used will be tested. The following section will describe the LSTM and the GRU architecture.