In the 2022 paper published in the International Journal of E-Health and Medical Communications called, “EEG Forecasting With Univariate and Multivariate Time Series Using Windowing and Baseline Method”, researchers compare different methods of forecasting epileptic events using a type of Recurrent Neural Network (RNN) called LSTM or Long Short-Term Memory. They were trying to compare the efficacy of univariate (used to predict future values of a single variable based on its past values) to multivariate (used to predict future values based on multiple variables) techniques. There data pool had been harvested from 500 individuals with a total of 11500 rows and 178 columns. All instances belonged to two classes 1 being a seizure event and 0 being a non-seizure event. They used 8000 of the 11500 rows for training both univariate and multivariate techniques, while leaving 3000 rows out for validating the model’s predictions. In an attempt to get consistent results in both techniques, they used tf.random.set\_seed(13). This function would set a starting point in generation a sequence of pseudo-random numbers. Neural networks often initialize weights randomly so setting a random seed ensures that this initialization is consistent every time the model is trained and having a consistent starting point ensures that the training process is stable and that the model learns patterns in the data rather than adapting to noise due to random initialization. All 178 columns were labeled X1 – X178, these columns would act as attributes. In testing the univariate technique, the researchers only used the second column or X2 as the model’s attribute. They first had to standardize the data by subtracting the mean from the original value of the dataset and dividing the result by the standard deviation of that dataset. Both univariate and multivariate techniques had a window (subset of your sequential dataset) size of 10 and a time step (represents the number of time intervals between each observation in a sequence) of 200. Only 7 out of 10 of the univariate models predictions were close to the actual data set aside for validation compared to 9 out of 10 for the multivariate models predictions. Neither of these were perfect. In my opinion, the multivariate model may have done better than the univariate model because of the amount of data allowed, it may have reduced bias unlike the univariate model.