

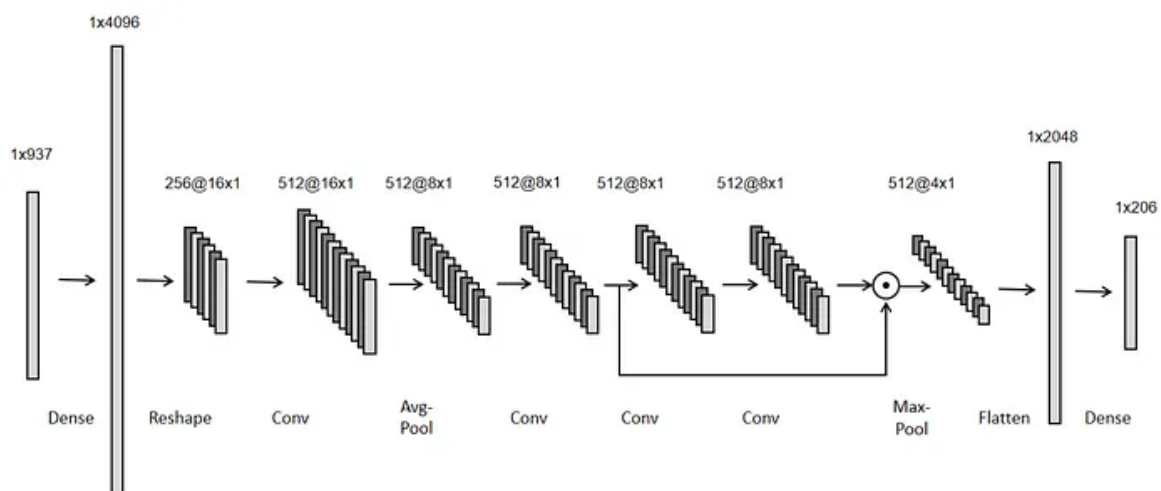
## Overview

### Convolution Neural Network:

- Imported all the necessary packages
- The pre processed data is loaded as df
- The search space for hyper parameter tuning is defined to find the optimal parameters that gives best performance
- Here we have used **Keras Tuner** and **RandomSearch** to perform hyperparameter tuning with the defined search space
- Here we have used 1D-CNN

### 1D-CNN

- CNN structure performs well in feature extraction, but it is rarely used in tabular data because the correct features ordering is unknown.
- The idea is to reshape the data directly into a multi-channel image format, and the correct sorting can be learned by using Fully Connected layer through back propagation.



(NOTE: The image is downloaded from internet – it illustrates the similar architecture, not the exact number of layers.)

- The best model and its configuration is then saved
- Then the model performance is evaluated with accuracy and loss values, precision, recall, f1 Score with the help of confusion matrix

## Tabnet

- Imported all the necessary packages
- The pre processed data is loaded as df
- The search space for hyper parameter tuning is defined to find the optimal parameters that gives best performance
- Here we have used **Keras Tuner** and **RandomSearch** to perform hyperparameter tuning with the defined search space
- Tabnet is based on attention mechanism.
- Tabnet converts the categorical values into embeddings

Brief on Tabnet - <https://syslog.ravelin.com/classification-with-tabnet-deep-dive-49a0dcc8f7e8>