Due Date: 18 Nov 2020, Friday, 11.59 pm

Programming assignment 4

Seizure detection

# PACKAGE installation

## Introduction of packages

### **Pip**: package installer. (<https://pypi.org/project/pip/>)

### **Numpy**: fundamental package for scientific computing. (<https://numpy.org>)

### **Sklearn**: data analysis package. (<https://scikit-learn.org/stable/>)

### **Pyedflib**: EDF format data reader. (<https://pyedflib.readthedocs.io/en/latest/>)

## Installation

### **Pip**: Your system may already have ‘pip’ pre-installed. To verify, you can type pip freeze in command window. ‘pip freeze’ will list all the packages installed through ‘pip’. If ‘pip’ is not installed yet, follow the instruction on <https://pip.pypa.io/en/stable/installing/> to install.

### **Numpy**: If ‘numpy’ is not pre-installed in your system, use sudo pip install numpy to install numpy.

### **Sklearn**: Use sudo pip install sklearn to install sklearn.

### **Pyedflib:** Use sudo pip install pyEDFlib to install pyedflib.

# Seizure detection Background and data descriptor

This assignment is about training a machine learning model to classify EEG data to be either indicative of seizure or not.

Stevenson, N. J., et al. "A dataset of neonatal EEG recordings with seizure annotations." *Scientific data* 6 (2019): 190039.

<https://www.nature.com/articles/sdata201939>

All the folders that came are needed because they contain either the data or the ‘pyeeg’ module. ‘pyeeg’ is a Python package which helps to extract features from EEG data.

# Demo Code

The demo Jupyter notebook (AssignmentDemo\_MachineLearning.ipynb) shows how to load and classify a small seizure dataset. It has similar structure as your assignment. You can look through it for your understanding and reference.

# assigment

The Jupyter notebook (Assignment\_MachineLearning.ipynb) contains some missing statements which is your assignment. It uses a larger dataset (dataBig) and the format of the data handling is different. Several pictures and clues are given in the notebook itself to help you tackle these tasks.