

**Project Name:** Utilizing Adaptive Machine Learning for predicting earthquake intensity

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**Pre-request knowledge:** Fundamentals of Machine learning, Python

**Framework:** Python (Anaconda, Spyder) including: pandas, numpy, sklearn, skmultiflow.

### **Summery:**

Machine learning is concerned with improving the learning ability of the computer to make (intelligent) decisions and to distinguish different patterns based on the given data [1]. Stream data represents a significant source for a vast amount of data, especially with sensors and monitoring devices which can provide continuous data samples [2]. Analysis and prediction of earthquake data is very important to reduce deaths, material losses, and in the design stages of construction projects. Earthquake data can be represented by a time series data stream. Accumulating a hug amount of this data represents a serious challenge for typical classification techniques due to the limitation of computation resources and the complexity of the classification model. In Adaptive Machine Learning AML, instead of building a fixed classifier during the learning process, AML continuously modifies the classifier as a response to the change in the distribution of a data stream [2].

**Main Objective:** Utilizing an adaptive classifier for predicting the intensity of multi-class earthquake data stream.

### **References:**

[1] Han J, Pei J, Tong H. Data mining: concepts and techniques. Morgan kaufmann; 2022 Jul 2.

[2] Joao Gama. Knowledge discovery from data streams. CRC Press, 2010

### **Useful links:**

- <https://www.kaggle.com/datasets>.
- <https://data.humdata.org/dataset>
- <https://earthquake.usgs.gov/earthquake>