**Assignment 4: Clustering to Gain More Insights on Your Data**

This fourth assignment requires you to apply clustering techniques in your data so that the model performance can be further improved.

1. Process

**Step 1: Determine proper clustering algorithms.** Assess the characteristics of your data, e.g., are they categorical data or numerical data, are they spatial data or time series data. Determine proper clustering algorithms. For example, dynamic time warping is mostly used for time series data.

**Step 2: Build separate models or associate physical meanings for each cluster**. You can try to build separate models or assign intuitive/physical meaning for each cluster by looking into each data point within or between clusters. You are required to take a deep dive into the cluster.

**Step 3: Performance evaluation.**  You need to evaluate the model performance before and after the clustering, as well as performance from applying different clustering algorithms.

1. Submission

* You are required to deliver a 10-min presentation in class.
* You also need to write a 1-2 page written report, in IEEE double-column paper format.