# Final Project for ECE 427 – Machine Learning Course

**Due data: May 15, 2021**

**Title: Compare Deep learning and AutoML Machine learning frameworks for time series forecasting**

*Part I: Time series forecasting is an important area of machine learning because there are so many prediction problems that involve a time component. The time component makes time series problems more difficult to handle and important to*

In Part I of the project,

1. you will discover *time series forecasting problem* by reading the included material and related material you will find in the literature and compose a short summary (4 pages) of the subject, the machine algorithms used to handle the problem, and its applications. Your summary must be written in latex.
2. You will select a dataset from the various repositories previously suggested to you and apply several neural network techniques to make predictions. You will submit a jupyter notebook with your computations, well documented, and with a summary of your observations regarding the performance of the different types of ANN applied.

*Part II: The success of machine learning in a broad range of applications has led to an ever-growing demand for machine learning systems that can be used off the shelf by non-experts. To be effective in practice, such systems need to automatically choose a good algorithm and feature preprocessing steps for a new dataset at hand, and also set their respective hyperparameters required. Recent work has started to tackle this automated machine learning (AutoML) problem.*

In Part II of the project,

1. You will produce a review of the subject of AutoML and the various frameworks developed which are publicly available. The review should be at most 5 pages long and written in latex and it should include a list of references cited in your review.
2. You will apply auto-sklearn framework to solve the time series problem you have selected in Part I and compare the performance of the AutoML framework with the ANN techniques used in Part I.