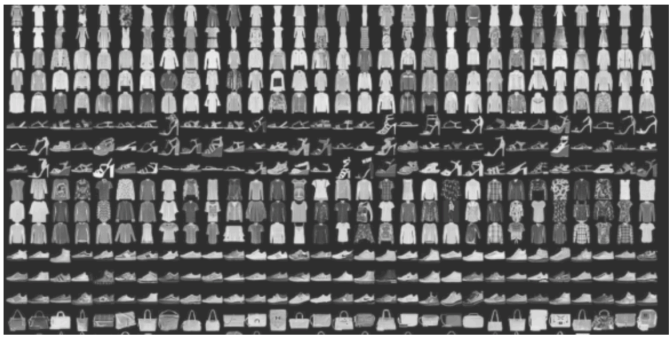
EE258 PROJECT #1
FALL 2019
DUE: Nov 8th, 2019

CLASSIFICATION OF FASHION MNIST dataset



In this project we are going to implement neural networks to classify the 10 classes in the FASHION MNIST dataset: T-shirt/top, Trouser, Pullover, Dress, Coat, Sandal, Shirt, Sneaker, Bag, and Ankle Boot. You can find some interesting notes and dataset in this link [1].

IMPLEMENT and COMPARE the performance of different **fully-connected feedforward neural networks** on the dataset. All the programming should be done in Python. **If you are working with a team member, each student should write their own report even though plots and code might be the same.**

TO BE SUBMITTED:

1. Code [**20% of the Grade**]: Well documented code with a ReadMe file. I should be able to run the code, and obtain the results provided in the report.

2. Report [**80% of the Grade**]:

- Data (describe the dataset – do not forget to use visualization tools)
- Methodology (describe neural networks used, cross-validation method used etc).
- Simulations (change parameters (number of epochs, activation functions, training set size etc) and observe the effect on the performance, provide plots & tables for both test and training classification errors, confusion matrices, etc)
- Results (Discuss your observations, do performance comparison of different networks)

REFERENCES:

[1] https://github.com/zalandoresearch/fashion-mnist
[3] Chapter 3 in Hands-On Machine Learning with Scikit-Learn and TensorFlow Concepts, Tools, and Techniques to Build Intelligent Systems By Aurélien Géron