

## Group Proposal Project X

### Problem Statement

The objective of our project is to develop a Neural Network using CNN architecture, which will be trained on hand gesture data. Net should be able to predict unseen data with good accuracy. Trained model will then be deployed to amazon web services. AWS architecture will be paralleled, so that multiple images can be predicted simultaneously. We will use tools provided by Amazon web services to build an architecture on cloud, which would be scalable, easily deployable and have parallelized classification of images through it.

### Dataset

We will use hand gesture recognition data from Kaggle.

Hand gesture recognition database is presented, composed by a set of near infrared images acquired by the Leap Motion sensor.

The data is composed by 10 different hand-gestures that were performed by 10 different subjects (5 men and 5 women).

Gestures in data are- Palm, L shape, Fist, Fist moved, Thumb, Index, Ok, Palm moved, C shape, Hand down.

DataSource:-

<https://www.kaggle.com/benenharrington/hand-gesture-recognition-database-with-cnn/data>

### Dataset Size

The dataset are images which can provide better results with deep learning architecture.

### Network

We will use standard CNN deep learning network with Max Pooling

### Framework

We will use pytorch python framework to implement the network to better understand and improve skills in pytorch.

### Background for choosing the network

We have seen in class and from our research as well that for images data CNN network will provide better results as compared to other networks

### Network Performance Metrics

We will use various performance measures like training loss, validation loss, testing loss, confusion matrix, accuracy, f1-score to determine performance of network

### Rough schedule for completing the project

We have set ourselves deadline of project to be completed by 1st week of December