Problem

The purpose of the project is classifying sign-language alphabet letter images. Currently, there are many inventions that integrate technology with machine learning to assist people who have related communication disabilities. This project attempts to use neural networks to effectively recognize sign-language alphabet letter.

Dataset

The dataset is from [Kaggle](#). The dataset is called Sign Language MNIST. It is sufficient enough to train a deep network as it has around 27,500 images. The data is categorized into 24 classes based on the alphabet characters. There are no labels for J or Z since these letters required gesture motions.

Network

We will use convolution network. We will use the standard form of the network.

Framework

We will use Keras framework since it is fast, especially using Google Cloud Platform.

Reference Material

- https://www.kaggle.com/ranjeetjain3/deep-learning-using-sign-langugage
- https://www.pyimagesearch.com/2017/12/11/image-classification-with-keras-and-deep-learning/
- https://medium.com/@tifa2up/image-classification-using-deep-neural-networks-a-beginner-friendly-approach-using-tensorflow-94b0a090ccd4

Evaluating Success

The dataset is balanced, so we will use both accuracy and f-1 score to evaluate the model.

Schedule

- November 18th: Each experiment with the dataset and type of neural network:
    + Number of layers
    + ImageDataGenerator
    + Reshape data
    + MaxPooling
- December 1st: Both work on presentation and group report on Google Doc