**Detection and Recognition of Traffic Signs**

**Through Deep Learning**

**1. Introduction**

This project will use the DenseNet Learning model to implement a real-time traffic sings detection system.

The traffic sign is a significant part for driving security, it provides many key information of road for drivers. In order to build a self-driving system, image recognition must be considered heavily, it is the fundamental system for further artificial intelligence decision make.

DenseNet is a kind of deep learning model. In other words, it is a convolutional neural network (CNN) with intensive connection. In this network, there exists a link between any two layers.

We will focus on the performance of DenseNet for this problem, try to get an acceptable result by implementation and modification on DenseNet. We may re-construct some concrete network structure and design some automatic method to adjust the parameters for training.

**2. Problems and challenges**

A general problem of image recognition is the purity of data. In the other words, due to the driving environment, the image get from camera in the road is very hard to handle and process. Because this is a real-time system, the shadow, the orientation, the mask and the size of the sign in an image are unpredictable and various frequently. Even though, we still need a high accuracy for the result to ensure the security of this system. It is more difficult than general image recognition.

Another problem when we doing experiments is the time cost. Each training needs a long time in hours, which is hard to verity the relation between the parameters and results. We paid many effort on the training efficiency and result accuracy. In the end, some custom optimal strategy is applied in our project.