Midterm project 1: Classifying Images of Hand Signs

Purpose

1. Learn how to manually collect dataset for machine learning
2. Learn how to preprocessing images for neural network
3. Learn how to train a neural network with Gluon API

Introduction

In this project, you will have to collect your own dataset of hand signs from 0 to 5 for training, submit 10 test images (each person), and TA will use the test images from everybody along with some extra images to calculate the final score. First, you will have to resize the image to 256 * 256 * 3 (3 is the number of channels, RGB) and then define a CNN model with MXnet Gluon API.

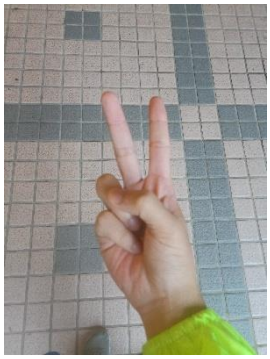
Specification

1. Given an image of **a hand** doing a sign representing **0, 1, 2, 3, 4 or 5**, predict the correct label.
2. Number of classes: 6 (Digits: **0-5**)
3. Image resolution: **256 * 256 * 3**
4. Color space: RGB

Example images:

Class 0 

Class 1 

Class 2 

Class 3 

Class 4 

Class 5 

Code Structure

1. Build the dataset of size 256 * 256 from the original images
2. Train your model
3. Display the result
4. Evaluate on the test set