Smart Home Gesture Control Application Part 2 Report

Hiroto Aoyama

a) Explanation of approach

- A class GestureInfo was created to store each gesture information (gesture video name, gesture name, gesture output label), and a class Gesture was created to store each gesture's GestureInfo and the extracted feature vectors.
- A function extract_feature was created to extract the feature of each gesture middle frame using HandShapeFeatureExtractor.extract_feature
- A list of all training data gesture videos were stored and to be looped through to obtain the middle frame feature vectors of each gesture.

b) Solution

- The function gesture_prediction was created to predict the output label from each gesture's middle frame feature vector.
- Cosine similarity in tensor flow was used, where the index of the current element and the current maximum similarity value were used to predict the best output label.
- This function was then ran across all test gesture videos to obtain Results.csv containing the predicted output labels for all 51 videos.