Project 2 Report

1. Project Objective

The goal of this project was to build a gesture recognition system that can learn from training videos and correctly classify test gestures. The system needed to process video inputs, extract features, and output predictions in a format required by the autograder.

2. Key Tools and Functions

- OpenCV: Extract frames from gesture videos.
- NumPy: Manage feature vectors and numerical operations.
- TensorFlow: Use a CNN model to extract gesture features.
- Cosine Similarity: Compare features between training and test data.
- CSV Module: Generate results in the required format.

3. Tasks Completed

1. Task 1: Processed 17 training videos and created feature vectors using a CNN.
2. Task 2: Processed 51 test videos with the same method for consistency.
3. Task 3: Compared test features with training features using cosine similarity and generated integer predictions in Results.csv.

4. Results

The system successfully processed both training and test datasets. It produced a Results.csv file with 51 integer predictions, meeting all autograder requirements such as format, file location, and data type.