
A Fully Customizable Face Gesture Recognition System With MediaPipe

Viet Thanh Le • Computer Vision Final Project

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1. Introduction

Contributions:

- Face gesture recognition system
 - An interface for defining and training new gestures
 - Analysis on model's performance
-

2. Methodology

Static gesture

- Can be detected in a single frame

Dynamic gesture

- Can only be detected in a series of frames.

Static gestures	Dynamic gestures
Left/Right wink	Head tilt left
Raise eyebrows	Head tilt right
Gasp	Nod
Neutral	Neutral

2. Methodology

Static gesture

- Train on 470 data points with 128 face landmarks using a neural network with 3 hidden layers.

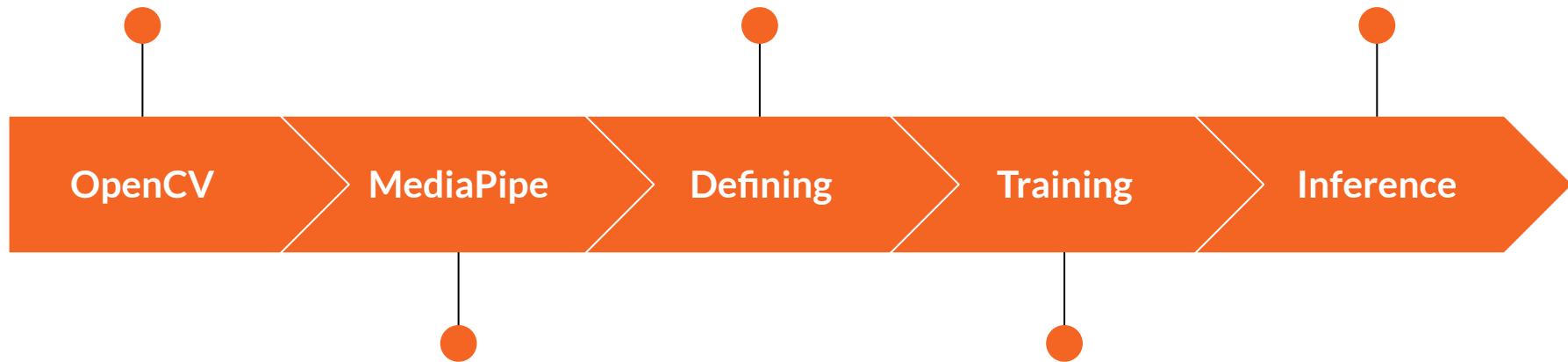
Dynamic gesture

- Train on 597 data points with 704 features using a mini LSTM model.
-

Capturing image using
OpenCV API

Define new face gestures
using program UI

Rerun the program load
models and make inferences.

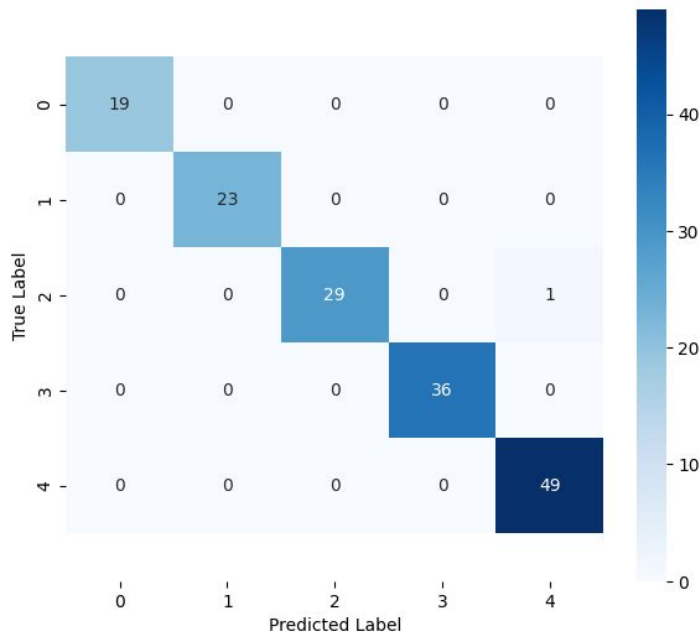


Use MediaPipe API to
detect facial landmarks

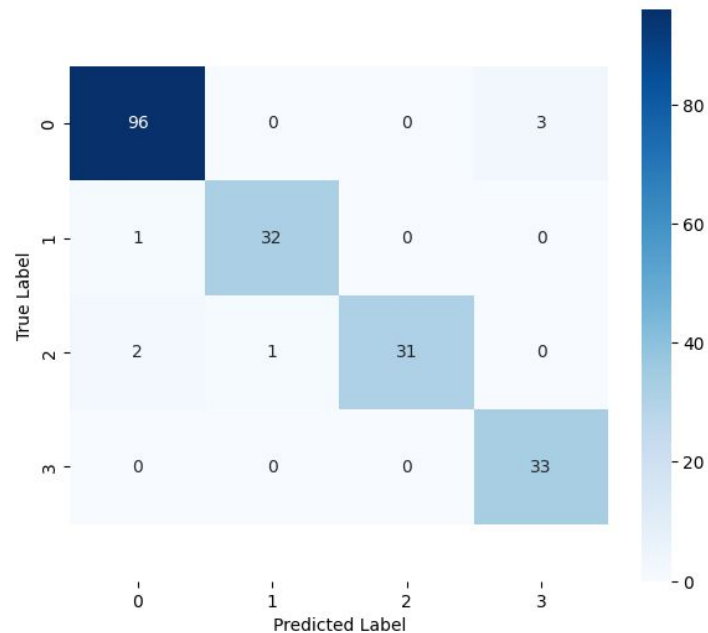
Train new data and
associated labels

3. Results

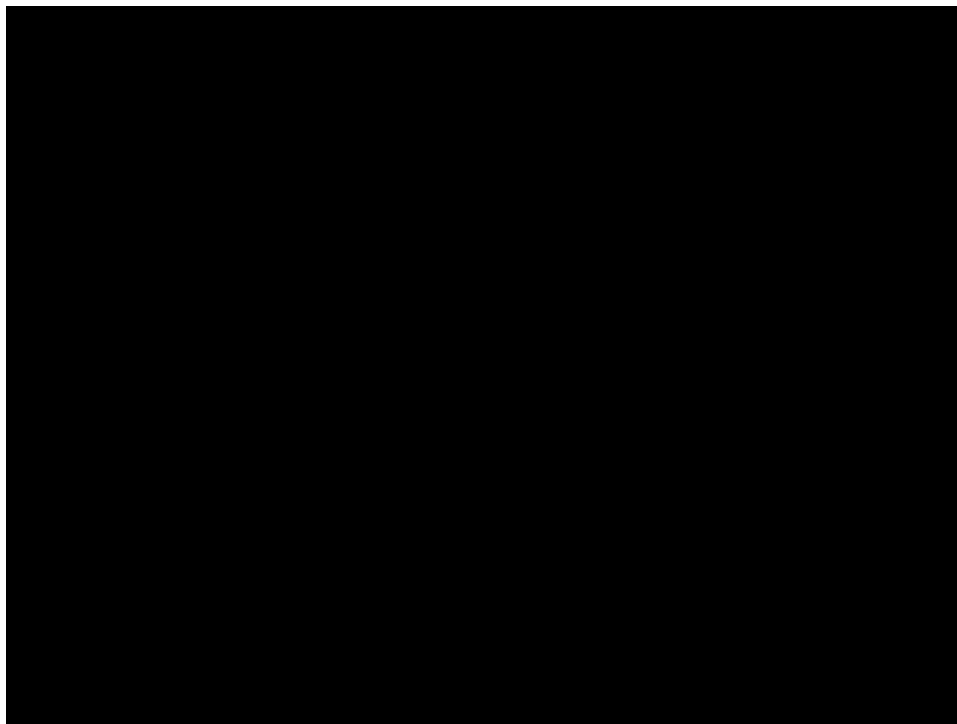
Static gesture



Dynamic gesture



4. Demo



Q&A

Thank you!
