

Leepookie Meme Reactor (AI Gesture → Meme Player)

A real-time gesture-controlled meme generator using **MediaPipe Holistic**, a **machine-learning gesture classifier**, and **OpenCV**.

When you perform a gesture in front of your webcam, the app predicts the gesture and instantly plays the matching meme GIF.

Perfect for VS Code demos, TikTok/Reels videos, and coding fun with friends.

✨ Features

- Real-time webcam tracking (face + hands)
- ML-trained gesture classifier (Random Forest)
- Smooth, stable predictions using majority-vote filtering
- Animated GIF playback
- Easy dataset capture and model retraining
- Fully customizable gesture → meme mapping

🐘 Project Structure

```
MemeProject/
|
├─ data_capture.py      # Capture gesture samples
├─ train_model.py       # Train RandomForest model
├─ build_dataset.py     # (Optional) Build dataset from .npy files
├─ main.py              # Final real-time meme reactor
|
├─ gesture_model.pkl    # Model generated after training
├─ dataset.npz          # Combined dataset
|
├─ dataset/             # Raw .npy per-sample files
|   └─ baby/
|   └─ dog/
|   └─ lebron/
|   └─ mj/
|   └─ rabbit/
|   └─ shaq/
|
```

```
|— memes/ (optional)      # Or keep memes in project root
|   |— niche_baby.jpg
|   |— lebron_james.gif
|   |— mj.gif
|   |— rabbit.gif
|   |— shaq.gif
|   |— dog.gif
```

Supported Gestures

Gesture	Meaning	Meme Triggered
Hand on mouth	"Baby" expression	niche_baby.jpg
Hand on head	"Lebron frustrated"	lebron_james.gif
T-pose with hands	Timeout gesture	shaq.gif
Pointing / holding	Rabbit meme	rabbit.gif
Crossed arms	MJ "Stop it" meme	mj.gif
No gesture (default)	Idle	dog.gif

Installation

1. Install dependencies

```
pip install mediapipe opencv-python numpy scikit-learn joblib imageio pillow
```

Step 1: Capture Gesture Samples

Run:

```
python data_capture.py
```

Press these keys while performing each gesture:

```
0 → dog (default)
1 → baby (hand on mouth)
2 → lebron (hand on head)
3 → shaq (T pose)
4 → rabbit (pointing/holding)
5 → mj (crossed arms)
```

Each press saves one sample.

 Recommended: **40+ samples per gesture** for good accuracy.

After collecting samples, press:

```
c → combine into dataset.npz
```



Step 2: Train the Model

Run:

```
python train_model.py
```

This will: - load dataset.npz - train a RandomForest classifier - evaluate accuracy - save

```
gesture_model.pkl
```



Step 3: Run the Meme Reactor

```
python main.py
```

You will see two windows: - **leepookie cam** → webcam view - **leepookie reaction** → meme GIF based on prediction

Press q to quit.

Optional: Rebuild Dataset Manually

If you added .npz files manually, run:

```
python build_dataset.py
```

This regenerates `dataset.npz` without recapturing.

Troubleshooting

Model is confused / misdetecting

- Ensure 30–50 samples **per gesture**
- Vary lighting, distance, and angle while capturing
- Retrain using `train_model.py`

GIFs not animating

`imageio` is required.

```
pip install imageio
```

Webcam not opening

If using VS Code, run from a **local terminal**, not inside a remote environment.

Tips for Better Accuracy

- Keep your face centered during capture
 - Avoid harsh backlight
 - Move slightly between each saved sample
 - Capture at different distances
 - Add more gestures easily by updating labels and retraining
-

Customize Your Own Gestures

Add a new folder under `dataset/`, capture `.npz` samples, rebuild dataset, retrain, and map it to any meme.

Credits

Created by **Nithin** — gesture-based meme reactor built with ML and MediaPipe.

Friends are free to modify, break, remix, and create meme chaos.

★ If you share this on GitHub

Consider adding project tags:

```
mediapipe, opencv, machine-learning, gestures, cv2, meme-generator, python-project
```

🐻 Enjoy creating chaos with gestures!