

Results – Real-Time Emotion Detection

This project implements a **real-time face recognition and emotion detection system** using **Python, Jupyter Notebook, Frameworks, and the FER dataset from Kaggle**. The system leverages **Haar Cascade classifiers** for face detection and a deep learning model to classify facial expressions. The primary objective is to accurately identify emotions such as **happy, sad, angry, surprised, and neutral** from both real-time video input and static images.

To evaluate the robustness of the model, **two testing approaches were used:**

1. **Live Camera Feed:** The system was tested in real-time using the **built-in camera of an Apple laptop**, allowing for direct assessment of its accuracy and performance in detecting facial expressions dynamically.
 2. **Diverse Facial Expressions (Google Images):** To ensure model generalization across different facial structures, lighting conditions, and angles, various images sourced from **Google** were used. This approach validates the model's effectiveness in recognizing emotions beyond the dataset it was trained on.
-

Detection Output & Performance

The uploaded screenshot demonstrates the model successfully identifying a facial expression in real time. In this instance, the system detected the emotion as **“Sad”**, **“Happy”**, **“Disgust”** and so on overlaying a bounding box around the face and displaying the classified emotion with its probability score in the interface.

Testing Environment & Setup Details

- **Device Used:** Dell laptop with a built-in camera for real-time testing.
- **Why Google Images?** To assess model robustness across different facial expressions and environmental conditions.
- **Performance Visualization:** Screenshots were captured from the real-time detection interface to showcase results effectively.





