Lab 12: Facial Recognition & Landmark Detection (OpenCV DNN + Dlib)

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Github - [Link](#)

1. Objective

The purpose of this lab is to:

- Detect faces using OpenCV's Deep Neural Network (DNN).
- Extract facial landmarks using dlib.
- Recognize faces using embeddings.
- Implement a real-time recognition system using a webcam.

2. Theoretical Background

- **Face Detection** locates human faces in images using bounding boxes.
- **Landmark Detection** identifies key facial points (eyes, nose, mouth, jawline).
- **Face Recognition** uses embeddings (numerical features) to verify or identify a person.
- These methods together form the foundation for **biometric authentication systems**.

3. Procedure, Results & Summaries

Step 1: Face Detection with OpenCV DNN

Screenshot:
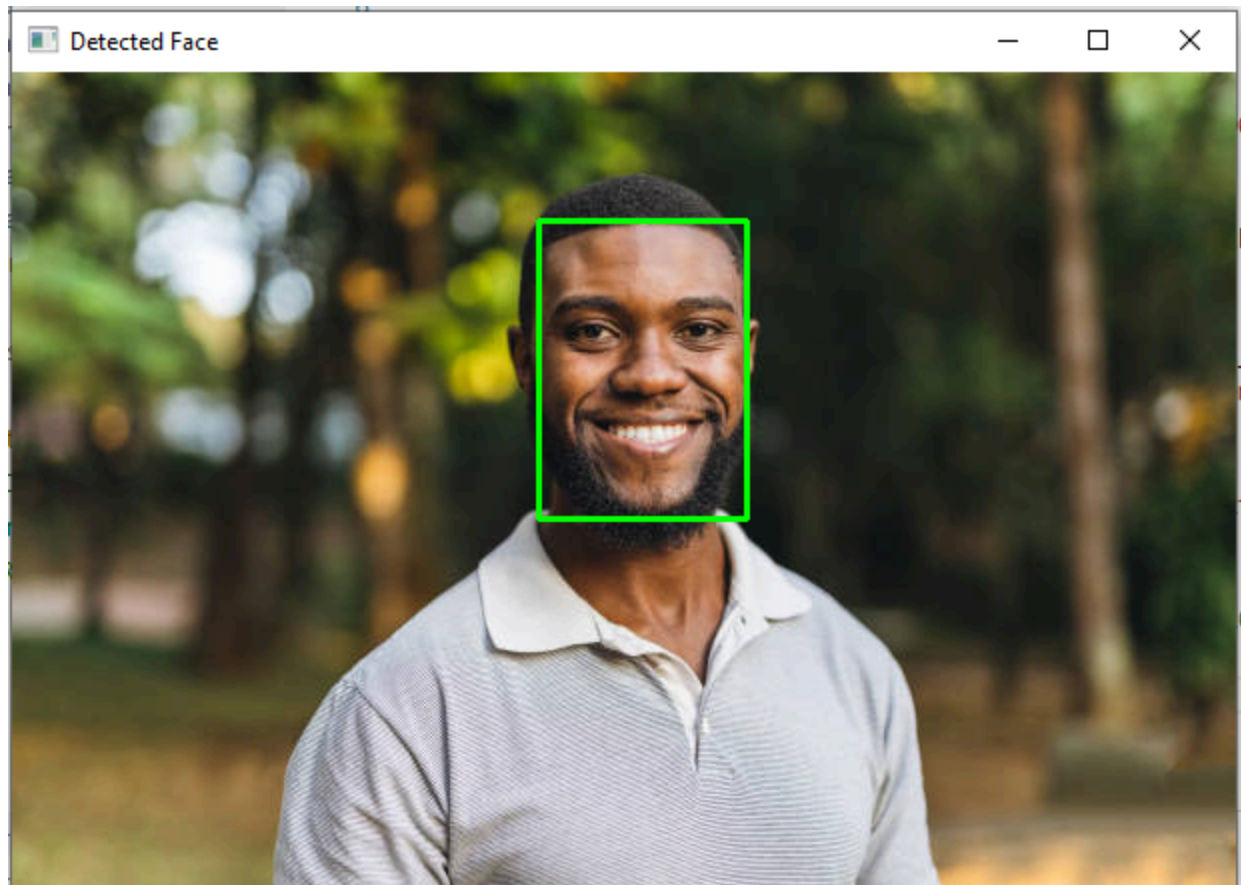
Summary: The OpenCV DNN model correctly identified faces when the face was frontal and well-lit.