

# **REAL TIME FACE DETECTION**

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## **Abstract**

Fundamental task in computer vision with numerous applications, including surveillance, security and human-computer interaction.

Presenting about face detection system based on convolutional neural networks(CNN)

Employing a deep learning approach to accurately locate faces images or videos streams in real-time

The system is optimized for deployment on resource-constrained devices, making it suitable for various real-world applications.

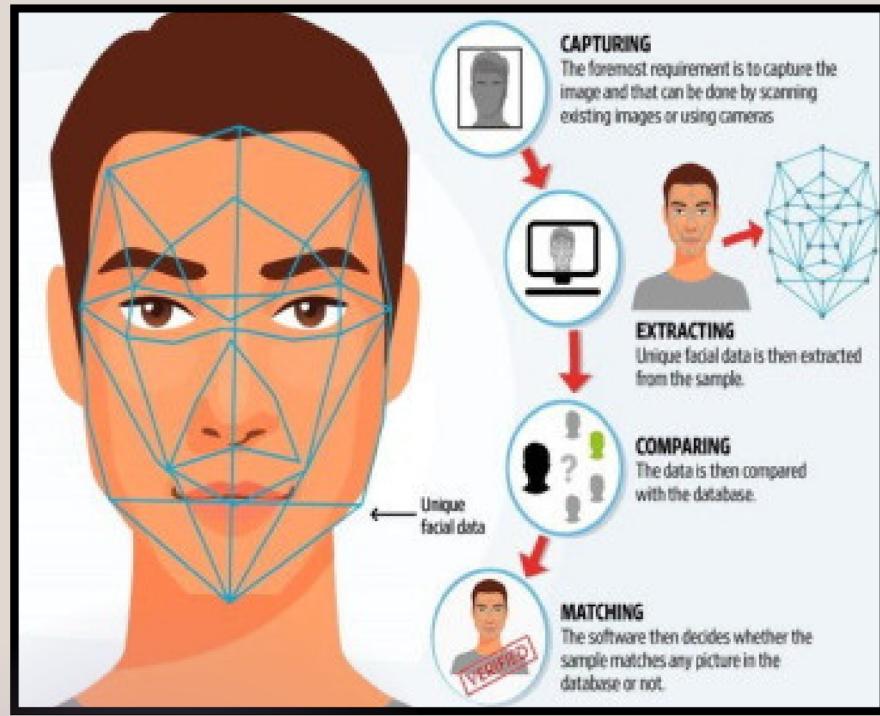
## Objective

To develop a robust and efficient real-time face detection system using computervision technique and deep learning algorithms

To achieve high accuracy by detecting faces under various conditions, including facial expressions, age and gender

To enable deployment on resource-constrained devices such as embedded systems, smartphones, and edge computing platforms, without compromising on performance.

# What is real time face detection?



## HOW DOES FACE LANDMARK WORK?

- Firstly, the process begins with an input image containing one or more human faces.
- The image can be in color or grayscale.
- The input image may undergo preprocessing steps such as resizing, normalization, and noise reduction to improve the accuracy of the detection.
- The algorithm analyzes the input image to identify key points that define the geometry of the face containing key points of the positions of the eyes, eyebrows, nose, mouth and jawline.

## **WHAT METHODS DO WE USE?**

- CONVOLUTIONAL NEURAL NETWORKS (CNN) TO PREDICT THE LOCATIONS OF FACIAL LANDMARKS.
- THE MODEL PROCESSES THE INPUT IMAGE AND OUTPUTS OF THE COORDINATES OF THE FACIAL LANDMARKS AS A SET OF (X,Y) COORDINATES.
- AFTER PREDICTED, POST-PROCESSING TECHNIQUES ARE APPLIED TO FILTER OUTLIERS AND SMOOTH THE LANDMARK POSITIONS.

# WHAT CAN WE DO?



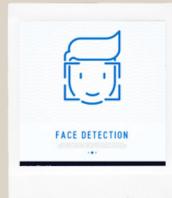
Access control



Biometric Authentication



Emotion recognition



Personalized marketing



Thanks For Watching

