

# MACHINE LEARNING PROJECT

AI-POWERED FACE DETECTION & PLAYER IDENTIFICATION

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TANVEER SINGH CSE-E1

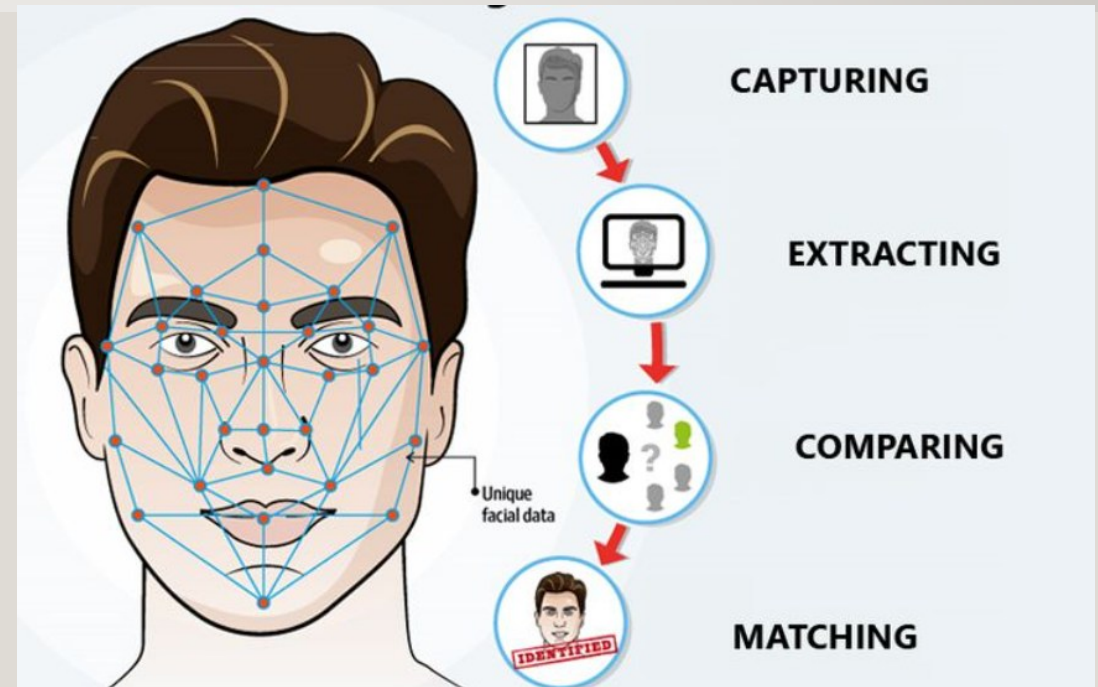
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GURU NANAK DEV ENGINEERING COLLEGE, LUDHIANA

# INTRODUCTION

- This project automates the process of recognizing professional cricket players from images.
- Traditional identification is manual and time-consuming.

- **Objective:**
- Detect faces of cricketers in images.
- Retrieve player details such as Name, National Team, Role, Age, IPL Team, and Notable Records.



# MOTIVATION

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- Cricket is followed worldwide; identifying players quickly is valuable for:
  - Sports analytics and statistics
  - Broadcasting and commentary
  - Fan engagement apps
- Automation saves time, reduces errors, and enables real-time recognition.



# TOOLS & TECHNOLOGIES USED

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- **Programming Language:** Python
- **Libraries:**
  - Streamlit → Web app interface
  - OpenCV → Face detection and image processing
  - PIL & NumPy → Image handling and conversion
  - Regex → Extracting player info from text
- **AI API:** Google Gemini (Gemini-2.5-pro) for player recognition





# SYSTEM ARCHITECTURE

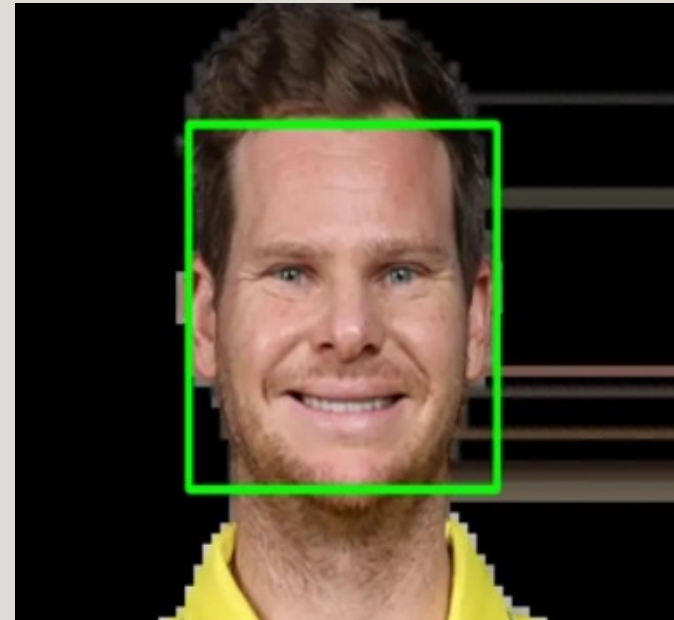
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- User uploads a cricket player image via Streamlit app.
- OpenCV detects faces using Haar Cascade Classifier.
- The largest or most famous face is selected.
- Google Gemini API identifies the player and provides details.
- Output: Detected face with player information displayed side-by-side

# FACE DETECTION

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- **How it works:**
- Convert uploaded image to OpenCV format.
- Convert image to grayscale for processing.
- Use Haar Cascade Classifier to detect faces.
- Select the largest face if multiple are detected.



# AI-BASED PLAYER RECOGNITION

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- **How Google Gemini is used:**

- AI is prompted to identify professional cricketers in the image.
- Returns structured information:
  - Full Name
  - National Team
  - Role (Batsman/Bowler/Allrounder)
  - Age
  - IPL Team
  - Notable Records

- **Handling edge cases:**

- Multiple players → choose the most famous.
- Unknown player → response: “unknown”.

# CHALLENGES & SOLUTIONS

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## Challenge

Multiple faces in one image

Unknown or new players

Image quality issues

API response format inconsistency

## Solution

Select largest or most famous face

Display “unknown”

Suggest higher resolution images

Regex used to extract player info



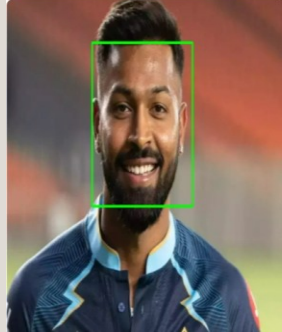
# RESULTS

- Successfully detects faces in uploaded images.
- Correctly identifies professional cricketers and displays detailed information.
- Limitations:
  - May not recognize new players not in AI database.
  - Works best with clear, frontal images.

Drag and drop file here  
Limit 200MB per file • PNG, JPG, JPEG

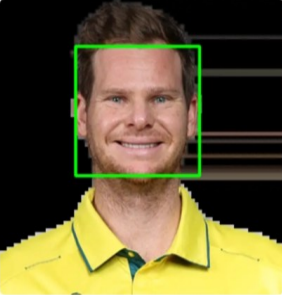
[Browse files](#)

Pandya.jpeg 147.6KB




Full Name: Hardik Himanshu Pandya  
National Team: India  
Role: Allrounder  
Age: 29  
IPL Team: Gujarat Titans  
Record: Best Bowling: 4/20

smith.jpeg 19.4KB



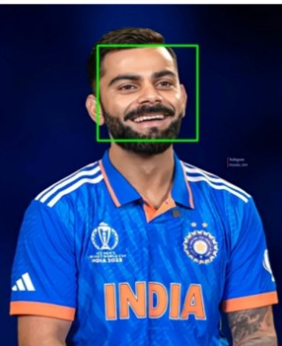
Full Name: Steven Smith  
National Team: Australia  
Role: Batsman  
Age: 34  
IPL Team: None  
Record: Highest Score: 192\*

buttler.jpg 221.4KB



• Full Name: Jos Buttler  
• National Team: England  
• Role: Batsman  
• Age: 33  
• IPL Team: Rajasthan Royals  
• Record: Highest Score: 110\* (ODI)

kohli.jpg 129.8KB



• Full Name: Virat Kohli  
• National Team: India  
• Role: Batsman  
• Age: 34  
• IPL Team: Royal Challengers Bangalore  
• Record: Highest Score: 183 (ODI)

# FUTURE ENHANCEMENTS

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- Support for live video feed or webcam input
- Integration with cricket stats database for real-time updates
- Mobile app deployment for wider accessibility
- Recognize multiple players in a single frame
- **Visual Suggestion:** Icons for Mobile, Cloud, Video streaming

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ANY QUESTIONS.....



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THANKS.....