

# FACE DETECTION

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# AGENDA

- ▶ Problem statement
- ▶ Project overview
- ▶ End user
- ▶ Our solution and proposition
- ▶ The Wow in our solution
- ▶ Modeling approach
- ▶ Result
- ▶ Conclusion

# Problem statement

- ▶ Develop a real-time face detection system capable of accurately detecting and localizing human faces in images or video streams. The system should be able to handle various challenges such as changes in lighting conditions, occlusion, and different facial expressions.

# PROJECT OVERVIEW

- ▶ The face detection project for generative AI aims to utilize computer vision techniques to identify and localize human faces within images or videos.
- ▶ This involves implementing algorithms such as Haar cascades, deep learning-based models like Convolutional Neural Networks (CNNs), or more advanced architectures such as YOLO (You Only Look Once) or SSD (Single Shot MultiBox Detector).

# END USER

- ▶ Security Professionals
- ▶ Mobile device user
- ▶ Social media platforms
- ▶ Retailer

# OUR SOLUTION AND ITS VALUE PROPOSITION

- ▶ **Proposition** :Implement a real-time face detection system capable of accurately identifying faces in images or video streams. The system should be robust to variations in lighting conditions, facial expressions, and orientations.

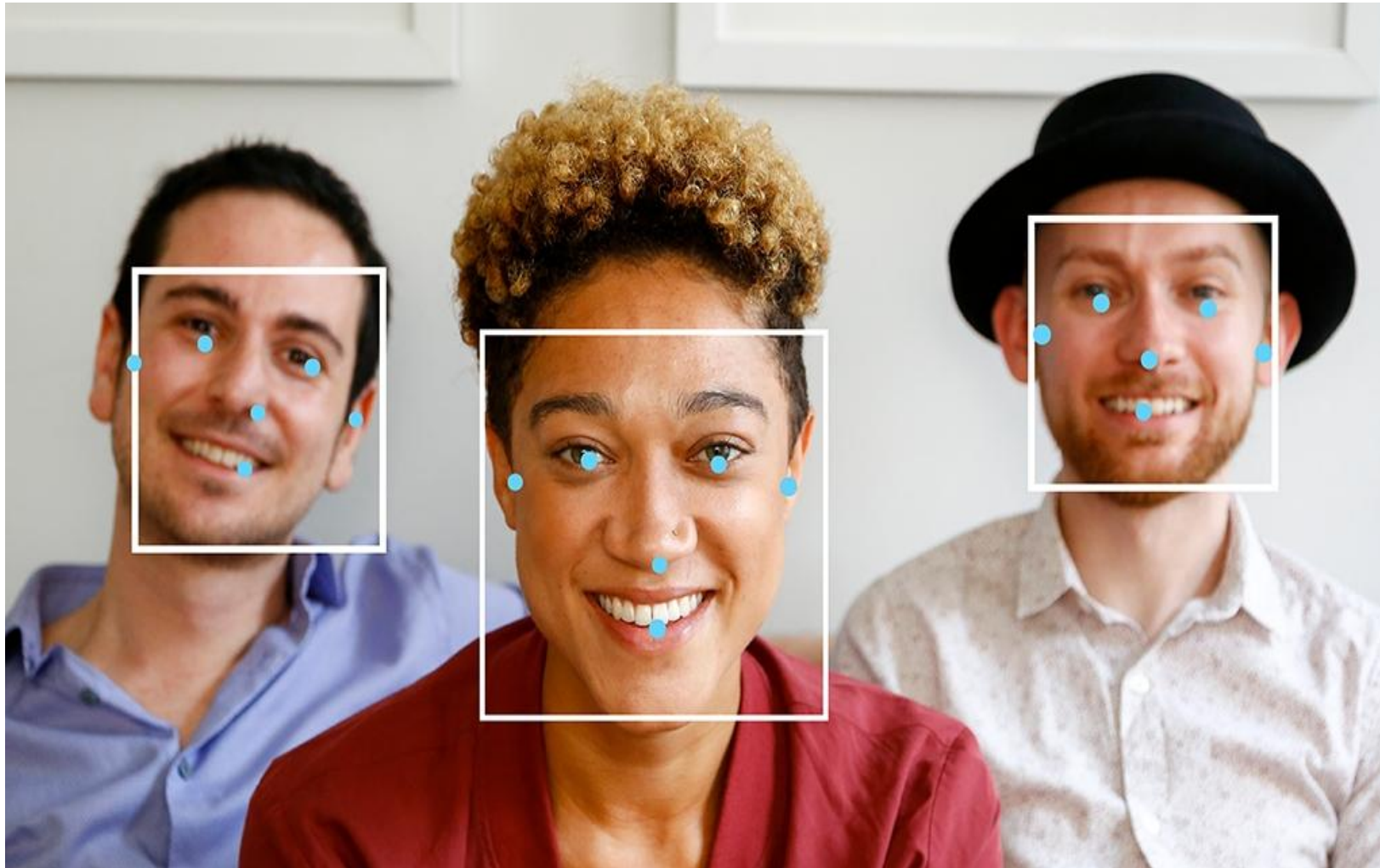
## Solutions:

- ▶ **Haar Cascades**: Utilize Haar feature-based cascade classifiers, which are efficient for real-time face detection. Pre-trained Haar cascades for face detection are available in libraries like OpenCV
- ▶ **Deep Learning Models**:Leverage deep learning techniques, particularly Convolutional Neural Networks (CNNs), for more accurate and robust face detection. Models like Single Shot MultiBox Detector (SSD), You Only Look Once (YOLO), and Faster R-CNN can be trained to detect faces
- ▶ **Data Augmentation**:Augment the training data with variations in lighting, facial expressions, poses, and backgrounds to improve the model's generalization capability.

# THE WOW IN OUR SOLUTION

- ▶ Real-time filters Effects
- ▶ Emotion Recognition
- ▶ Multiface tracking
- ▶ Mask detection

# RESULT





# CONCLUSION

- ▶ In conclusion, face detection technology has made significant advancements in recent years, enabling various applications across industries such as security, surveillance, entertainment, and healthcare.
- ▶ With the integration of deep learning algorithms and computer vision techniques, face detection systems have become more accurate, robust, and efficient.
- ▶ However, challenges such as privacy concerns, bias, and ethical considerations remain important areas for further research and development.