Enhanced Security, Work Productivity & Process Automation through Facial Recognition Toolkit

Case Study

by

Assert AI

A Venture of Assert SecureTech Pvt Ltd.

Introduction

Facial Recognition is a method of recognising or validating a person's identification by glancing at their face. Facial recognition technology can identify people in photographs, videos, and in real-time.

Facial recognition is used for biometric security. Biometric facial recognition, unlike other forms of identification such as passwords, email verification, selfies or photos, or fingerprint identification, employs unique deep learning algorithm and dynamic patterns that make it one of the most reliable and safest.

Importance of Computer Vision and Facial Recognition

It's difficult to track everything in real time with the growth in population and data.
These issues can be solved with the use of computer vision.

The following fields rely heavily on computer vision technology.

- Using optical character recognition (OCR), recognise and identify text in documents.
- Iris patterns are used in vision biometrics to track out missing people.
- Object Recognition is useful for locating products based on a photograph or video footage.
- Using computer vision to track the field and the players in sports.
- Computer vision allows Smart Cars to distinguish objects and people.
- Medical Imaging provides 3D imaging and image-guided surgery.

Challenges faced in your industry

CHALLENGES

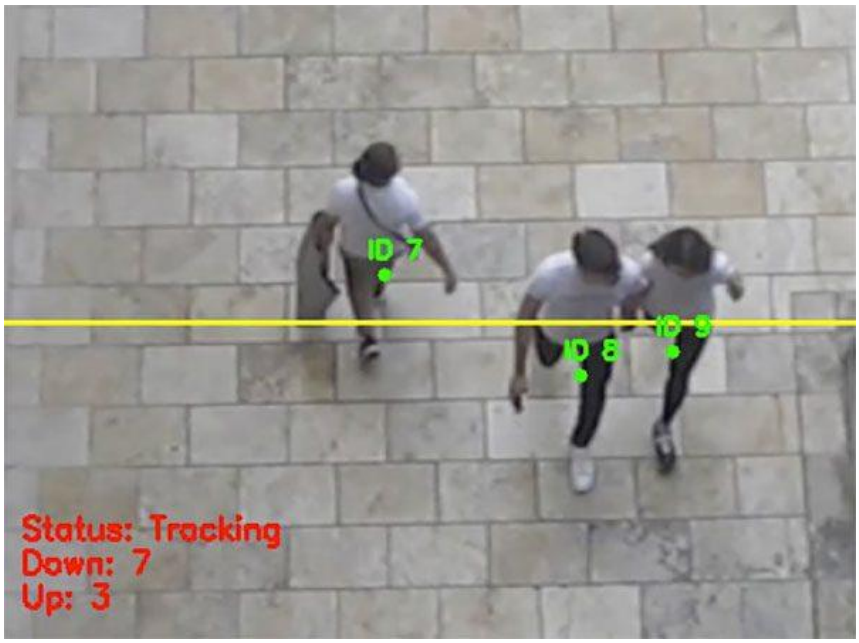
1. Inconsistency in data entry, room for errors, miskeying information
2. Large ongoing staff training cost
3. System is dependent on individuals
4. Time consuming and costly to produce reports
5. Lack of security
6. Duplication of data entry
7. Lack of process to track privacy compliance
8. Trouble classifying data
9. Difficulty in managing data quality, consistency, and compliance
10. Manual intervention for data flow monitoring purposes

SOLUTIONS

1. Streamlined Implementation & Seamless Integration
2. Flawless Data Collection
3. Quick, Real-time Data Processing
4. Expert Enablement of Features
5. Successful Management & Customizations of Workflows
6. Enhanced Metadata Analysis
7. Streamlined Process and Controls
8. Enhanced safety & Security
9. Lean Data Measurement & Analytics
10. No Errors, 24/7 Back-up, and Restoration

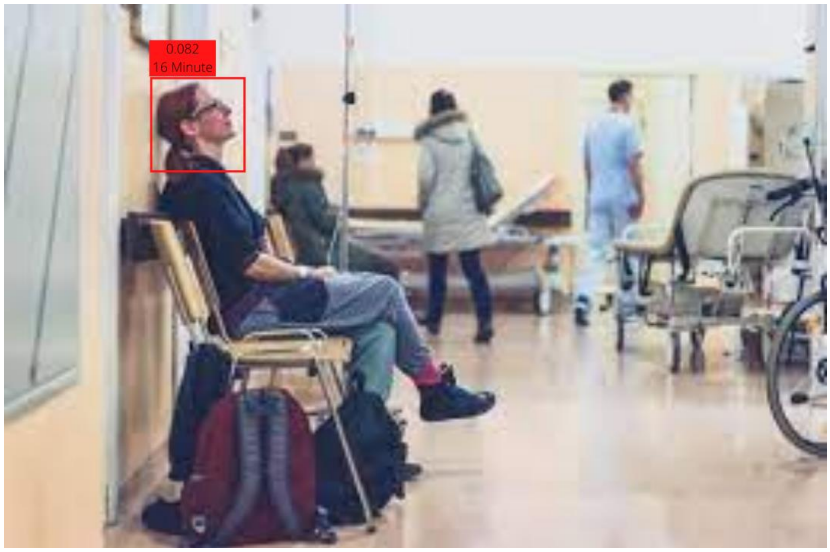
Applications of AI based Facial Recognition

Customer Tracking and People Counting



Apart from recognising people and their faces, AI powered cameras can also count and track people, i.e., your customers, or any person who enters the premises. With the help of Machine Learning aided devices, data is collected and rendered about where and how long people spend their time. Customer analytics, store layouts optimization, implementing Covid-19 protocol and much more is accomplished using AI based facial recognition.

Waiting Time Analytics and Productivity Analytics



Queue detection technology in retail healthcare and hospitality sectors help to avoid restless customers, long lines and patients in the waiting area. Cameras are used for queue detection, counting the number of people in a line and record their waiting time. Your system will also be trained to sounds an alert to open new checkout counters if a designated number of people in the queue is attained.

Productivity analytics tracks how people spend their time & resources in the workplace, and how they use equipment. Time management, workplace collaboration, & staff productivity a re all aided by this type of data.

Ensuring Safety, Theft Detection, and Managing Quality

Distance detectors help in ensuring adherence to safety precautions. The camera will monitor the movement of people and deploy deep learning to determine the distance between them. The system then draws a circle around the person and sound an alert. This distance can be between people to maintain social distancing or critical zones where entry is restricted.

Quality control systems ensure that an organization meets a pre-set quality criteria for products and services. It does so by addressing instructions, procedures, processes and policies for a high level of consumer satisfaction using computer vision algorithm.

Managers can detect suspicious behaviour like loitering or accessing off-limits areas and trigger real-time alerts for situations that your system is trained for.

Training and Skill Development

With the help of facial recognition, you can detect the attendees to a physical or even an online class, webinar or an event. Some advanced universities have already started implementing AI Gesture Recognition (a subsidiary of Facial Recognition) to evaluate inattentive students, or students who are about to sleep or are already sleeping during the lecture and identify the ones paying attention.

Operations Monitoring

Monitoring of operations can also be automated with the help of AI based facial recognition to evaluate human action, behaviour and gestures. This helps in maintaining standardized action models and detect anomalies. Furthermore, this helps in monitoring operation steps and evaluate performance of the trained workers.

Rehabilitation and Healthcare

Rehabilitation & Healthcare centres not only need exceptional patient monitoring but also seamless security Also, the charges for supervision by a medical professional, hospital, etc., are significant obstacles. AI based surveillance in healthcare and rehab centres not only reduces error but also cuts costs significantly. Also, human action evaluation used in computer-assisted therapy helps patients with physical injuries train better and faster.

Use Cases of Face Detection Applications

Face recognition

A facial recognition algorithm is designed to identify and verify a person from a digital image, video or live feed.

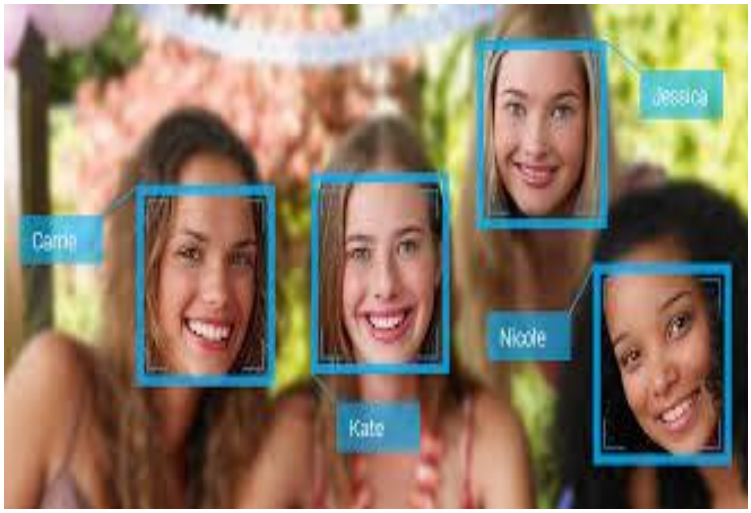
Crowd surveillance

Face detection is used to detect and analyse crowds in frequented public or private places.

Human-computer interaction (HCI)

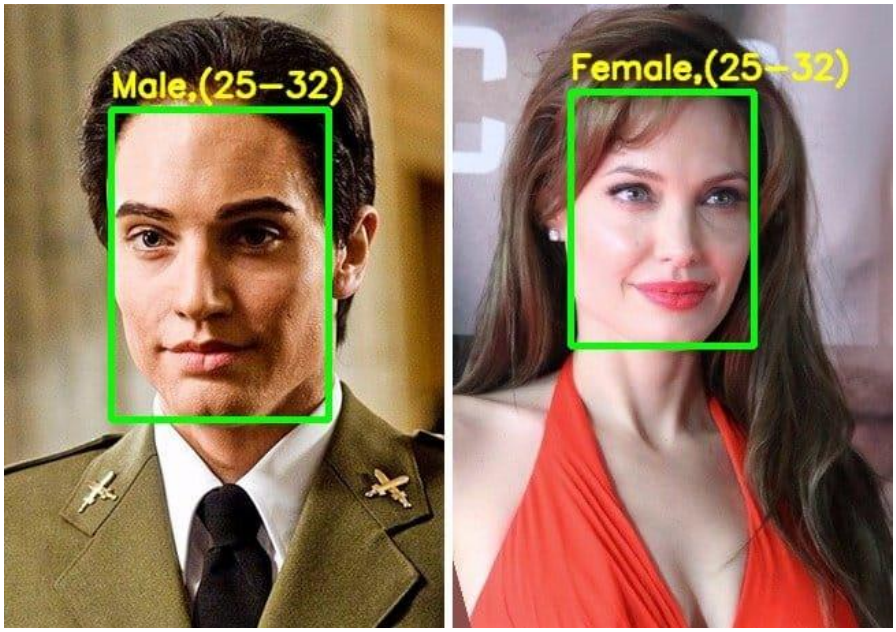
Facial recognition enables various human-computer interaction-based systems such as ATM, check-in kiosks etc.

Photography



Recent digital cameras and photography apps use face detection for autofocus, detect locations, create albums based on person, location and time.

Gender and Age classification



Algorithms are built to detect gender information with facial recognition techniques.

Feature recognition

Feature recognition is the identification of a keypoint feature also known as interest point. It can be a particular colour, uniform, an edgy object, ear piercings or tattoo or anything you train your system for. This use case helps in person tracking, classification, recognitions, motion-based segmentation and much more.

Smart Marketing

Facial detection is becoming more and more important for marketing, analysing customer behaviour, and running a targeted advertising, serving personalized creatives, tracking consumer attention and data collection for retail analytics.

User persona identification

Emotion Recognition

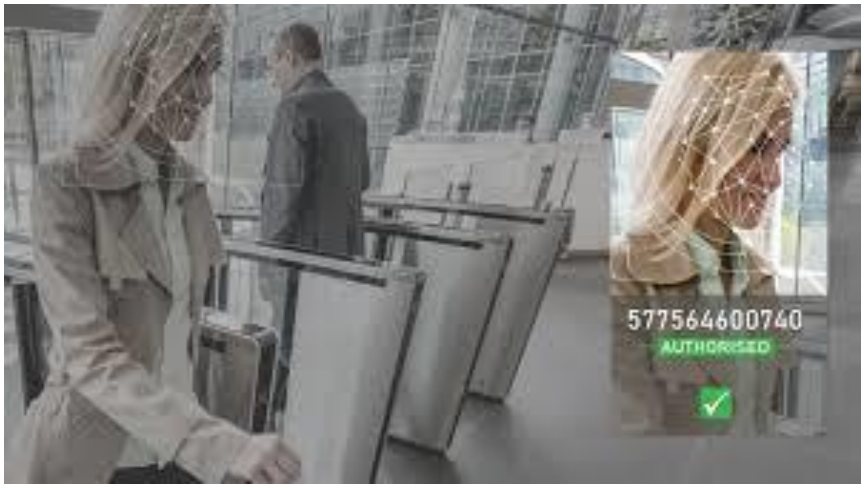
Emotion recognition allows systems to analyse and identify non-verbal signs and gestures such as face expressions, body language, gestures, and emotions to evaluate their sensitive state.

Contactless Attendance

Facial recognition system

Facial recognition is now commonly used to record attendance of employees. You can automate time and attendance tracking for staff to seamlessly clock in and clock out of work just by walking through the access door.

Touchless Access Control



FR based access control solutions for secure entry screening allow travellers to seamlessly access doors, turnstiles, or other entry points with their face without the need for removal of masks, sunglasses, hats etc.

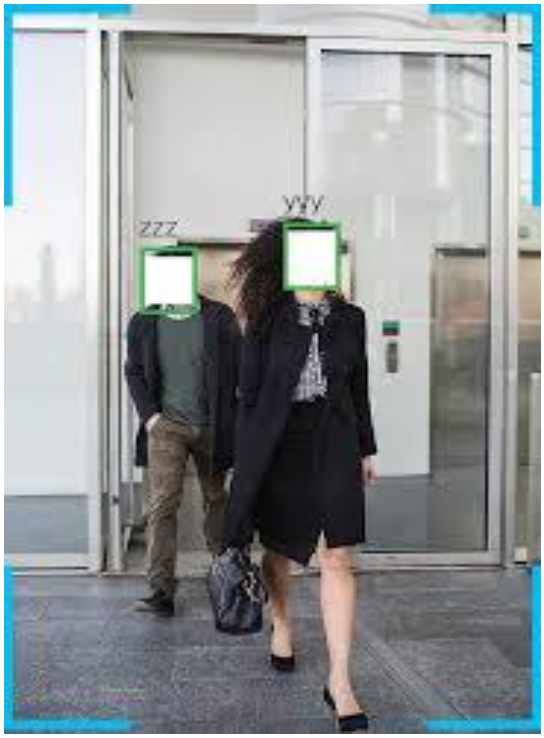
Real-time Watchlist Alerting

Automatically identify persons of interest (POIs) using face and body detection and send instant alerts to any device. This use case is extremely beneficial for security, employee productivity and many other applications.

Tactical Surveillance

Safety and security in public places provided by law enforcement bodies is critical. Get situational awareness and intelligence by recognizing persons of interest and get security alerts in real-time on designated devices.

Advanced Visitor Management System



Give your access protocol an uplift and offer employees and guests an enhanced entry experience and safety in the premises. Get frictionless access that requires no human engagement or contact at any point and automate anti-spoofing and loitering in secure areas.

What makes Facial recognition challenging?

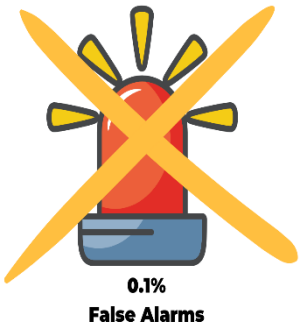
Facial recognition through Artificial Intelligence is the latest technology that is not yet readily available. There are only a few professional SaaS companies offering Facial Recognition while the detection rate, rate of accuracy, and detection time are highly challenging to achieve. There are several reasons that add challenges to the accuracy, be it:

- **Unusual expressions**
- **Illuminations**
- **Distance**
- **Orientation**
- **Complex background**
- **Many faces in one frame**
- **Face occlusion**
- **Low resolution**

How we do things differently

At assert AI, our core focus is on accuracy, error-reduction and time efficiency. Afterall, challenges in these key areas led to the conception of Computer Vision based Facial Recognition Technology. Pioneering the latest technology and innovative solutions to

overcome all challenges, we embed advanced deep learning models into our facial recognition solutions and processes.



Conclusion

If you were asked to name certain things that you'd find at the airport, you can mention things like people, luggage, metal detectors, check-in counters, luggage trolleys, conveyor belts, escalators, staff and so much more in a blink of an eye. However, it is possible because humans are gifted with a pair of eyes and a brain that quickly processes the visual input subconsciously. At Assert AI, we empower the computers with a pair of eyes that never sleep and an algorithm to process the visual inputs and identify & process things simulating a human vision, sans human error.

Assert AI is one of the trailblazers of computer vision- SaaS Company in India, providing artificial intelligence-based video analytics solutions for every type of business, enterprise or corporation. Our performance-oriented organization runs on a customer centric approach. We build customizable and result-oriented AI solutions to enable our clients operate at scale, and make giant strides in efficiency and data-based decision analytics.

As discussed above, facial recognition, a branch of Artificial Intelligence solves some of the ubiquitous challenges in operations, management, process automation and security workflows.