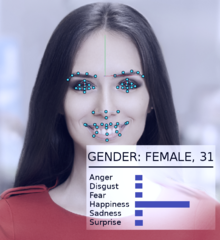
**The USE of Face Recognition:**

“Say hello to the future” the tagline of iPhoneX marked the advent of face recognition into mainstream apps using it as a feature to unlock the phone. Though this marks a milestone in itself as far as facial recognition technology is concerned; what caught my eye was the use of face id in the [sniper software](https://www.theguardian.com/science/2017/nov/13/ban-on-killer-robots-urgently-needed-say-scientists) — termed killer bots as presented at the United Nations body on autonomous weapons. It uses face identification technology to select and kill human targets.

Both sides of the coin — boon or bane — that holds true for any powerful technology and this just goes on to demonstrate how powerful face recognition could be.

**Face Recognition and Identification in all Walks of Life**

Identity management and security is the most common and visible application of this technology. We have heard of Governments keeping a database of citizen faces which can be used for law enforcement, rising albeit the critical question on an individual’s privacy. However, face recognition is now finding applications across all industries.



Source: Visage Technologies Ltd, Creative Commons License, Wikimedia.org

**Applications of Face Recognition**

· **Retail** — Large retailers are using facial recognition to instantly recognize customers and present offers. They can also use it to catch shoplifters augmented with camera footage. The entertainment industry, casinos, and theme parks have also caught on to its uses. Companies like [NTechLab](http://ntechlab.com/" \t "_blank), [Kairos](https://www.kairos.com/)use face recognition technology to provide customer analytics.

· **Advertising** — visual intelligence is providing not just superficial identity but it’s also checking on emotions, expressions, and features to target audience accordingly. [Gumgum](http://www.gumgum.com/" \t "_blank) is a facial recognition firm that can serve targeted advertising using faces. For example, it will recognize a celebrity photograph and serve a related ad without checking on the text or content around the image. Facebook has filed [patents for technology](https://www.google.com/patents/US20150242679) allowing tailoring ads based on users’ facial expressions.

· **Auto-Tech —**[Affectiva](https://www.affectiva.com/" \t "_blank), a company which specializes in face identification for identifying of emotions, says with EmotionAI technology they are actually looking at a future car which can tell us if the driver is happy or sad.

· **Healthcare —**Analysing faces to provide automated diagnosis of rare genetic conditions, such as Hajdu-Cheney syndrome is being explored. Recognition of expressions and emotions may give autistic people a grasp of social signals they find elusive.

· **Banking** — Bankers are now looking to introduce face recognition in [mobile apps](http://www.biometricupdate.com/201710/hsbc-introduces-facial-recognition-to-its-mobile-banking-app-in-china) and ATMs for identification. China is already seeing an application where a customer [withdrawing money from ATMs in Macau](https://www.bloomberg.com/news/articles/2017-06-28/macau-atms-need-face-time-before-payout-to-help-follow-the-money) need to punch in their PIN and also to stare into a camera for six seconds so facial-recognition software can verify their identity and help monitor transactions.

· **Photo management** **Apps** are in the forefront as far as usage of this technology. Some cameras, including the ones on the smartphones, can now display the age on every face in the picture.

*These examples reveal that face recognition is no longer a gimmick, but a technology with increasing impact as it finds applications in security and law enforcement, brands and PR agencies, targeted advertising, photo management and imaging apps, shopping and retailing, banking, healthcare among others.*

**Understanding Face Recognition Software**

Face recognition deals with Computer Vision a discipline of Artificial Intelligence and uses techniques of image processing and deep learning. Face recognition algorithms can be further classified based on whether they are used on 2D or 3D images or on finding faces in motion, like in a video.

**Face Detection vs. Face Recognition**

*Though sounding similar, the complexity involved in both is vastly different. In Face Detection, the computer recognizes the face within an image and locates its position. If you have used face changer app on Snapchat, you are using face detection. Face recognition deals with identification to establish whose face it is by matching it to an existing face database.*

**Face Recognition Databases**

Face recognition databases are freely available as well as owned by companies. Here is a[list of 60 facial recognition databases](https://www.kairos.com/blog/60-facial-recognition-databases). Google’s artificial intelligence system dubbed FaceNet includes more than 13,000 pictures of faces from across the web. Trained on a massive 260-million-image dataset, FaceNet performed with better than 86 percent accuracy. Facebook supposedly has one of the largest face databases, adding a face every time a person gets tagged on facebook.

**Face Recognition Software Features**

Apart from identification other typical features are

* **Emotion Detection**
* **Age Detection**
* **Gender Detection**
* **Attention Measurement**
* **Sentiment Detection**
* **Ethnicity Detection**

**Apprehensions about Face Recognition — Privacy and Ethics**

The underlying sensitivity with the face being a bio-metric data; raises a lot of concerns about privacy.

A huge worry is around using this technology to identify individuals in public spaces without their knowledge or permission.

As the ability to read faces increases, we also see a lot of challenges in terms of its applications and a thin line between what is ethical and what is not. Researchers at Stanford University have demonstrated that, when shown pictures of one gay man, and one straight man, the algorithm could attribute their sexuality correctly 81% of the time. Uses of face recognition in recruitment could allow employers to use it to filter job applications and act on their prejudices to deny a person a job.

Apart from privacy and ethics, the other concern is regarding the reliability of the technology. There is a story of how a [10 year old was able to unlock his mother’s iPhone](https://www.wired.com/story/10-year-old-face-id-unlocks-mothers-iphone-x/) with his Face ID. Also, dependability of face id as a biometric is a concern when dealing with identical twins or when a face ages.

The skeptics remain.

Nevertheless, this is a technology that is evolving at an ever-increasing speed and the laws and regulations around it need to keep pace. One thing is certain though if you have a digital presence on the internet; your face is no longer private, it is public property now — out there in the digital universe.

You can no longer hide away but face this fact. The sooner the better!