

NUS researchers hope to develop face recognition system that is at least 95% accurate

If a plane cockpit is fitted with a face recognition system, intruders can be detected quickly. When terrorists try to hijack the plane, the system can automatically deactivate piloting functions and send warning signals to the control tower, thwarting the plans of terrorists.

Or, if you leave your table after entering your password into a computer system, someone might continue accessing the system under your name. However, if a face recognition system is in place, the computer will know that a different user is attempting access and will automatically log out.

These are some practical applications for face recognition systems. However, current systems are inaccurate, which explains the absence of these systems on the market.

Researchers from the School of Computing (SOC), National University of Singapore (NUS), are now looking into improving the face recognition system.

When interviewed, Dr Terence Sim Mong Cheng of SOC said: "Unlike other biometric technologies like thumb print identification; face recognition systems do not require the approval or awareness of the other party. As such, distance surveillance can be carried out with these systems.

"Furthermore, because there is no need to touch the surveillance system, the need for equipment maintenance and cleaning is minimized."

But what if someone disguises as another person? Will the system be tricked?

Dr Sim said parts of the face adorned with cosmetic materials or masks tend to be cooler. Thus, adding a body temperature sensor to the face recognition system will solve the problem.

However, Dr Sim said the face recognition process is very complex and may cause inconvenience for the user instead. For example, changes in lighting, facial expression, posture and hairstyle may cause some difficulty for the programme to identify the user.

Lighting and posture issues corrected

The NUS research team has overcome lighting and head posture issues. Minor changes in expression no longer affect accuracy too. When I tried the system with my glasses on and off, the system was also able to recognize that the two were the same person.

Dr Sim said: “It would be extremely frustrating if the system were to treat you as a different person and shut down every time you move.

“Because the system also records what the user wears during image capture, we have fine-tuned the system. When the system identifies you for the first time each day, it will recognize what you are wearing. As such, even if you turn around to answer the phone, the computer will not mistake you for another person and hence, shut down.”

Still, the NUS face recognition system is only 86% accurate on the whole. Dr Sim said the system needs to be improved to 95% accuracy for it to work satisfactorily.

He said: “No biometric technology is 100% accurate. Thus, it is best if several technologies are used in combination to improve accuracy.”

Besides security applications, the face recognition system can also be put to many uses in daily life.

For example, in a high-tech home environment, the system can recognize the family member who has just come home and automatically play his favorite music, as well as adjust the lighting and air conditioning according to his saved preferences.

As digital cameras and digital photography proliferate, face recognition systems can be used to enhance data storage and retrieval systems so that people can effectively locate the images they want.