

University creates face recognition system to fight truancy

大學防翹課法寶：人臉辨識點名

A computer science research team from Chung-Hua University has successfully developed a facial recognition system to record students' attendance at class. Students who have used the system say it's "cool," and that it still works properly even if they **grimace** at the camera.

Liang Chiu-kuo, chairman of the Department of Computer Science and Information Engineering, says the new system is an improvement on the old one that scanned students' tags, and that now students must be physically present in the classroom in order to register.

Is the system capable of differentiating between a pair of twins? Project leader Tseng Chiu-rong says there used to be a pair of twins at school and the system managed to **differentiate** the two based on slightly different facial features, but they need to test more twins to see how accurate it is.

Facial recognition technology has become increasingly sophisticated and is mostly used on door entry systems to buildings, but this is the first time it has been used to register students' attendance, so it is something of a **breakthrough**. The system transmits images of several students to a server and compares them with images in a database, but more work is needed to improve data transfer and face recognition accuracy.

Huang Ya-hsuan, a professor who contributed to the project, says it is impossible for students to register for their friends unless they are somehow capable of changing their entire facial structure. On the other hand, students don't have to worry about forgetting their ID tags. Under the old system they'd be marked absent if they failed to bring the tag, but now they can just walk in and attend class, which is much more convenient. Students have joked that it'll be tough to skip class if the system is rolled out across the entire university.

Tseng Chiu-rong says more technology will be developed for the classrooms of the future, such as an environment control system that will automatically create the most comfortable classroom environment by controlling the curtains, lights and air conditioners. There will also be a system that can instantaneously detect if a student is snoozing or studying by using cameras to monitor their facial expressions and sensors to measure their heart rate and body heat. When a student starts to drift off, his desk will light up to remind him to concentrate.

But the system works both ways, and if it turns out that the majority of students are **dozing off** in a particular class, the professor's computerized desk may suggest he or she changes teaching technique, or perhaps tells a few jokes to focus the students' attention.

(LIBERTY TIMES, TRANSLATED BY TAIJING WU)



中華大學資訊工程系成功研發出影像辨識系統，率先應用在學生上課點名，用過的學生都說太酷了，即使點名時扮鬼臉，系統都能辨識出來。

中華大學資工系主任梁秋國教授說，這套新系統採用先進的人臉辨識技術，改善以往只認標籤不認人的缺點，學生必須本人進教室才能完成點名。

萬一碰到雙胞胎的同學，系統能分辨得出來嗎？研究計畫總主持人曾秋蓉說，校內曾有一對雙胞胎研究生，由於彼此多少都有些臉部特徵，還是能夠辨認，至於準確度，還需多找幾對雙胞胎進一步測試。

人臉辨識的技術愈來愈成熟，目前多半運用在門禁系統上，將這技術運用在點名上，可說是一項創舉；尤其是要將衆多學生的影像，同時傳送到伺服器與資料庫內的影像進行比對，還要在網路傳輸和人臉辨識技術上有所突破。

帶領學生開發這套系統的教授黃雅軒說，除非學生有變

臉的能力，否則不可能替同學代點；學生也不必像使用舊系統時一樣，擔心忘記帶標籤名牌會被誤認為蹠課，只要本人進教室坐定就可，非常人性化。不過，學生也開玩笑抱怨說，一旦學校全面採用這套系統，想翹課恐怕難上加難！

曾秋蓉說，未來還會研發其他智慧型的教室應用，例如教室環境自動控制系統，可自動控制窗簾、燈光、冷氣機等裝置，營造出最舒適的學習環境。還有打瞌睡防治系統，利用人臉表情辨識技術，加上心跳、體溫等生理感應器，即時偵測學生上課時的狀態，發現學生開始打瞌睡時，課桌會主動發出閃光提醒學生集中注意力。

若是全班多數同學都有打瞌睡的傾向，該系統也會透過電子講桌提醒教師改變教學策略，甚至還可以提供笑話數則，幫助老師提振學生上課的精神。

(自由時報記者蔡影盛)



Above: Chung-Hua University students look at a camera linked to a facial recognition system on July 19, 2010.
Left: A photo of the user interface of Chung-Hua University's new facial recognition system. PHOTOS: TSAI CHANG-SHENG, LIBERTY TIMES

上：七月十九日，中華大學資訊工程系學生看著連結臉部辨識系統的鏡頭。
左：中華大學資訊工程系新臉部識別系統的使用者介面。

照片：自由時報記者蔡影盛攝

TODAY'S WORDS 今日單字

1. **grimace** /grɪ'mes/ v.

做鬼臉 (zuo4 gui2lian3)，臉部扭曲 (lian3 bu4 niu3 qu1)

例: The customer grimaced as he sipped the bitter coffee.
(那位客人喝了一小口苦咖啡就整臉扭曲。)

2. **differentiate** /,dɪfə'renʃ,et/ v.

辨別 (bian4 bie2)

例: It's sometimes difficult to differentiate between the two candidates' policies.
(要區分兩位候選人的政見有時並不容易。)

3. **breakthrough** /'brek,θru/ n.

突破 (tu2 po4)

例: The researchers announced a breakthrough in the fight against cancer.
(研究人員宣稱在抗癌方面有重大突破。)

4. **doze off** /'doz 'ɔf/ v.

打瞌睡 (da3 ke1 shui4)

例: I dozed off on the bus home.
(我在回家的公車上打瞌睡。)