

NTNU pioneers eye-tracking technology to help children learn to read (2017/12/19)



英文 English

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A team from National Taiwan Normal University has pioneered a new tool to help children learn to read. Using natural light eye tracking technology, a computer can detect when a child is stuck on a character and preemptively play its pronunciation or show related images as hints. Beyond the classroom, the technology could even be used to help people with motor neuron disease.

When learning how to read, children often come across unfamiliar words, or in this case Chinese characters. But now, NTNU's latest eye-tracking technology may be able to teach them new pronunciations.

This new technology doesn't require a mouse. Rather, it uses natural light eye tracking technology to work out when the reader's gaze is stuck on a character.

Prof. Sung Yao-ting

Educational Psychology Dept., NTNU

We don't have to use infrared light to track eye movement. Infrared requires advanced image processing technology and it's not so easy to detect the size and position of the pupils. Using natural light eye tracking is a significant improvement.

Infrared eye tracking technology has been around for a while now, though it's susceptible to disruption from external light sources and can potentially damage the eyes. NTNU's interdisciplinary team is the first in the world to develop an application using the superior natural light technology for children's reading materials.

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Apart from having the illustrations in picture books, when the child looks at a certain character, you can display hints, like interesting images and sounds. This makes looking at the characters more attractive.

Beyond pedagogical applications, the technology could also be used to improve the literacy of those with motor neuron disease.

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中文 Chinese

閱讀新科技 眼動儀增添學習樂趣

科技日新月異，現在連小朋友看書認字也有新技術，台師大有跨領域的團隊，開發出自然光眼動儀，只要先建立好眼球模型，小朋友在讀課文看書的時候，遇到不會的字，只要稍微盯久一點，電腦就會發出正確讀音，還會跑出相關圖片介紹。

小朋友看書學習，免不了遇到不會唸的字，現在有最新科技，可以教他們如何發音。

特別的是，不需要手點滑鼠，只要眼球注目，電腦就能辨識，秘密全靠自然光眼動儀。

[[台師大教育心理與輔導學系教授 宋曜廷]]

“不用紅外線特別去照你的眼球，這個就需要很高的影像處理技術，因為他的瞳孔相對地，大小還有位置相對沒那麼容易被偵測，它(自然光眼動儀)就要高出許多。”

過去早有紅外線眼動儀問世，但光線干擾多且紅外線會傷害眼球，台師大跨系合作改良，創全球之先，將自然光眼動儀應用在小朋友教材上。

[[台師大教育心理與輔導學系教授 宋曜廷]]

“在繪本上面除了圖之外，他看到字的時候你就給他一些提示，比如說出現有趣的照片、出現聲音，他就比較願意去看字。”

不只在教學上，這套技術也可運用在漸凍人識字等方面。



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