

How bees see Read my lips, computer

New research from Monash University bee researcher Adrian Dyer could lead to improved artificial intelligence systems and computer programs for facial recognition.

Dr Dyer is one of Australia's leading bee experts and his latest research shows that honeybees can learn to recognise human faces even when seen from different viewpoints.

Dr Dyer said the research could be applied in the areas of new technology, particularly the development of imaging systems.

"What we have shown is that the bee brain, which contains less than 1 million neurons, is actually very good at learning to master complex tasks. Computer and imaging technology programmers who are working on solving complex visual recognition tasks using



minimal hardware resources will find this research useful," Dr Dyer said.

"Most current artificial intelligence (AI) recognition systems perform poorly at reliably recognising faces from different viewpoints.

However the bees have shown they can recognise novel views of rotated faces using a mechanism of interpolating or image averaging previously learnt views."

Speaking silently to a computer, imagine having the words come up on the screen – no more touch-typing.

This dream of the future could soon become reality thanks to RMIT graduate Wai Chee Yau, who investigated computer-based lip-reading as part of her PhD.

Dr Yau said this type of communication was more efficient than talking to computers as it took out any problems caused by background noise.

Its potential uses include car radio control, defence applications, speech control in noisy environments and computer use for disabled people.

"As part of my PhD I developed a computer-based lip-reading technique that recognizes utterances using video recordings, without evaluating the sound signals," Dr Yau said.

"I have tested the proposed system using a set of English speech sounds and obtained promising performance."



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