University of Western Sydney

RESEARCH DIRECTIONS

Getting the low-down on bottom-up processing in speech recognition

Professor Christopher Davis and Associate Professor Jeesun Kim of the MARCS Institute have received funding through the Australian Research Council's Discovery Projects program to explore the cognitive processes that allow people to understand what is being said in a noisy environment. Select PhD students will assist in this project.

'Up to 60% of elderly people suffer significant hearing problems affecting their perception of speech', Professor Davis says. 'Part of this dysfunction may be linked to hearing loss – a common side effect of growing older – but recent research suggests that hearing loss doesn't account for all speech perception problems that older people experience. What our team wants to explore is the difference between hearing and listening. That is, in addition to testing hearing, we will probe the cognitive processes that allow people to recognise words in background noise.' This investigation will attempt to shed light on how cognitive processes such as attention and memory are used when trying to perceive words presented in noise, and how and when visual cues aid understanding.

Professor Davis and Associate Professor Kim will be using the MARCS Institute's cutting-edge technology, including advanced eye-tracking software, to measure the explicit and implicit signs of cognitive activity when a person is trying to identify words or sound cues in a noisy environment. The team will test current theories about this process. While the participants for this research will be aged 60-79 years old, all experimental findings will be compared to those of an ongoing parallel study with younger participants.

This project aims to streamline speech and hearing assessments for elderly individuals, and enable more accurate diagnosis of impairments – vital innovations for the aging population of Australia.

Project Title: Elderly speech perception in noise
Funding has been set at: $305,700
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