

RESEARCH DIRECTIONS

The world keeps turning

Dr Tamara Watson from the School of Psychology is exploring how humans make rapid eye movements without the world being blurred. This research is funded by the Australian Research Council Discovery Projects grant scheme.

'Humans make several eye movements each second and this should create high speed motion signals across our retinas that are noticed and make our vision blur,' says Dr Watson. 'However, we do not perceive this motion. Instead, we see a stable, seemingly stationary world. Despite the fundamental importance of understanding active vision, relatively little research has been done in this area. Most research explores vision when eyes are focussed on only one point in space, rather than when the eyes are in motion. With recent advances in the field, a long standing theory of how humans keep the world from blurring is being revisited. In this project, a new theory is being developed that will allow us to understand the brain processes necessary to perceive a stable world when our eyes move.'

The researcher will use sophisticated eye-tracking equipment, along with functional magnetic resonance imaging (fMRI), and magnetoencephalography (MEG) to look at which areas of the brain are active during tasks designed to manipulate visual attention. Experiments using these neuroimaging technologies will measure neural activity in the brain to establish how the brain transforms our conscious perception every time we make a rapid eye movement. The findings of these experiments are expected to add to our understanding of why we don't "see" the shift during rapid eye motion. This MEG and fMRI data will help build a new theory about how the brain processes visual information.



This project has the potential to contribute to the National Research Priority of promoting and maintaining good health. A thorough understanding of the normal functioning human brain during vision will provide a basis for understanding many vision disorders and assist in finding effective treatments. One such disorder that may be illuminated is that of schizophrenia, in which some patients have disordered visual perception.

Project Title: Identifying the basis for perceptual stability and perceptual omission during saccadic eye movements

Funding has been set at: \$285,000

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December, 2011