

School of Psychology:

Academic Researcher:	Associate Professor Tom Carlson
Project Title:	Tracking the Flow of Perceptual Information Through Decision Networks
Project Summary:	The choices we make define our lives. Despite exciting progress in neuroscience, we still don't know how the inner workings of the brain give rise to simple decisions. This project brings together experts from diverse domains of computational neuroscience to investigate how our brains turn perceptual information into action. Together, we will develop new methods to track information flow through the brain during the decision making process. By doing so, we will develop a world-leading model of how the brain makes decisions, and also provide the broader scientific community with a set of exciting new tools for studying information processing in the brain.
Project Synopsis:	This research will develop methods to support cognitive neuroscience's endeavour to understand the brain-behaviour relationship. To achieve this, we will integrate multiple analytic approaches to understand whole-brain dynamics and to characterize the flow of information through the brain.

Academic Researcher:	Associate Professor Ben Colagiuri
Project Title:	Clinical and community applications of placebo and nocebo effects
Project Summary:	<p>Over the last two decades, a wealth of experimental studies has helped us to uncover the psychological mechanisms of placebo and nocebo effects. But a critical remaining question is how placebo and nocebo effects apply to clinical and community settings.</p> <p>This project focuses on translating basic knowledge of placebo and nocebo effects to clinical and/or community settings.</p>
Project Synopsis:	<p>Placebo and nocebo effects are fascinating psychobiological phenomena whereby individuals experience beneficial (placebo) or adverse (nocebo) outcomes simply as a result of the act of receiving a treatment. Experimental studies have shown reliable placebo effects and nocebo effects across many conditions, including health (e.g. pain, nausea, sleep, mood, immune function, Parkinson's disease), cognitive function (e.g. attention, learning, memory), and sports performance (e.g. running, cycling, weightlifting).</p> <p>Advances in neuroscience have demonstrated that expectancies generated by verbal, social, and contextual cues trigger activation of the central nervous system in order to produce these placebo and nocebo effects. However, we know comparatively less about the clinical and community applications of placebo effects. For example, does tailoring treatment delivery to maximise placebo effects and minimise nocebo effects improve patient outcomes? Can this be achieved without deception? Do nocebo effects contribute to community illnesses like electromagnetic hypersensitivity and wind turbine syndrome? How can we prevent this?</p> <p>The current project seeks to advance knowledge of the clinical and/or community applications of placebo and nocebo effects. The successful candidate will be able to shape the specific direction of the project and whether the focus is on clinical or community applications.</p> <p>Examples of clinical applications include clinical trials testing interventions aimed at enhancing placebo effects and minimising nocebo effects, such as open label placebos, framing and communication techniques, or learning</p>

	techniques, in pain, nausea, sleep or other conditions. Examples of community applications include surveillance and intervention studies aimed at understanding the contribution of and preventing any nocebo effects for community illnesses like electromagnetic hypersensitivity and wind turbine syndrome.
Additional Information:	<p>The successful candidate will have a background in Psychology or closely related field, ideally with some prior knowledge of the placebo effect, clinical trials, and or community interventions, although this is not necessary.</p> <p>The successful candidate will join a well-resourced lab of approximately 10 researchers, including postdocs, PhD and honours students, and research assistants focused on placebo and nocebo effects. There will be opportunities to collaborate with both leading local and international researchers with expertise on placebo and nocebo effects as well as related fields (e.g. health psychology, medical psychology, learning).</p>

Academic Researcher:	Associate Professor Muireann Irish
Project Title:	SEEING THE FUTURE – Episodic future thinking and the visual system
Project Summary:	<p>Memory represents the cornerstone of our everyday functioning and is closely linked to our capacity to envisage and plan for the future. Despite significant advances in the field, the mechanisms which drive complex expressions of past- and future-oriented forms of thinking remain poorly understood. Given that memory is predominantly experienced in the visual domain, the visual system and related oculomotor behaviour likely play a pivotal role in supporting our memory for the past and our capacity to simulate the future. The precise interplay between the visual system and future-oriented cognition, however, remains unclear.</p>
Project Synopsis:	<p>Mounting evidence indicates the utility of eye movements as a potentially powerful tool to understand cognitive function. Eye movements provide an online and robust index of how memory-related processes unfold in not only healthy individuals, but in clinical populations with diminished language capacity. Episodic future thinking has been shown to deteriorate in healthy aging and is markedly compromised in dementia syndromes. How such impairments in future thinking relate to changes in the visual-oculomotor system remain poorly understood.</p> <p>This project seeks to establish the relationship between oculomotor behaviour and past- and future-oriented forms of thinking. Using novel experimental tasks in conjunction with advanced oculomotor techniques, we will uncover how eye movements support our recollection of the past and our ability to envisage the future. Moreover, by applying these techniques in healthy and pathological aging, we will determine whether eye movements can be exploited to predict the onset of age-related cognitive decline.</p>