



## SMBE, IEEE EMBS & EA Evening Lecture with Dr Matt Petoe, Bionics Institute

### Current Challenges in Bionic Eye Research

#### ABSTRACT

Over the last decade, retinal prostheses ('bionic eyes') have emerged as the most promising technology to restore vision to those with blindness caused by photoreceptor loss. In an idealised representation of artificial vision, an image captured by the headmounted video camera is transmitted to the electrode stimulation site on the retina and perceived as a clearly defined set of pixels. The reality of artificial vision is quite different however, with patients reporting perception that is very much unlike their previous sighted experience. In spite of this, it is possible for bionic eye recipients to routinely perform tasks of orientation and mobility, as well as improve performance in activities of daily living.

A number of bionic eye projects are underway in Australia, with the Bionic Vision Australia suprachoroidal prototype being the first to successfully complete a clinical trial. Other implantable visual prosthetics also exist worldwide, targeting a number of locations along the visual pathway (e.g. optic nerve, or visual cortex). This talk will give an overview to current research in bionic eyes and discuss some of the challenges faced by bionic eye researchers and recipients alike.

#### SPEAKER

Dr Matt Petoe is a biomedical research fellow with a keen interest in human perception, neuroscience and clinical research. His doctoral and post-doctoral work has investigated diagnostics and therapeutics in the hearing, motor, and visual modalities. Matt's PhD research investigated improvements to diagnostics used for neonatal hearing screening and the assessment of neuropathic hearing loss. He later took up a Stroke Foundation Research Fellowship (Auckland City Hospital, New Zealand) and oversaw the recruitment and assessment of stroke patients receiving a novel therapy for upper limb impairment following hemiparesis.



#### EVENING LECTURE

**Venue: The Unicorn Club, Melbourne High School, Forrest Hill, South Yarra**

*(The Unicorn Club is next to the MHSOBA Scoreboard in the South-West Corner of the Melbourne High School grounds)*

**Time: 6:00 pm refreshments for 6:30pm start**

**Date: Tuesday, 17<sup>th</sup> May 2016**

**To register email:**

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All welcome

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