



IEEE SMC Victorian Chapter/EMBS Presentation by Robert Klupacs, CEO Bionics Institute and A/Prof James Fallon, Research Director

Delivering Bionic Technologies That Improve Human Health

The Bionics institute (BI), is a leader in hearing research, particularly cochlear implants, surgically implanted electronic devices that provide a sense of sound to people who are deaf or severely hard of hearing. As described below, this talk will explain how researchers at BI are now working on improving how cochlear implants are fitted to the individual and using cochlear implant technology to improve vision and monitor brain activity.

BIONIC HEARING

Each cochlear implant must be fitted to the individual and their comfort level of loudness, which can be difficult to gauge, particularly in babies who cannot describe what they are hearing. BI is using an imaging technique called functional near-infrared spectroscopy (fNIRS) to develop objective measures of brain activity to sound to enable devices to be optimally adjusted for each person.

BIONIC VISION

As part of its Bionic Vision research, BI has developed a Minimally Invasive Retinal-degeneration Arrestor device that can save the sight of those most likely to develop blindness, the small electric device is implanted at the back of the eye, providing low-level electric stimulation to trigger the release of chemicals that prevent retinal cells from dying.

NEUROBIONICS

Deep brain stimulation (DBS) treatments have been used for several years to manage Parkinson’s disease. The treatments become less effective over time and although the symptoms constantly change, the stimulation can’t be adjusted easily or quickly enough to maintain optimal therapy. BI has developed a way to modify the stimulation in real time to adapt to the changes, a great step forward for DBS treatments.



Robert Klupacs, CEO
James Fallon, Research Director

Venue:
IISRI Seminar Room, Building NA, Institute for Intelligent Systems Research and Innovation,

Deakin University, Waurn Ponds, Geelong, Australia

Time: 12 pm

Date: Friday, 27th July 2018

[Registration Link](#)

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