



## IEEE 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.

**Presentations will be given by Mr Robert Klupacs (CEO), A/Prof James Fallon (Research Director) and a number of the researchers working on exciting developments at the Bionics Institute.**



Robert Klupacs,  
CEO

James Fallon,  
Research Director

#### Evening Lecture

#### Venue:

**Bionics Institute  
384-388 Albert Street, East  
Melbourne, 3002**

5 minutes walk from Parliament Station:  
<https://goo.gl/maps/sVvEo4dxZBE2>

**Time: 5:30 pm refreshments  
for 6:00-7:00 pm talks**

**Date: Thursday, 29<sup>th</sup> March  
2018**

**IEEE evening talks are free  
but for catering, please  
click [here](#) to register**

Contact Information:

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