IEEE
Victorian Section

EMB

IEEE Distinguished Lecturer:

Professor David Grayden, University of Melbourne

EPILEPSY, ALGORITHMS, and AI: PERSONALISED SEIZURE FORECASTING

ABSTRACT:

Epilepsy is a common and serious neurological disorder, characterised by recurrent seizures, affecting over 60 million people worldwide. Between 30-40% of sufferers' seizures are not adequately controlled with current therapies. The inherent unpredictability of seizures is a significant factor contributing to the risk of injury, psychosocial disability, and mortality. In these cases, the quality of life impairment compares unfavourably with other chronic illnesses such as hypertension, diabetes or heart disease, and the uncertainty of seizure occurrence is a major component of this impairment. New methods for epilepsy treatments, therapy titration and seizure forecasting are desperately needed. Artificial intelligence technologies offer opportunities to automatically detect and even forecast epileptic seizures, which may allow new management strategies and pre-emptive therapies for seizure control that will increase patient safety and quality of life.

SPEAKER:

Professor David B. Grayden is Clifford Chair of Neural Engineering in the Department of Biomedical Engineering, Melbourne School of Engineering and the Graeme Clark Institute for Biomedical Engineering. Prof Grayden's main research interests are in understanding how the brain processes information, how best to present information to the brain using medical bionics, such as the bionic ear and bionic eye, and how to record information from the brain, such as for brain-machine interfaces. He is also conducting research in epileptic seizure prediction and electrical stimulation to prevent or stop epileptic seizures, and in electrical stimulation of the vagus nerve to control inflammatory bowel disease.

He has research linkages with the Bionics Institute, St Vincent's Hospital Melbourne, Royal Melbourne Hospital, University of South Australia, Florey Institute for Neuroscience and Mental Health, and IBM Research. Prof Grayden teaches in Bioengineering and Biomedical Engineering programs such as BioDesign Innovation, Neural Information Processing and Neuroscience Research Training. He has research interests in Computational Neuroscience, Epilepsy, Audition, Speech and Bionic Ear Design, Vision and Bionic Eye Design, Brain-Machine Interfaces, and Electroceuticals

ONLINE LECTURE

Organizer: IEEE EMBS Victorian Chapter

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Time: 6:00pm AEST

Date: Tuesday, 22 Sept 2020

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