

Australia develops AI model to help epilepsy patients become seizure-free

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To eventually improve the management and treatment of epilepsy



A study led by Monash University in Australia and believed to be a world first has demonstrated that an Artificial Intelligence (AI) model can potentially predict the best personalised, anti-seizure medication for patients with newly diagnosed epilepsy.

The predictive model, once fully developed, would spare these patients the uncertainty of not knowing when their lives would be returned to normal by taking anti-seizure medications, and possibly the harmful side-effects associated with some drugs.

Professor Patrick Kwan, a neurologist and researcher from the Monash Central Clinical School's Department of Neuroscience is leading an international collaboration that is 'training' the deep-learning prediction model (deep learning is a type of machine learning).

Epilepsy affects 70 million people worldwide. Currently, choosing anti-seizure drugs for a patient is a process of trial and error with clinicians unable to predict which drug a particular patient will respond to, Professor Kwan said.

The model used clinical information about 1798 patients from five health care centres in Australia, Malaysia, China and the UK. It is being designed by the Monash Medical AI led by Associate Professor Zongyuan Ge and trained using the Monash MASSIVE computing cluster.

It is being improved both technically and by using more complex information. The enhanced model will be tested in the national multicentre randomised controlled PERSONAL trial (Personalised Selection of Medication for Newly Diagnosed Adult Epilepsy) to aid treatment selection in epilepsy.

The PERSONAL trial received a \$2.46 million National Health and Medical Research Council (NHMRC) grant in the latest round of the NHMRC Clinical Trials and Cohort Studies Scheme funding.