



Australian Government



THE PRIME MINISTER'S
PRIZES FOR SCIENCE

DR PIP KAROLY

THE UNIVERSITY OF MELBOURNE, SEER MEDICAL 2022 PRIME MINISTER'S PRIZE FOR NEW INNOVATORS

Dr Pip Karoly is a senior research fellow at The University of Melbourne and a data scientist and founding member of Seer Medical. She is recognised for her research into epileptic seizure cycles and why seizures occur.

Epilepsy is a neurological disorder that causes unpredictable seizures. More than 250,000 Australians live with epilepsy and the condition costs the Australian economy about \$12.3 billion annually.

During her PhD, Dr Karoly discovered that epileptic seizures do not happen randomly but occur in long-term cycles that are unique to the individual. She developed a breakthrough framework for forecasting periods of high and low seizure risk for epilepsy patients.

Following her studies, Dr Karoly became a founding member of Seer Medical in 2017 and commercialised her scientific discoveries to the benefit of thousands of Australians living with epilepsy.

Seer is now Australia's largest provider of epilepsy diagnostic services. The company combines engineering with medicine, to develop wearable and mobile technologies to empower people with epilepsy to better manage their health, providing both autonomy and convenience.

Dr Karoly's innovative seizure risk forecasting technology has also discovered that multiday seizure cycles can be tracked by monitoring signals from outside the brain, including heart rate.

Seer has used this technology to develop a mobile and wearable app, which has also been the focus of a commercial collaboration with wearables company Fitbit. The app forecasts seizure risk, similarly to how a weather app can identify the likelihood of rain. Using the app, people with epilepsy can check their likelihood of having a seizure and plan their day better.

The Seer app and seizure risk forecasting technology is available worldwide and free of charge to people living with epilepsy.

Dr Karoly hopes to identify the cause of seizure cycles by analysing rhythmic signals across human physiology, behaviour and environment, which will improve epilepsy treatment and may also have positive implications for other diseases.

She has delivered outstanding contributions to her field and is a well-respected thought leader across neuroscience, academia and industry. She has presented at 15 conferences and her research has been widely published.

Dr Karoly has leveraged her position as a leader in biomedical research to further Australia's reputation in the field of neurology. She continues to lead blue sky research to improve patient outcomes and understand the human brain.

Career highlights

- 2022 Finalist (Data Science), Women Leading Tech Awards, Atlassian
- 2022 Session Chair, European Epilepsy Congress
- 2022 Member, International Taskforce on Chronobiology, International League Against Epilepsy (ILAE)
- 2022 Launch of Seer Health (Seizure Risk Forecasting) at EPICON meeting, American Epilepsy Society
- 2021 Fellow, 'For Women in Science', L'Oréal-UNESCO
- 2021 Lead author, 'Cycles in Epilepsy' published on the cover of Nature Reviews Neurology
- 2020 Emerging Leadership Fellow, Australian Government National Health & Medical Research Council
- 2020 Outstanding Research Award, School of Chemical and Biomedical Engineering, The University of Melbourne
- 2020 Chancellor's Prize for Excellence in the PhD Thesis, The University of Melbourne
- 2019 Runner-up, HealthTech Innovation Pitch Challenge, Graeme Clark Institute
- 2019 Travel Award for Early Career Researchers, International Conference for Technology and Analysis of Seizures
- 2019 Finalist, Premier's Award for Health & Medical Research, Victorian Government
- 2018 Finalist, Melbourne Medical School Publication Prizes, The University of Melbourne
- 2018 Runner-up, Mendelsohn Student Lecture Award, The University of Melbourne
- 2018 Young Investigators Award, American Epilepsy Society
- 2016 Kenneth Myers Memorial Scholarship, The University of Melbourne
- 2015 Mel Ward Scholarship in Research, Pro Medicus Ltd