

## Funded PhD with Industry Placement in Quantitative Magnetic Resonance Imaging in Mild Cognitive Impairment and Early Alzheimer's Disease

**Background:** With an increasing number of people with Alzheimer's Disease (AD), the physical, emotional, and financial strains placed on individuals, whānau ("extended family") and society are immense. Most people who develop AD go through an intermediate stage known as mild cognitive impairment (MCI), but not all people with MCI go on to develop dementia. Why some people progress, and others do not is far from understood.

**Project:** The overall aim of this project is to identify Magnetic Resonance Imaging (MRI) markers that predict which individuals with MCI will progress to dementia in a New Zealand sample enrolled in the Dementia Prevention Research Clinics. Multi-modal MRI including arterial spin labelling, diffusion weighted, susceptibility weighted, and resting state functional data has been collected. The exact focus of the project can be guided by the skills and interests of the successful candidate and is likely to include image processing (using available toolboxes, or developing new ones), predictive modelling and machine learning. The project will be undertaken in collaboration with Siemens Healthcare Limited.

**The doctoral candidate:** Should hold a relevant MSc or BSc Hons degree (e.g. Physics, Psychology, Computer Science, Engineering, Neuroscience etc). Experience in MRI image analysis, coding (e.g. Matlab, Python), and machine learning would be an advantage.

**We can provide:** A vibrant and supportive research environment within the School of Psychology and wider Centre for Brain Research at the University of Auckland. The successful candidate will be offered the opportunity of an industry placement, spending up to 6 months at Siemens Healthcare (Australia). A tax-free stipend of at least NZ\$33,000 (up to NZ\$45,000 dependant on scholarship eligibility), plus tuition fees for three years.

You will be supervised in this project by Catherine Morgan (Senior Research Fellow and MRI Physicist), Lynette Tippett (Professor of Psychology and Director of the Dementia Prevention Research Clinics, NZ), Kieran O'Brien (Head of Collaborations and Research Aus/NZ, Siemens Healthcare Limited) and Reece Roberts (Lecturer in functional MRI).

**To apply:** Both international and domestic applications will be considered. Māori and Pasifika applications are encouraged. Please email Catherine Morgan (c.morgan@auckland.ac.nz) a recent CV and transcripts before 1st March 2023. Informal enquires and visits are welcomed.

