



The MARCS Institute for Brain,
Behaviour and Development

MARCS Spotlight

Welcome to the MARCS Institute for Brain, Behaviour and Development Spotlight!

For 20 years, we have led advances in our understanding of how the human brain develops across the lifespan and how it responds to visual, auditory, sensory and technological stimulus. Our mission is to enhance human interaction and wellbeing throughout all stages of life. Our research provides solutions to the problems that matter most concerning humans interacting with each other and with technology.



Have you been to our new labs at Westmead Innovation Quarter?

So far this year we've welcomed over 240 visitors from government, industry and University collaborators and guests including Committee for Sydney, Create NSW, CSIRO, Dolby Australia, Hitachi Australia, Nanyang Technical University Singapore, Western Sydney Local Health District and many more. Check out the video below to see some of our labs in action.

We hope you enjoy this snapshot of the Institute.

Professor Kate Stevens

Director, MARCS Institute for Brain, Behaviour and Development



Grant Successes

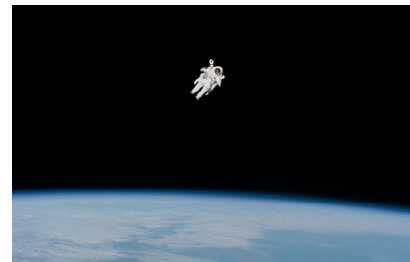
Members of our AgeLab in partnership with Deakin University's Applied Artificial Intelligence Institute have been selected as a semi-finalist for the international Longitude Prize on Dementia. The team has received an award of \$145,000 AUD to develop **MemoryAid** - an intuitive, easy-to-use home assistant technology to help people living with dementia to live independently at home for longer.



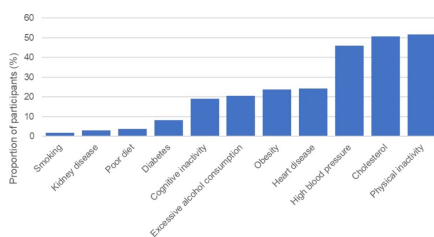
Dr Alexandre Marcireau has been awarded a NSW Smart Sensing Network Grand Challenge Fund 2023 award for **High-speed counting of black soldier flies for optimised waste recovery**. Project partner Arc Ento Tech has developed an innovative way to treat waste that relies on the production of black soldier flies, and Dr Marcireau and team will utilise neuromorphic vision sensors for high-speed counting of the flies enhancing Arc Ento Tech's commercial processes.



Associate Professor Tamara Watson and colleagues have been awarded a NSW Space Research Network Pilot Funding award for \$110,830 to investigate **the perceptual and motor characteristics that astronauts need to adapt to micro gravity**.



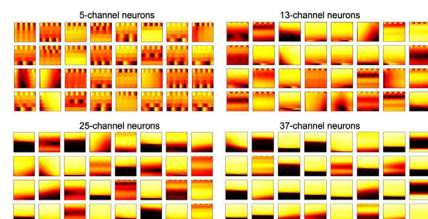
Research Focus

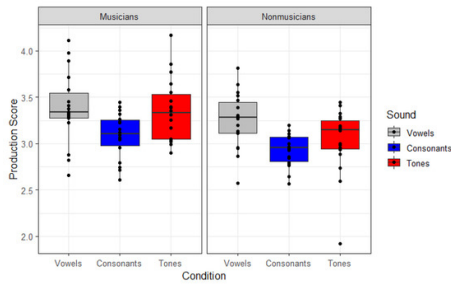


Cross-sectional survey of attitudes and beliefs towards dementia risk reduction among Australian older adults

A new paper in BMC Public Health by Dr Joyce Siette and colleagues has found public health campaigns need to overcome motivational barriers to support reductions in dementia risk. Genuine change will only be achieved through inclusive and multifaceted approaches targeting sociodemographic differences and impediments to brain healthy lifestyles. [Read more here](#)

New algorithm developed for use in cochlea models to better understand speech in noise
Dr Ying Xu and colleagues from the International Centre for Neuromorphic Systems have developed an Event-driven cortical model for feature extraction. Published in Frontiers in Neuroscience, the model provides better multi-resolution representations of the event-based data than traditional statistical approaches that have been classically used for decoding spike streams of speech. [Read more here](#)





Musicality assists in foreign language learning

Recently published work in Brain Sciences by **Dr Antonia**

Göetz and colleagues has found that musicians (and

particularly those who regularly practice) are better at both

the perception and production of non-native speech sounds

in Thai language. This advantage extends to all three sound

types that signal meaning in spoken language: consonants,

vowels, and tones. [Read more here](#)

Neural Tracking of visual periodic motion

Associate Professor Manuel Varlet and colleague's

recent paper in the European Journal of Neuroscience has

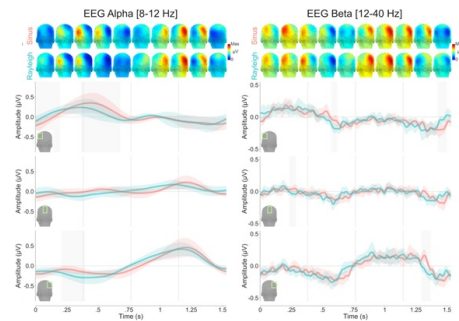
found a critical role of neural oscillations in the Alpha and

Beta bands particularly in the right hemisphere, in the

neural tracking of periodic motion. The findings suggest

velocity peaks are vital in enabling proficient visuomotor

synchronisation. [Read more here](#)



Celebrating our Students



Congratulations to **Jenny Zeng (PhD)**, **Arwen Blackwood-Ximenes** and **Michelle Smigielski** (Masters of Philosophy) who graduated in April.

This year we welcomed 10 new Higher Degree Research (HDR) candidates from across the world including India, Cyprus, Canary Islands, Romania, China, Iran, Turkey and more, as well as domestic students from across Western Sydney, to begin their PhD or Master of Research journeys with us. We've also celebrated four thesis submissions so far.

Congratulations also to our HDR Student Representative, **Jessica Chin**, who has recently been awarded three travel awards from the International Phonetics Association, the Australasian Speech Science and Technology Association and the International Speech Communication Association to attend the International Congress of Phonetic Sciences in Prague.

HDR Forum

Our HDR Forum showcased the brilliant work of our promising HDR candidates and offered a great platform to get together, present, and learn more about the different areas of research within MARCS Institute.

The forum featured a panel discussion with experienced MARCS researchers who shed some light on career progression and life as an academic. Other highlights included engaging poster sessions, talks, and live demonstrations.



Congratulations to the award winners: 1st Prize - **Valentin Siderskiy** for his presentation: Control Systems in Physiology Your Heart, Your Brain and in Between; and Runner-up **Ceren Ayyildiz** for her poster: The Effects of Timbre on Music-Induced Mental Imagery

Artist In Residence - EDEN Parramatta



In April, we hosted our first **Artist in Residence Program: EDEN Parramatta**, in the Westmead Innovation Quarter Performance Space on Level 7.

Led by artist, Olga Kisseleva, founder of Art & Science Lab, Pantheon-Sorbonne University Paris, and in partnership with FORM Dance Projects Parramatta, it brought together five leading Australian choreographers, videographer, and cultural expert as well as scientists from the Hawkesbury Institute for the Environment and MARCS Institute. The aim of the project is to reinvent with art and technology, traditional scientific approaches to environmental issues, notably the survival of trees.

The new collaboration is supported by the Embassy of France in Australia, Parramatta City, Parramatta Riverside, the Packer Family Foundation, NSW Government, and Western Sydney Creative.

Community Engagement

Our **BabyLab** have been out in force at the the PBC (Pregnancy, Birth & Children) Expo at the Sydney Showground, speaking to parents about their research and how to get involved.

Prof Susan Hespos and her team have also been making guest appearances at Storytime at **Parramatta City Libraries** in Epping and Parramatta. And we are eagerly anticipating the launch of Season 2 of the **BabyLab Podcast** hosted by Emma Watkins, launching July 12.



What's coming up?



MARCS Insights Series

Manuel Varlet will be presenting at the MARCS Research Meeting on Tues 11 July 11am, Level 4 Seminar Room, Westmead Innovation Quarter as part of our **MARCS Insights Series**. These meetings are hybrid. Email marcs@westernsydney.edu.au for zoom information.



Western Sydney University Research Week Event

The Power of Community: Enhancing Dementia Research and Care Together
Wed 12 July 10am - 12pm, Level 4 Seminar Room, Westmead Innovation Quarter
Register Here



Western Sydney University Research Week Event

An Introduction to Neuromorphic Engineering with Interactive Demonstrations of Neuromorphic Technology

Wed 12 July 9am - 1pm, Building BA, Level 2, Werrington South Campus

[Register Here](#)



Family Science Festival

19 August 2023 | 10am to 3pm, PHIVE, 5 Parramatta Sq, NSW 2150

Ever wondered what happens during an electroencephalogram (EEG) study and how brain activity is measured in a harmless and non-invasive way? Come check out the BabyLab stand at the [Sydney Family Science Festival](#) and learn more about the science behind infant research.



<https://www.westernsydney.edu.au/marcs>

This email was sent by The MARCS Institute for Brain, Behaviour and Development, Western Sydney University, Locked Bag 1797, Penrith NSW 2751, Australia

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