



WESTERN SYDNEY
UNIVERSITY

RESEARCH THEME PROGRAM

2022-2023

ACKNOWLEDGEMENT OF COUNTRY

Western Sydney University acknowledges the peoples of the Darug, Tharawal, Eora and Wiradjuri nations.

We acknowledge that the teaching, learning and research undertaken across our campuses continues the teaching, learning and research that has occurred on these lands for tens of thousands of years.

AUTHORS

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The RTP is proud to present a summary of activities throughout 2022-2023, with a spotlight on our **Health & Wellbeing and Education & Work themes.**

The RTP is a support network provided by the Office of the Deputy Vice Chancellor for Research, Enterprise and International, Professor Deborah Sweeney. The program addresses contemporary issues and assists Western Sydney University (Western) academics to gain traction on emerging research areas that will transform how we live and work. At the end of 2022, the team decided to create priority areas wherein all four Themes work together, breaking down the silos and shredding disciplinary borders to progress collaboratively on those big and far-reaching topics. For 2023 and 2024, the two Priority Areas where resources of the program will be pooled are **Zero Carbon** and **Equity and Inclusion**. The Research Theme Champions (RTC) have delivered a range of activities in both Priority Areas in 2023. These are detailed throughout the report and include the zero carbon workshop series and a program to shape the future of workplaces with hundreds of participants throughout the year.

The activities centred on Zero Carbon and Equity and Inclusion collectively contribute to creating a vibrant and supportive research environment that promotes excellence, collaboration, innovation, and community engagement. Aligned with the University's commitment in its mission to adhere to the principles of Sustainability, Equity, Transformation, and Connectedness, the Priority Area activities provide structured support connecting industry, government and community partners with researchers to promote knowledge transfer and enhance the real-world impact of the work. The Priority Area activities also progress research committed to the UN Sustainable Development Goals (SDGs), notably:

Zero Carbon

- SDG 7 – Affordable and Clean Energy
- SDG 13 – Climate Action

Equity and Inclusion

- SDG 4 – Quality Education
- SDG 5 – Gender Equality.
- SDG 10 – Reduced Inequalities
- SDG 11 – Sustainable Cities and Communities
- SDG 16 – Peace, Justice, and Strong Institutions

Dual Alignment

- SDG 17 – Partnerships for the Goals

RESEARCH THEME CHAMPION CHANGES IN 2023

Over the year, the program saw several RTCs exit and enter. Serving two consecutive 2-year terms in the the Research Theme Program (RTP) (April 2019 to June 2023), Professor Paul Breen took off his RTC hat for the Health & Wellbeing theme. He left with a bang by initiating the Western Research Theme Image Competition. More details about this great initiative are found later in this report.

To take up Paul's hat, we welcomed Associate Professor Gabrielle Weidemann as new RTC for Health & Wellbeing. Gabrielle is a behavioural neuroscientist and works in the School of Psychology and The MARCS Institute. Many at Western know Gabrielle from her work as Chair of the Human Research Ethics Committee.

Nearly serving as long as Paul, Professor Brendan Choat will also leave the program by the end of the year. Brendan joined in August 2020, when "Hotel Quarantine" was not the name of a new TV series. Through difficult times for researchers and the broader tertiary education sector, Brendan championed the Environment & Sustainability theme where he led the development of the Western Sydney Hub for Ecology and Environmental Monitoring.

In June of 2022, another long serving member, Professor Danielle Tracey, stepped down as a RTC for the Education and Work theme. She was instrumental in establishing the Western Sydney Disability Research Advocacy and Practice (RAP) Hub, an interdisciplinary initiative that includes adults with disability, and leaders of services in Greater Western Sydney. In Danielle's stead, we welcomed Associate Professor Katrina Barker to partner with Maria for the Education and Work research theme.

After a year as RTC for the Urban Living Futures & Society theme, Associate Professor Nichole Georgeou left the program in August 2023 due to carer duties. We wholeheartedly wish her all the very best for the coming months and years.

The team thanks Nichole, Paul, Danielle, and Brendan for their many and excellent contributions to the RTP.

MEET THE RESEARCH THEME CHAMPIONS

RESEARCH THEME PROGRAM – OUR PEOPLE

EDUCATION AND WORK

RESEARCH THEME CHAMPIONS



**ASSOCIATE PROFESSOR
MARIA ESTELA VARUA**
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Maria Estela is an Associate Professor and the Associate Dean, Research, in the School of Business at Western Sydney University. She is an environmental and resource economist, econometrician and social economist, with extensive experience in water management, gender, productivity, cost-benefit analysis, economic and financial modelling, sustainable business enterprise, economic development, circular economy and business education.



ASSOCIATE PROFESSOR KATRINA BARKER
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Katrina is an Associate Professor in Educational Psychology and is a multi-award-winning educator in the School of Education who commenced the Research Theme Champion role for Education and Work in July 2022. Katrina has established a research agenda of national and international significance, aiming to create new pathways for the most vulnerable and marginalised in society to transition between school, tertiary education, and employment.

RESEARCH THEME FELLOW



DR ELISABETH DUURSMAS
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Elisabeth joined Western Sydney University in March 2023 as the Research Theme Fellow in the Education and Work Theme, based in the School of Education and the Transforming early Education and Child Health (TeEACH) Institute. Her research focuses on parenting, in particular on father involvement and its impact on child development.

HEALTH AND WELLBEING RESEARCH THEME CHAMPIONS



ASSOCIATE PROFESSOR FREYA MACMILLAN
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Freya is an Associate Professor in Interprofessional Health Sciences in the School of Health Sciences, deputy director of the Diabetes, Obesity and Metabolism Translational Research Unit (DOMTRU) and a member of the Translational Health Research Institute. Freya became a Health and Wellbeing Research Theme Champion in April 2022 and she works on co-developing health promotion and injury prevention programs with communities.



ASSOCIATE PROFESSOR GABRIELLE WEIDEMANN
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Gabrielle specialises in associative learning and its implications in human experiences. Her extensive research spans various domains, exploring associative learning's impact on language acquisition, word learning, substance use disorders, musical preferences, infant emotion recognition, object preference, decision-making in older adults, and visual information processing.

RESEARCH THEME FELLOW



DR JOYCE SIETTE
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Joyce is a health services researcher with a mission to contribute to the reduction of population-wide dementia risk and cognitive impairment through the implementation of effective and acceptable dementia prevention public health approaches. Her diverse research interests encompass digital health, aged care informatics, public health and the promotion of cultural equity.

ENVIRONMENT AND SUSTAINABILITY

RESEARCH THEME CHAMPIONS



PROFESSOR BRENDAN CHOAT
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Brendan is a Professor at the Hawkesbury Institute for the Environment. He studies the impacts of environmental stress on plants, with a focus on the impacts of drought and extreme climate events.



ASSOCIATE PROFESSOR NEIL PERRY
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Neil is an Associate Professor in Corporate Social Responsibility and Sustainability in the School of Business and a School-based member in both the Institute for Culture and Society and the Hawkesbury Institute for the Environment. He joined the RTP in mid-2022 and works to move economies and societies to ecologically sustainable and low carbon futures.

RESEARCH THEME FELLOW



DR MANUEL ESPERON-RODRIGUEZ
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Manuel joined the Research Theme Program in February 2023 as a Research Theme Fellow Environment and Sustainability and is based in the School of Science and the Hawkesbury Institute for the Environment. Manuel is an ecologist and plant ecophysiologist who studies the effects of climate on plant function, with particular expertise in spatial analysis and modelling, particularly the novel use of “big data” approaches to address questions related climate change impacts on urban ecosystems.

URBAN LIVING FUTURES AND SOCIETY RESEARCH THEME CHAMPION



PROFESSOR OLIVIA MIRZA

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Olivia is a Research Theme Champion for Urban Living Future and Society. She is distinguished in her forensic bridge rehabilitation implementing sustainable material to fulfill the net zero pledge. She was the lead design engineer for Sydney Harbour bridge where she proposed a resilient alternative by incorporating light weight concrete and Carbon Fibre Technology for railways sleepers.

RESEARCH THEME FELLOW



DR NAAMA BLATMAN

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Naama is an urban geographer, based at the Institute for Culture and Society and School of Social Sciences, where she researches the histories, lived experiences and futures in-the-making of settler colonial cities, centring Indigenous land and sovereignty as foundational to urban life. Naama combines archival work with collaborative ethnography in ways that seek to intervene in how cities are managed, planned, and understood in fields like housing, transportation and incarceration. She does so with a reparative vision of making cities more equitable and just.

RESEARCH THEME COORDINATOR



PROFESSOR SEBASTIAN PFAUTSCH

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URBAN TRANSFORMATIONS

RESEARCH CENTRE

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Sebastian is currently acting as Research Theme Champion for Urban Living Futures and Society until the position is filled in early 2024. He also coordinates the program, assisting the Champions and Fellows to deliver a rich, engaging activities that support industry-academic partnerships. Sebastian's research is centred around climate change impacts on the built environment, with a focus on heat mitigation and adaptation.

RESEARCH THEME CHAMPIONS GRANT ASSISTANCE SNAPSHOT

Collated achievements from projects that received funding through the Grant Assistance Program in 2021 and 2022. This data was collected through a survey of awardees of funding rounds and likely underestimates the actual achievements (46% response rate).



18 Presentations
Delivered

36 Journal
Articles
Published



38 Submitted
Funding
Applications

6 Media
Outputs



5 Patents



48 New
Collaborations
with External
Organisations



>\$3.02
Million of
Secured
Funding

10 New
Collaborations
with Internal
Researchers



WANT TO BECOME A RESEARCH THEME CHAMPION?

The Program is recruiting four new Research Theme Champions in the third quarter of 2024 in these themes:

- Education & Work
- Environment & Sustainability
- Urban Living Futures & Society

If you are interested in joining the program, please look out for these upcoming opportunities. Announcements and relevant documents/application forms will be posted on our website and communicated through Viva Engage and other platforms.

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ISOBEL COLSON: Shedding light on threatened waxcap fungi

Description: This photo was taken on Dharug country in NSW. It shows *Cuphophyllus austropratensis*, an endangered species of fungus, shrouded by darkness under the rainforest canopy. Nine species of waxcap fungi are listed as threatened in NSW, due to their restricted distribution in temperate rainforest. The Department of Planning and Environment (DPIE) 'Save our Species' program has funded my research into this group of fungi, with our goal to improve conservation management using DNA to update the taxonomy and develop tools for improved detection. The project is a partnership between NSW DPIE, Western Sydney University, NSW DPI Mycology Herbarium and Royal Botanic Gardens, Victoria.



SUMMARY

THE RESEARCH THEME PROGRAM

Established in 2016 by Professor Deborah Sweeney, Deputy Vice Chancellor and Vice President (Research, Enterprise & International), the Research Theme Program (RTP) serves a dual purpose. It facilitates the establishment of novel research networks among Western Sydney University academics that transcend traditional disciplinary boundaries, while serving as a support system for researchers to engage with industry, government and community organisations seeking science-based, relevant and progressive solutions.

The overarching goal of the RTP is to contribute to the resolution of complex problems. To realise this objective, all program activities adopt a transdisciplinary approach rooted in systems thinking.

Organised around four themes that integrate disciplines across the university, the program aligns with internationally recognised strengths, National Research Priorities, and the future trajectory of the Western Sydney region. These themes intersect to guide research toward impactful outcomes and positive change with and for our partners.

THE 4 RESEARCH THEMES:

1. Education & Work
 - Addresses research under the banners of Equity, Participation & Opportunity
2. Environment & Sustainability
 - Addresses research under the banners of Climate, Agriculture & Liveability
3. Health & Wellbeing
 - Addresses research under the banners of Translation, Integration & Innovation
4. Urban Living Futures & Society
 - Addresses research under the banners of People, Culture, Economy & the Built Environment

These Research Themes permeate our Schools, Centres, Institutes, and Special Research Initiatives (SRIs), activating our research in community- and industry-relevant contexts across the broader Western Sydney region, as well as on a national and international scale.

The Research Theme Champions work collectively to cultivate collaborative relationships between our researchers and foster robust partnerships with external collaborators. Our approach includes:

- Facilitating connections and relationships among the University's Schools, Centres, Institutes, and SRIs.
- Supporting interdisciplinary research teams to engage with industry partners and jointly seek funding, particularly focusing on Category 2-4 funding.
- Providing mentorship to early and mid-career researchers, empowering them to advance their research programs, with a strong emphasis on guiding them to secure external funding (primarily Category 2-4).
- Collaborating with other Theme Champions and Fellows to exchange knowledge and develop a cohesive approach to cross-theme initiatives, addressing strategic priority areas and supporting interdisciplinary grant scheme projects.

Priority Areas, reflecting the transdisciplinary nature of the RTP, are identified every two years by Research Theme Champions (RTC) and Fellows in response to contemporary societal discourses, planetary health and technological innovation. For the years 2022 and 2023, the identified Priority Areas were:

EQUITY & INCLUSION

Bold actions are imperative to embed values such as respect, support, fairness, and diversity in our workplaces and support systems. The Research Themes channelled collective energy and resources from 2022 to 2023 to advance work within the broad Priority Area of Equity & Inclusion.

ZERO CARBON

The life support systems of future generations are under threat from climate change. Transitioning to a zero-carbon economy and society is crucial to safeguard ecological systems. The Research Themes, in collaboration with the Urban Transformations Research Centre, supported the concentration of effort from 2022 to 2023 on work aligned with the broad Priority Area of Zero Carbon.

This 2022-2023 Research Report features the activities and achievements under the Health and Wellbeing and the Education and Work Research Themes. It also highlights collective RTP Initiatives. The research report serves as a testament to the vibrant research community at Western Sydney University. It demonstrates our commitment to advancing knowledge, fostering innovation, and showcasing the tangible impact of our work on local and global communities.

Want to get in touch? For general inquiries about the RTP, opportunities and specific programs, please email us at researchthemeprogram@westernsydney.edu.au. Alternatively, you can directly email the Research Theme Champions.

GREG CASEY: A modern trace route

Description: The Hume Highway at Mt Adrah, at the intersection of Deltroit Road, comes alive at night when long distance truck drivers take to the road to bring us everything we need or want. The trade routes the county's traditional Wiradjuri people used have changed vastly. Do you consider the impact on truck drivers when you expect the item you ordered today to be delivered tomorrow? Do your society's demands conflict with truck drivers' need to obtain rest? Do you consider the risk of injury or death to truck drivers, and others sharing the road with them, because of your expectations?



FOCUS AREAS

ZERO CARBON

Bold and innovative action to transition to a zero-carbon society and economy is essential for the protection of the ecological systems that house people, plants, animals and cultures. To respond to this need, the RTP collaborated with the Urban Transformations Research Centre throughout 2023 to kick-start and accelerate existing interdisciplinary research in this focus area through a series of three symposia.

The first symposium (March 2023), Our Common Responsibility, focused on learning from expert researchers internally and externally in the field of zero carbon to identify priority research areas and to map capability and expertise across Western Sydney University to address these priorities.

Identification of industry needs and assets were at the centre of the second symposium (August 2023), where expert panellists highlighted the role of research in addressing climate change and in the transition to a zero (or net zero) carbon society from the perspective of their unique disciplines. With about 50 researchers and external representatives attending, in-depth workshopping at the event led to the identification of three research priority areas

of community, equity and industry. Key themes emerging under these areas were:

- Community focus – The community-enabled renewable energy transition
- Equity focus – Equity for zero C through mutual and reciprocal relationships
- Industry focus – Circular economy for zero C by 2050

In the third event (November 2023), research and industry had a focused approach on working through more specific research project plans and identifying potential funding opportunities and ways of working together towards zero carbon. Industry partners in attendance included representatives from Beta Carbon, a carbon trading market-based platform, WSP, Western Parkland City Authority, Climate KIC, Box Divvy and NSW Health. Project areas included:

- incorporation of learning principles in when and how to give feedback to building users about their energy usage, how to assess user's experiences and how to evaluate if this information changes behaviour.
- Reduction of Carbon Emission on business practises where the primary

deliverable includes comparative analysis of the quantified emissions with those of supermarkets (in partnership with Box Divvy)

- Feasibility of using hospital plastic waste for structural applications in the construction industry (in partnership with Nepean Blue Mountains Local Health District)
- Embedding indigenous perspective into engineering Australian standards (in partnership with WSP)

FUTURE DIRECTIONS

In 2024, the RTP will continue focused work with the inter-disciplinary teams now working on developing funding applications to drive research in this strategic priority area, which will include supporting grant scheme projects in this space. A cross-theme series of events are also in planning focused on sustainable communities in 2024, which will continue to engage with academics and industry partners focused on the transition to community-enabled renewable energy to support establishment of research in this space.

EDUCATION & WORK

THEME CHAMPIONS:
Associate Professor Maria Estela Varua, Associate Professor Katrina Barker

Transformative education and building the zero carbon workforce are opportunities to address social and societal goals.

OUR THEME RESEARCHERS HAVE EXPERTISE ON:

- Education & behavioural change
- Carbon accounting
- Sustainable enterprises
- Digital transformation
- Energy transition
- Entrepreneurship & innovation



ENVIRONMENT & SUSTAINABILITY

THEME CHAMPIONS:
Associate Professor Neil Perry, Professor Brendan Choat

Transitioning to a zero-carbon economy and society will help protect the ecological systems that people, plants, animals and cultures depend upon.

OUR THEME RESEARCHERS HAVE EXPERTISE ON:

- Economic & cultural transition to zero-carbon economies
- New materials & processes to reduce embedded carbon in buildings
- Circular economies: converting waste to reduce the throughput of energy & materials
- Enhancing the resilience of natural systems to climate change
- Sequestering carbon



HEALTH & WELLBEING

THEME CHAMPIONS:
Associate Professor Freya MacMillan, Professor Paul Breen

A better understanding of the impacts of CO2 emissions on H&W and development and testing of CO2 emission interventions will be critical to improve public health, especially for indigenous and CALD people.

OUR THEME RESEARCHERS HAVE EXPERTISE ON:

- Behaviour change
- Quantifying the impact of introducing new carbon emission policies on health
- The impact of the built environment & CO2 emissions on health
- Effective health communication
- Community capacity building strategies



URBAN LIVING FUTURES & SOCIETY

THEME CHAMPIONS:
Associate Professor Nichole Georgeou, Professor Olivia Mirza

Building safer greener communities through implementing measures such as urban cooling, affordable housing, social justice, smart construction with integrated supply chains, and new materials to develop high tech cities.

OUR THEME RESEARCHERS HAVE EXPERTISE ON:

- Urban Innovation
- Industrial & Digital Revolution
- Equitable Societies
- Just Transformation
- Digital Societies
- Cultural Vibrancy



EQUITY AND INCLUSION

Following two successful Research Week events that brought together researchers, carers, government and industry partners, Western Sydney University's Research Theme Champions (RTC) hosted two workshops for new and established researchers interested in sharing knowledge on research relating to carers in the workplace.

The first workshop, held on 20 September, aimed to empower researchers with the tools and strategies needed to translate research goals into well-developed research agendas with actionable plans. It also provided support for researchers across disciplines to connect and establish partnerships to collaborate on projects of shared interest. Workshop highlights included advice and guidance from the RTC on:

- developing roadmaps for research and development endeavours
- strategies for cultivating partnerships with industry and government stakeholders, and
- identifying and harnessing funding opportunities

A follow-up workshop was conducted on 17 October. For those who had attended the first workshop the second session provided an opportunity to have the RTCs review the progress of their research action plans and—in collaboration with the Office of Engagement and Advancement—provide guidance on funding opportunities relevant to their project. Experts were also available to provide support and feedback on preparing and writing grant applications. Researchers who had not attended the first workshop were also able to benefit from the RTCs' guidance on developing roadmaps, cultivating partnerships and identifying funding opportunities.

The workshops provided a networking opportunity for participants to connect with fellow researchers with shared research passions and with researchers and experts with diverse expertise. Outcomes from the RTP's focus on carers in the workplace include:

- Creation of a Carers and Workplace Hub
- Establishing a new partnership with Carers NSW. This partnership has been particularly fruitful with:
 - Carers NSW extending Western access to their comprehensive annual national survey data
 - Members of the Carers and Workplace Hub have collaborated with Carers NSW to co-author scholarly journal articles and co-present at national conferences
- Members of the Carers and Workplace Hub have crafted a roadmap for their collective research
- Two applications have been submitted for research funding. One for the Vice Chancellor's Gender Equity Fund and another for the 2024 RTP's grant assistance scheme
- Development of a repository of research funding opportunities identified for the related research field
- A Teams site has been established to connect members of the Carers and Workplace Hub. This site has been used to:
 - Share conference, webinar and journal article writing opportunities
 - Share research plans and research project activities and events to progress the research initiatives
 - Invite members to participate in specific research projects related to the field

FUTURE DIRECTIONS

In 2024, the RTP will extend its dedicated efforts by collaborating with interdisciplinary teams currently developing funding applications to drive research in the strategic priority area of carers in the workplace. Two streams of research have emerged as a result of the 2023 activities. This has led to the one stream focusing on the opportunities and challenges workplaces face in supporting carers to bring their best selves to work. The other stream is dedicated to research focused on carers and the opportunities and challenges they encounter. To recognise these distinct streams, 2024 cross-theme series of events will be tailored. The RTP is set to expand the membership of the Carers and Workplace Hub, fostering a vibrant community of researchers and building its membership to include new industry partners.



RAKIME ELMIR: Culturally and Linguistically diverse fathers support needs

Description: Description: Culturally and Linguistically diverse fathers experiences of fatherhood in the early weeks following the birth of their children. The image was taken on Darug Country and portrays two fathers debriefing with each other about their fatherhood journeys. The image was taken during filming a series of videos as a resource to support expectant and new CALD fathers embarking on becoming fathers. The image seeks to convey a message that normalises fathers to seek support and speak with other fathers about their own experiences to mitigate feelings of apprehension and being overwhelmed during their early fatherhood experiences. The image also reflects a population of fathers in the Western Sydney region.

RESEARCH THEME PROGRAM INITIATIVES

WEBSITE

After dedicated effort over the years, in 2023 we were thrilled to announce the successful completion and launch of the new web page for the RTP. Please visit the RTP [web page](#) to learn more about the work done by the team, opportunities offered through the program and resources like the 2023 Western Research Capacity Maps and many white papers for you to download.

An analysis of the traffic to the website shows that it is gaining markedly in popularity. In the months from January to March 2023, the webpage was viewed 2,031 times. In the months of September, October and November, this number had increased to well above 5,000. Most visits to the webpage were through computers, yet still close to a fifth view via their mobile. The webpage receives traffic from across the country, dominated as expected by NSW, followed by VIC, ACT, QLD, WA, SA, TAS, NT and 73 international visitors. These data indicate broad and increasing interest in the program across Australia and even from overseas. We'll keep analysing our web traffic data to improve the experience and satisfaction of our online visitors.

If you have any suggestions how to improve the site, please write to researchthemeprogram@westernsydney.edu.au.

WESTERN SYDNEY UNIVERSITY RESEARCH CAPACITY MAPS

In 2022 and 2023, the first ever Western Research Capacity Maps were developed by the RTP. Following a broad and deep consultation process that involved all Schools, Institutes, Centres and SRIs, the maps were drafted. Care was taken to avoid mentioning individual disciplines or describing specific activities in our laboratories. The wording used throughout the maps reflect research areas where Western researchers excel, where they

work inter- and trans-disciplinary to achieve positive outcomes for society, ecosystems, industry, services and infrastructure.

The maps include QR codes to campus-specific information and surprising facts. They visually link Western research with the Sustainable Development Goals of the United Nations and use descriptive terminology to capture research strengths of our campuses. Importantly, the maps aim to strike a balance between STEM and HASS research activities. There are two types of Research Capacity Maps, ten in total.

- Research Theme Capacity Maps
 - Education & Work
 - Environment & Sustainability
 - Health & Wellbeing
 - Urban Living Futures & Society
- Metropolitan Campus Capacity Maps
 - Bankstown
 - Campbelltown
 - Hawkesbury
 - Kingswood
 - Liverpool
 - Parramatta

Following endorsement from the Western Executive Committee, the Vice Chancellor and the Western Board, the ten maps were published on the RTP webpage. The maps are intended to:

- Demonstrate the breadth of research capacity at Western.
- Be a conversation-starter.
- Inform your external partners.
- Link your work with the broader research ecosystem at Western.
- Give you a better understanding of our campuses.
- Inspire.

LINKLAB RESEARCH CANVAS SESSIONS

Professor Breen developed a research canvas process which he delivered through LinkLab to support 8 researchers in 2022-2023 working in the medical technology space. These LinkLab research canvas sessions involve researchers having a 1-hour structured discussion with a research theme champion to map out their research program onto a 1-page business model canvas template, which can help them with planning the next phases of their research. During 2022-2023, Associate Professor MacMillan adapted the LinkLab research canvas sessions to be used for other research areas outside of the medical technology space and trialled the approach with 16 researchers from across the 4 Research Themes, including all twelve of the RTP grant scheme recipients from 2023. The adapted model walks researchers through: considering the big picture problem they are trying to solve, the solution and how the approach taken by the research is innovative, the target end users/consumers/communities of the solution, existing alternatives, the key impacts expected from the solution, the channels of engagement with the target audience/s, relationships with partners, funding opportunities and potential revenue streams from the process/product.

From 2024 onwards, all RTC will be offering these research canvas sessions. For more information, please go to: https://www.westernsydney.edu.au/dvcresearch/dvc_research/research_theme_program/opportunities

ANNE-MARIE GILPIN: Native bee on introduced weed in apple orchard.

Description: A native *Lassioglossum* bee gathers pollen from introduced cape weed (*Arctotheca calendula*), in an apple orchard in Orange. Our research showed that introduced weeds provide a vital floral resource for native pollinators within agricultural production areas and can help facilitate visitation to pollinator-dependent crops.

UP FOR RESEARCH PODCAST

Hosted by the RTP Coordinator Professor Pfautsch from the School of Social Sciences, each episode of the podcast provides a unique and accessible insight into financing, planning and executing research – from early career researchers to senior University Executives. Professor Pfautsch invented this informative and fun format to reach a different audience inside and outside of Western to invite them to engage with our researchers. The statistics for the podcast show that it is listened to in Australia, but also the UK, US, Canada and even in India and Colombia. Sixty-four percent of the listeners access the podcast via their mobile.

There are currently six episodes that feature junior and senior scientists as well as some of the University's executives. Tune in to learn more about the fascinating and important work of researchers at Western Sydney University.

Episodes are available [here](#) and can be downloaded or streamed directly. You can also find Up For Research on Spotify, Google or Apple Podcasts or your preferred podcast app.

A new set of 12 episodes is planned for 2024. While five episodes will feature the recipients of the Hands-on Grants, seven are still to be decided. Please contact Professor Pfautsch if you would like to nominate yourself or a colleague to feature on Up For Research.





Matthew Stanton: *Giba the Koala suffers another climate extreme*

RESEARCH THEME IMAGE COMPETITION

The Research Theme Image Competition goes beyond traditional research dissemination methods and enhances Western Sydney University's reputation as a hub of innovative and visually engaging scholarship. It represents a novel and engaging initiative designed to present the university's research endeavours in a visually captivating manner.

The competition was initiated by Professor Breen and supported by Sandra Lawrence, Emma Sandham, and Saada Bejjani. Launched in 2023, the competition garnered significant attention with 56 submissions across the Research Themes. The competition images not only reflect the diversity of research pursuits at Western Sydney University but also highlight the creativity and innovation inherent in each project. By embracing a visual medium, the competition provides an opportunity for researchers to transcend the boundaries of traditional academic communication, making complex concepts accessible to a broader audience.

From the pool of 56 staff and student submissions, the RTC curated a selection of 10 finalists. Subsequently, the competition judges—DVC [REI] Professor Deborah Sweeney, Western Photographer Sally Tsoutas, and PVC [Research] Professor Kevin Dunn—scrutinised these finalists to discern a runner-up and ultimately, the winner. **The results of the 2023 Inaugural Research Theme Image Competition are:**

Winner – Matthew Stanton (Hawkesbury Institute for the Environment)

Research Theme: Environment & Sustainability

Photo title: *Giba the Koala suffers another climate extreme*

In a study of koala physiology and behavioural responses to extreme weather events, we expected our study subjects to be facing hot dry summer conditions. Instead, climate change threw record-breaking wet weather at the koalas. Giba the koala resembled a wet-sponge rather than the 'rock' we had named him from in the Darug/Dharawal languages. He had no choice but to sit the deluge out for days at a time. His GPS, temperature and audio

recording collar, revealed reduced feeding, reduced body temperature but increasing pulse rates as the wet periods continued. A dangerous combination for a browsing, arboreal mammal.

Runner-up – Nicholas Wu (Hawkesbury Institute for the Environment)

Research Theme: Environment & Sustainability

Photo title: *Processing Bats*

Researchers from the Turbill lab processing cave-roosting bats to determine the vulnerability of native bat fauna to a devastating fungal disease, white-nose syndrome. The photo was taken on the Dainggatti land with permits approved by the Western Sydney University Animal Research Authority and National Parks and Wildlife Service. This research funded by an ARC Linkage Grant relates to the Environment & Sustainability (Climate, Agriculture & Liveability) Research Theme by better understanding how our threatened native wildlife will respond to exotic diseases.



Nicholas Wu: *Processing Bats*

People's Choice Award – Yasiru Kirindearachchi
(School of Computing, Data and Mathematical Sciences)

Research Theme: Environment & Sustainability

Photo title: *Preserving Biodiversity: AI Mitigates Roadkill for Endangered Species*

In the era of sustainable transport and preserving life on land, we stand as guardians of biodiversity. Our mission is to protect endangered species from the threat of roadkill using state-of-the-art computer vision and AI techniques. As we drive towards a more sustainable future, the significance of mitigating roadkill becomes ever more apparent. The loss of each creature represents a dent in the priceless painting of life on land. With AI as our ally, unblinking eyes watch over our roads, ensuring safe passage for these precious inhabitants of our planet. Picture taken in Tharawal country.



Yasiru Kirindearachchi: *Preserving Biodiversity: AI Mitigates Roadkill for Endangered Species*

GRANT SCHEME FEEDBACK AND MID-POINT WORKSHOP

As part of the process of supporting awardees of RTP funding, the RTC conduct a mid-way point progress and feedback survey to capture achievements and identify areas that the RTCs may be able to assist with. Additionally, a mid-way point workshop for RTP grant scheme awardees was introduced in 2022 and re-run in 2023. In 2022, the event consisted of an elevator pitch project sharing session, a discussion of problems/challenges and wins from the scheme, a summary of RTC support available to awardees and a networking lunch.

The RTCs were able to take action to respond to feedback from 2022 awardees to improve the process and support provided in 2023. The mid-way event in 2023 was held in a room with hybrid capability with several awardees joining via online, which increased attendance at this event. More time for project completion was provided in 2023, with grants ready to commence in Jan/Feb and running till November of 2023. The RTCs now offer ECRs grant development and reviewing support. Additionally, the RTCs are now working more closely with the Research Office and the Office of Engagement and Advancement to identify a wide range of funding opportunities for researchers requesting funding identification support.

HANDS-ON GRANT SCHEME

This grant program is provided through the Office of the DVC [REI] and administered by the RTP Coordinator, Professor Sebastian Pfautsch. The intention of the grant is to support early career researchers to purchase equipment or services that are necessary to develop their own research ideas. Applicants can request up to AU\$12,000. Provided for the first time in 2021, the grant program runs every year and is well received across STEM and HASS disciplines (see Appendix 2021-2023 Hands-on Research Grant Projects for previously funded projects).

All recipients of a Hands-on Grant will feature on the Western podcast series "Up For Research" where they talk about their field of research how the grant was used, what their research found and what their plans are for the future.

The Hands-on Research Grant will run again in April 2024. The announcement and relevant documents/application forms will be posted on the RTP [website](#) and communicated through Viva Engage and other platforms.



INSIGHT – HEALTH AND WELLBEING

Ensuring health and wellbeing is fundamental for the resilience and prosperity of communities. In the rapidly expanding landscape of Western Sydney, strategies to bolster the health and wellbeing of its people have become increasingly crucial. Western Sydney University is deeply committed to supporting the region's health and wellbeing now and in the future. Given the strain on the healthcare system across Western Sydney, the university spearheads innovative approaches to prevent, detect, diagnose, and manage health conditions.

The Health and Wellbeing Research Theme, led by RTCs Associate Professors MacMillan and Weidemann, identified priority health research areas which align with our University's decadal commitment and the planning and policy frameworks of our regional external partners, focusing on:

- Chronic disease
- Healthy ageing
- Maternal and Child Health
- Mental Health and Wellbeing
- Health innovation

Given the multifaceted nature of human health and behaviour, interdisciplinary and integrated research is imperative to comprehend and tackle health and wellbeing issues in our region. Research within this theme encompasses understanding and diminishing health inequities, ensuring fairness for those most affected by diseases, disabilities, and poor wellbeing.

The theme engages various community groups, including those affected by physical or mental health conditions such as obesity, diabetes, cancer, depression, and dementia. Additionally, it involves demographic groups at higher risk of poor health and wellbeing, such as women, individuals from lower socio-economic backgrounds, and specific communities like Indigenous, culturally diverse, asylum seekers, migrants, and the homeless. Moreover, it focuses on critical life stages where health and wellbeing can be adversely affected, such as children, new parents, and older adults.

Research within this theme spans from fundamental medical science in laboratories, exploring molecular, cellular, and biological mechanisms, to community-based translational research. At the basic medical science level, it delves into understanding how the human body responds to disease and environmental changes. At the clinical and community level, it develops and assesses the impacts of innovative medical treatments, services, and initiatives on disease prevention and management, aiming to reduce the cost and impact of illnesses.

Western Sydney University demonstrates excellence in health and wellbeing research through interdisciplinary leadership, employing creative methodologies and solutions co-developed with communities and consumers of our health and wellbeing research. Our expertise spans areas traditionally not within health, such as the arts, communication, history, urban planning, design, and digital innovations. Example research projects encompass:

- Using biomarkers to identify individuals most/least likely to respond to lifestyle behaviour interventions.
- Employing sports, music therapy, and community-based peer support to enhance healthy lifestyle behaviours and wellbeing.
- Developing technologies to reduce healthcare inequities by ensuring impartiality in data and device usage.
- Creating and evaluating programs that promote wellbeing, physical activity, and healthy food consumption.

Researchers within our theme stay responsive to priorities across Western Sydney by collaboratively working with community, government, and industry partners, identifying needs and assets, and employing multi and inter-sectoral approaches while leveraging existing strengths.

We prioritise integrated healthcare approaches, connecting all healthcare levels from community to tertiary care. We collaborate across diverse industry sectors, including transport, sports, agriculture, and the arts, partnering with, for example, educational organisations, churches, community groups, policy makers, and healthcare settings to deliver successful projects.

Noteworthy ongoing initiatives include the LinkLab, which fosters relationships between clinicians, industry, and researchers to identify and address clinical needs. We use inclusive community-based participatory research to co-design, develop, and implement initiatives with affected people, ensuring sustainable adoption within communities.

In 2022-2023, the Health and Wellbeing Research Theme provided seed funding for 10 projects totalling \$41,250 and another 6 projects aligned with the theme and were funded by the other themes. These projects have already shown success and serve as a basis for future development and impact. Summaries of achievements from 2022 funded projects are detailed in section Health and Wellbeing and Education and Work 2022 Funded Projects and Outcomes. Examples of projects funded in 2023, include projects such as 'The cost-effectiveness and equity implication of a nationwide supplementation of calcium and vitamin D on the burden of osteoporosis in China' and 'Exploring the use of the CaringLife app for young people transitioning from Out-of-Home care to independence' aim to address crucial issues impacting vulnerable and disadvantaged populations.

Researchers associated with the Health and Wellbeing Research Theme shared their experiences, expertise, and findings at various events held during 2022-2023. These events, like the Research Week events led by distinguished Professor David Simmons and Dr Joyce Siette (see section Research Week Events), played a pivotal role in engaging community members, external organisations, and researchers from various disciplines. Such collaborative engagements have forged new partnerships and fortified existing ones to pave the way for future impactful research.

The projects, events, and initiatives described in this report have united interdisciplinary researchers from across Western Sydney University with external industry, government, and community collaborators. This collaborative effort serves as a blueprint for effecting change beyond Western Sydney and addressing the pressing health challenges faced by our region.

RESEARCH WEEK EVENTS

2022 UNLOCKING POSSIBILITIES: GESTATIONAL DIABETES MELLITUS – COMMUNITY ENGAGEMENT EVENT

In alignment with the Health and Wellbeing Research Theme's commitment to translating evidence into policy and practice, this event played a vital role in amplifying a pivotal perspective in healthcare for women dealing with Gestational Diabetes Mellitus (GDM) – the perspective of the women themselves. Timed just ahead of the release of the findings from the Treatment of Booking Gestational Diabetes Mellitus (TOBOGM) study, led by Distinguished Professor David Simmons from Western Sydney University, this event provided a platform for the voices of those with first-hand experience. This inclusion is critical in ensuring that the study's significant findings, which will significantly influence future approaches to diagnosing and treating GDM, take into account the perspectives and acceptability from those directly affected.

The TOBOGM study aimed to investigate whether early identification and treatment of gestational diabetes mellitus before the 20th week of gestation contribute to improved maternal and infant health. Women participating in the study were randomised to receive immediate treatment, deferred treatment, or no treatment, depending on a repeat screening result at 24-28 weeks. The primary outcome assessed a composite of crucial adverse and neonatal outcomes.

The results from TOBOGM were disclosed shortly after Research Week at an international diabetes in pregnancy TOBOGM summit hosted by Western Sydney University. Effective communication of a GDM diagnosis and the provision of post-diagnostic support for women should be shaped not only by the perceptions of healthcare professionals but also guided by community members. This inclusive



Professor David Simmons and PhD student Rachel Hicks on a panel at the inaugural International Association of Diabetes and Pregnancy Study Groups (IADPSG) TOBOGM summit on the early pregnancy diagnosis of gestational diabetes in November 2022

approach, in conjunction with the TOBOGM findings, ensures that policies and practices are more likely to be accepted and adopted by women in the future.

SUCCESSSES

As a result of this Research Week event, a community advisory group was formed, comprising women who had experienced GDM. This group, inclusive of women from culturally and linguistically diverse backgrounds who attended the Research Week event, aims to guide ongoing GDM research led by Western Sydney University. Seven women from the event expressed their interest in participating in this advisory group.

The event also played a crucial role in steering the development of community-led initiatives during the inaugural 2022 International

Association of Diabetes and Pregnancy Study Groups (IADPSG) TOBOGM summit on the early pregnancy diagnosis of gestational diabetes. Notably, three out of the seven women from the Research Week event were able to attend this summit.

By ensuring the presence of women with GDM's experiences at the TOBOGM summit, the Research Week event facilitated the sharing of women's perspectives with an international audience of over 130 leaders in diabetes and pregnancy research. Rachel Hicks, a Western Sydney University PhD candidate, presented the discussions held during the research week event at the summit. Subsequently, data collected from discussions among all summit attendees have been analysed and compiled into a comprehensive report available through the IADPSG website.

The insights gained from the TOBOGM study results, combined with the perspectives of women attending the Research Week event and TOBOGM summit, alongside discussions among women, clinicians, and researchers, will play a pivotal role in influencing global changes in the criteria for diagnosing GDM. Engaging in multiple international meetings and ongoing collaboration with the community advisory group will be integral to driving this transformative process forward.

FUTURE DIRECTIONS

The findings from TOBOGM were published in the New England Journal of Medicine in 2023.

Simmons D, Immanuel J, Hague WM, Teede H, Nolan CJ, Peek MJ, Flack JR, McLean M, Wong V, Hibbert E, Kautzky-Willer A, Harreiter J, Backman H, Gianatti E, Sweeting A, Mohan V, Enticott J, Cheung NW; TOBOGM Research Group. Treatment of Gestational Diabetes Mellitus Diagnosed Early in Pregnancy. *N Engl J Med*. 2023 Jun 8;388(23):2132-2144. doi: 10.1056/NEJMoa2214956. Epub 2023 May 5. PMID: 37144983.

This publication, alongside the TOBOGM summit report and a current short paper under review, mark just the initial steps toward translating evidence into practice and policy change. There are numerous complexities to consider regarding what the results from TOBOGM imply for practice and policy modifications. A translational pathway has been delineated, leveraging the Research Week event, international summit, and ongoing international discussions as a foundation for future engagement with practitioners worldwide.

In 2024, NSW Health will host a national inter-organisational summit to review the diagnosis of GDM within Australia. This summit will gather representatives from all jurisdictions, diabetes organisations, and consumer groups, contributing to an eventual cascade of international translational activities aimed at shaping global practices.

2022 UNLOCKING POSSIBILITIES THROUGH ACADEMIC-HEALTHCARE-INDUSTRY COLLABORATION

“Collaboration is often offered as a solution to ‘wicked problems’.... However, collaborations often fail to get off the ground, or are unable to be sustained, for the simple reason that collaboration is hard to do.”²

In a world where “survival of the fittest is out [and] survival of the connected is in”, what are the attributes of an effective collaboration? Is it the same for everyone, and what are the possibilities that it can unlock?

In this Health and Wellbeing Theme Research Week event, we heard expert opinion from the worlds of academia, healthcare, and industry.

Speakers included Professor Reside Oya Demirbilek (UNSW Industrial Design), Sue Lynch (Medical Device & Human Factors Consultant), Roc Reguant Comellas (CSIRO Health & Biosecurity), Dr Paul Nicolarakis (Chief Data Officer, WentWest Western Sydney Primary Health Network), Dr Jerry Zhou and Dr Sandra Garrido (Western Sydney University).

This event was recorded as a digital resource for current and future researchers to contemplate the requirements and benefits of collaboration across the healthcare, academic, industry boundaries.

2. Butcher, J. & Gilchrist, D. (2020, October). *Collaboration for impact: lessons from the field*, Australia and New Zealand School of Government (ANZOG), <https://anzsog.edu.au/news/collaboration-for-impact-eight-lessons-from-the-field/>



Some of the presenters from the event: Tim Karl, Gerald Muench, Ceila Harris (back from left to right). Genevieve Steiner-Lim, Ann Dadich, Joyce Siette, Freya MacMillan (front left to right)

2023 THE POWER OF COMMUNITY: ENHANCING DEMENTIA RESEARCH AND CARE TOGETHER RESEARCH EVENT

As part of Western's Research Week 2023, The MARCS Institute hosted a research workshop to harness the strength of the community to better understand dementia prevention and ageing well. The workshop comprised a mix of students, researchers, industry professionals, and members of the public.

Over 60 registrants received insight into the ongoing, exciting Western research projects supporting healthy ageing, from pre-clinical

work to community outreach programs. Topics included the potential of Australian native plants as anti-inflammatory drugs, alternative therapeutics to support early intervention, working with diverse communities to understand their unique languages and cultures, and current public health campaigns supporting dementia risk reduction. In terms of dementia care, we covered how meaningful conversations and conversation techniques can play a vital role for stimulating thinking and helping cognitive performance. Music was recognised for its therapeutic benefits in aged care, and best practice

guidelines suggest integrating individual preferences into a support plan. Finally, we covered what working with culturally and linguistically diverse communities to gain insights and promote brilliant end-of-life care looks like.

Attendees' voices were also included in an interactive session to identify three key priorities of *prevention*, *cure* and *care*. Together we engaged in stimulating discussions on how we can provide support for caregivers, support diagnosis and post-diagnostic care and helping people living with dementia stay at home longer.

WESTMEAD FAMILY FUN-DAY

On 15th July 2022, this inaugural event supported by the MARCS Institute and the Health and Wellbeing theme showcased innovative research in and around Westmead to the community. The event involved collaboration between THRI, TeEACH, NICM and The MARCS Institute to run research demonstrations and lab visits with the general public. There were over 300 registrations of young families and seniors to explore our research demonstrations, kids crafts, yoga classes and music rooms, across two adventure-filled sessions.

Feedback was overwhelmingly positive: 100% of attendees reported being happy with the activities and workshops offered and 95% were satisfied with the event. Nearly 80% of attendees signed up to existing research studies and expressed their willingness to be contacted for future studies. Feedback included “It was very informative”, “I learnt about brain research and behaviour”, and “My favourite experience was the atmosphere,” highlighting the success of this type of community facing event for promoting Health and Wellbeing research led by Western.





NATIONAL INSTITUTES OF HEALTH FUNDING WORKSHOP

Many funding rounds through the American National Institute for Health (NIH) are open to international researchers undertaking Health and Wellbeing related research. Professor Jorge Serrador ran a hybrid workshop partly sponsored by the Health and Wellbeing Research Theme at WiQ on applying for NIH funding in October 2023. Professor Serrador, who has secured NIH funding previously, summarised the process of applying for NIH funding and provided tips on how to search the NIH database for potential funding opportunities and how to construct a strong case for funding support. To identify Health and Wellbeing related funding opportunities the NIH online grant database can be found here: <https://grants.nih.gov/funding/searchguide/index.html#/>

NEW SOUTH WALES CARERS EXPO

The Health and Wellbeing Research Theme sponsored an information booth at National Carers Week hosted by Carers NSW in October 2023. This event emerged as a powerful avenue for forging genuine connections with the caregiving community, with our information sessions and conversations providing valuable insights and practical strategies for caregivers. The expo became a dynamic space where researchers and caregivers found common ground, exchanged experiences, and discovered a shared commitment to improving the lives of those affected by dementia.



Health and Wellbeing Research stall at the NSW Carers Expo



ARTS AND HEALTH: CREATIVITY FOR LIFE RESEARCH GROUP

In a planning session sponsored by the Health and Wellbeing Research Theme for the Arts and Health: Creativity for Life research group held in November 2023 led by Dr Alison Short and Dr Nicole Peel, the group discussed the diverse dimensions of art and health with a focus on community impact and collaboration. The session covered the breadth of activities within arts and health, combined with the diversity of individuals involved in arts for health outcomes. Associate Professor MacMillan presented on funding opportunities aligning with Arts and Health research.

The group discussed their current projects including data collection, implementation projects and the use of arts to demonstrate research outcomes. Looking ahead the group plans to set the strong foundations for building future impactful research projects by mapping of expertise across the university before facilitating a community event in mid-2024. Overall, the session set the stage for a vibrant and interconnected exploration of arts and health, with a commitment to transformative outcomes for individuals and communities.

INSIGHT – EDUCATION AND WORK

The Education and Work Research Theme serves as a nexus for scholars, practitioners and policymakers, fostering an environment that comprehends, evaluates and innovates to support individuals and communities in realising their economic, social and cultural aspirations through education and work. It is led by Research Theme Champions Associate Professor Maria Estela Varua and Associate Professor Katrina Barker, with the overarching goal of enabling equitable access to and participation in education and work, a pursuit addressed on local, national and international fronts through an interdisciplinary research approach.



Education and work are both determinants and indicators of flourishing for individuals, families, communities and societies. The significance and power of advancing knowledge in education and work are profound and cannot be overstated. These endeavours are linked to the United Nations' 2030 Sustainable Development Goals 4 (Quality Education) and 8 (Decent Work and Economic Growth).

Despite the specific focus on education and work, the pervasive nature of these domains means that research impact resonates across a spectrum of UN Sustainable Goals, including Gender Quality, Climate Action, No Poverty, Good Health and Wellbeing, and Reduced Inequalities.

KEY AREAS

- Equity and inclusion
- Zero carbon
- Early childhood education
- Indigenous education
- Gender equity in the workplace
- STEM education
- Sustainable communities
- Effective teaching practices
- Participation and disability
- Understanding the brain and learning
- Circular economy, climate mitigation and job generation
- Disruption and the future of work
- Entrepreneurship and job creation

The Research Theme's objective is to augment both the quantity and quality of researchers' contributions by cultivating adept interdisciplinary teams that conduct impactful funded research programs in collaboration with industry and community stakeholders.

Over the past two years, the Education and Work Research Theme allocated seed funding for projects (see Appendix for full list). In 2022-2023, the Education and Work Research Theme provided seed funding for 6 projects totalling \$41,000. The diversity of funded projects underscores the breadth and impact of education- and work-related research within the community. Notably, in 2023 the Research Theme Champions introduced cross-theme seed funding, elevating the maximum available funding from \$10,000 to up to \$20,000 for projects addressing two or more research themes and their key focus areas. This initiative aimed to attract researchers from diverse disciplines and empower them to undertake ambitious, comprehensive cross-disciplinary projects. The surge in the number and quality of grant applications in 2023 attests to the success of this initiative.

Researchers have reported that immediate outcomes realised through the seed funding scheme include:

- greater collaboration across disciplines, opportunities for mentorship of academic researchers and Higher Degree Research candidates
- the submission—and in some instances, the successful acquisition—of external research funding
- the publication of peer-reviewed articles and reports, and
- the reinforcement of existing community partnerships alongside the formation of novel collaborations.

Access to seed funding supports a research trajectory that enables longer-term impacts. This report highlights the various achievements and outcomes of previous seed funding projects, providing evidence of the enduring benefits for researchers, their collaborators and, ultimately, the end-users of the research.

The Education and Work Research Theme takes pride in presenting a summary of activities and achievements spanning 2022-2023. During this period, Western Sydney University researchers have produced cross-disciplinary, collaborative and innovative research, highlighting new and sustained partnerships with industry and community. The collective impact lives on and communities in the realm of education and work are showcased in this report. For further insights, we welcome you to connect with our RTCs.



INTERNATIONAL WOMEN IN SPORT SYMPOSIUM

WINNERS:

ALYSSA LONGMUIR

ICE-HOCKEY SPORTS ANALYSIS AND DATA SCIENCE STREAMER

DR. ROHINI BALRAM

UNDERSTANDING INDO-FIJIAN WOMEN AND SPORT: REDOING GENDER IN FIJI AND IN THE DIASPORA (WSU ECR RESEARCHER)

All of photos of the dinner event are [here](#).

The International Women in Sport Symposium was held on the 17 and 18 August 2023 Western Sydney University's Parramatta City Campus. It brought together leading experts and practitioners from around the world to discuss the latest research and best practices in advancing gender equality and promoting the participation of women in sport.

The symposium was strategically scheduled to take place during the week leading up to the final match of the FIFA Women's World Cup. The symposium aimed to provide a platform for the latest research and best practices in advancing gender equality and promoting the participation of women in sport. As UN Sustainable Development Goal 5 is one of the Goals associated with the theme, we actively participated in the event and sponsored the Best Paper Award.

CAPACITY BUILDING

One aim of the Education and Work Research Theme is to improve the research capability of staff by providing supportive environments that encourage them to be more engaged in research and publish in high-quality journals. This means improving researchers' skills, as well as their access to research information and resources. It also means paying special attention to where there are skills gaps—for example, in research grant writing and networking. Grant writing mentorship of early- career and mid-career researchers was provided by the Education and Work RTCs in 2022 and 2023. An online workshop on practical networking was also held in 2022.

NETWORKING RULES – HOW TO EASILY ENGAGE WITH INDUSTRY

This December 2022 seminar was facilitated by business coach Steve Semmens, 'The Persuader'. The seminar was designed for academics who seek to improve their ability to network, connect and to engage with industry leaders and business owners. It provided participants with tips and techniques to make this important aspect of their research role effective, while also ensuring that they enjoy promoting themselves and Western.

The seminar covered:

- why researchers should network
- how to build online and offline professional profiles
- identifying where and how to meet ideal industry contacts informal and formal strategic alliances, and
- tips and techniques to network more effectively.

WESTERN SYDNEY DISABILITY RESEARCH ADVOCACY AND PRACTICE (RAP) HUB

Established by Professor Danielle Tracey in 2021 and supported by the Education and Work Research Theme, the RAP Hub aims to improve equitable quality inclusive education and community participation for and with people with disability in Western Sydney. The Hub includes a diverse mix of people with disabilities, parents/carers, industry, and university members. In 2022 and 2023, the achievements of the RAP Hub include:

WHITE PAPER

Tracey, Mills, Mogensen et al., (2023)
 "Leading Disability Research and Workforce Development: A Western Sydney Collaboration." <https://doi-org.ezproxy.uws.edu.au/10.26183/5sqk-h090>

WSU-WIDE STUDENT SURVEY

Members of the Hub conducted a Western Sydney University-wide survey of students to identify students' attitudes towards and experiences of disability and inclusion at WSU. In 2024, the Hub members will contribute to the analysis and reporting on findings to advise on recommendations for furthering inclusion within WSU.

MENTORING

Two occupational therapy second year students, under mentorship, led the creation of a report focusing on allied health workforce shortages in disability sectors.

THOUGHT LEADERSHIP EVENT

A Thought Leadership event, hosted by the Western Sydney University Library, was conducted on 31st August 2023, at 12 pm. This event, led by Hub member Dr Caroline Mills, Jeff Scobie, and Kitty Mach, centred on Workforce Issues in the Disability Sector.

If you are interested in joining the RAP Hub, please contact k.barker@westernsydney.edu.au.

EDUCATION AND WORK WHITE PAPERS

White papers provide a strategic approach to showcasing the capabilities of the high-quality research and cross-sector engagement being conducted at Western Sydney University. Across 2022 and 2023, four Education and Work white papers were produced and formally launched. They bring together interdisciplinary teams that aim to address key challenges associated with accessing education and creating new ways of work.

GENDER EQUITY IN THE WORKPLACE: INTERSECTIONAL AND GENDER & SEXUALITY DIVERSE APPROACHES 2022

Team members: Associate Professor Lucy Nicholas, Dr Shiva Chandra, Dr Benjamin Hanckel, Associate Professor Jackie Ullman, Associate Professor Tania Ferfolja

The Gender Equity in the Workplace white paper was officially launched at the 'Sexualities and Genders Research' seminar series by Western Sydney University Pro Vice-Chancellor Engagement and Advancement, Professor Alpha Possamai-Innesedy. Panelists including Nic Hennessy and Nick Christian, co-convenors of Woolworths Pride; Dr Sowbhagya Michael (intersectionality and equity in medicine and medical training), and Kimberley Ann Pangilinan (Equity and Diversity, Western) spoke to the application of the white paper's insights.

The paper details the projects undertaken by Western researchers exploring best practices for implementing equity initiatives that are truly inclusive across a range of workplaces. The white paper outlines current knowledge on the limits of existing gender equity approaches in workplace diversity and inclusion. These include a collapse of sexuality and gender issues into one another, a lack of research on non-binary people, a lack of research on trans workers, and a focus on assimilation rather than institutional change. The paper reflects a number of unique aspects of the authors' approach to gender equity research and practice:

- As well as looking at binary gender and sexuality-diverse experiences at workplaces, the research focused on transgender and gender and sexuality diverse experiences in workplaces.
- The research is practice/community-oriented and has already been applied to a range of workplaces.
- The authors took a leading-edge majority/privilege-focused approach, with an interest in those who currently set workplace cultures and have the power to change them.

FUTURE DIRECTIONS

Consultation with external partners and stakeholders has demonstrated that the research aligns with what stakeholders need and the future directions and opportunities they see for this area of research.



White Paper Launch with co-authors and presenters as well as RTC

“This white paper offers an evidence base for organizations and workplaces to make a case that intersectional approaches to gender equity, diversity, and inclusion are essential, ethical, and achievable, and provides practical recommendations for how to go about this. People may feel unequipped in discussing these topics, and workplaces tend to be particularly bamboozled by what an intersectional approach is and may look like in practice. This white paper provides the background, definitions, and language that can assist in clarifying what this all means and what an institution can do so that individuals who experience intersectional disadvantages and who may not have traditionally benefited from gender equity initiatives are included and empowered.”

ASSOCIATE
PROFESSOR
LUCY NICHOLAS



THE UNCONVENTIONAL STRENGTH TOWARDS STEM COHORT

2022

Team members: Professor Olivia Mirza, Professor Samantha Liyanapathirana, Associate Professor Anne Power, Associate Professor Maria Estela Varua, Associate Professor Fidelis Mashiri, Associate Professor Sepani Senaratne, Dr. Laura Almeida, Dr. Ali Hellany and Dr. Christophe Camille

This white paper, led by Professor Olivia Mirza with a cross-disciplinary research team, was a collaboration between the School of Engineering, Design and Built Environment, School of Business and School of Education.

Science, Technology, Engineering and Mathematics (STEM) play a critical role in Australia's ability to innovate, expand and remain a competitive force. Ensuring that the country's workforce has the relevant skills in sufficient quantities requires not merely producing sufficient graduates but also more graduates from under-utilised groups and diverse backgrounds moving through the education pipeline. Currently, children and young people are not developing the required skills to participate effectively in STEM environments. Young Indigenous and female groups, in particular, are deprived of the opportunities to build the STEM literacy needed for career progression in traditionally male-dominated fields such as engineering and construction.

This white paper outlined the challenges identified in recent literature and provided a comprehensive review of existing initiatives based on the observations of key partners, including Western Sydney University, the Australian government, research sector, industry, policymakers and communities. However, to produce graduates with the right knowledge, competencies and qualities, collaboration between communities, educational institutions, Australian workplaces and the government is essential.

With Western Sydney a high-density Indigenous area the University is well positioned to respond to these issues. By supporting equity and diversity throughout the STEM cohorts, educational institutions not only drive innovation but also establish a thriving STEM-skilled workforce that is fit for the future.

This white paper provided an overview of the strength and importance of the STEM cohort for underrepresented groups—particularly women and Indigenous people—in Australia. Despite a national framework being encouraged and progressively implemented at various levels, at Western Sydney University there is further work to be done in the short and long terms to improve the opportunities for young Indigenous women across Western Sydney region.

FUTURE DIRECTIONS

Professor Mirza is currently in discussion with Victoria University and Monash University to further this research through government funding in 2024.

“We are really thankful to have the opportunity to write this white paper about the needs to increase the unrepresentative community toward STEM education. This process had led us to form a close relationship with cross-disciplinary colleagues at the university. Researchers engaged in cross-disciplinary projects often develop strong teamwork and collaboration skills. We learn to communicate with colleagues from different backgrounds, appreciate diverse viewpoints, and work together effectively.”

PROFESSOR OLIVIA MIRZA



LEADING DISABILITY RESEARCH AND WORKFORCE DEVELOPMENT: A WESTERN SYDNEY COLLABORATION 2023

Team members: Professor Danielle Tracey, Dr Caroline Mills, Associate Professor Lise Mogensen, Associate Professor Scott Avery, Associate Professor Rosalind Bye, Harrison Cooper, Grace Fava OAM, Angela Gillespie, Christopher Hastas, Associate Professor Christine Johnston, Kitty Mach, Dr William Nketsia, Jeff Scobie, Kerry Staples, Dr George Turner, Professor Nathan Wilson

This white paper, led by Professor Danielle Tracey, was co-designed with a team embedded within the disability community including academic researchers from across schools including Education, Health Sciences, Medicine, Social Sciences and Nursing and Midwifery alongside people with lived experience of disability, family members of people with disability, and industry service providers.

People with disability typically experience significant marginalisation that contributes to disadvantage and exclusion. Many have lower levels of educational attainment and employment, while experiences of poorer health and well-being are common. Addressing these complex issues requires a comprehensive, targeted and intersectoral approach. Western Sydney University, working in partnership with key stakeholders, is well placed to address these issues.

The paper highlights key initiatives led by the research team and make 7 calls to action:

1. Build capacity and leadership in people with lived experience of disability to drive research and workforce education agendas.
2. Establish Western Sydney University as a beacon for exemplary interdisciplinary disability research impacting practice and policy in Greater Western Sydney and beyond
3. Promote and conduct impactful research leading to policy and practice translation.
4. Develop a model of interdisciplinary education for a future disability workforce informed by co-creation and research, led by Western Sydney University.
5. Encourage more researchers to adopt inclusive research approaches.
6. Encourage universities to adopt inclusive approaches to education
7. Build community and industry awareness of disability justice, and support capacity development of inclusive practices.

FUTURE DIRECTIONS

At the time of writing, one month has passed since the launch of the White Paper. With over 100 registered for the launch from across Australia and beyond, and over 1,200 views of the White Paper, this work is attracting great interest. New networking opportunities have emerged with connections with academics from other Universities, community, and government organisations.

The White Paper concludes with an invitation for organisations to partner with the team to advance this agenda. For further information contact D.Tracey@westernsydney.edu.au or caroline.mills@westernsydney.edu.au

“We are grateful to the Education and Work Research Theme for supporting the development of this White Paper. Impactful work is occurring in this space and the process of developing the White Paper strengthened cross-disciplinary relationships within Western, and relationships between the University and leaders in our community. Furthermore, we have been very encouraged by the community interest shown in this work. This is evident by the number of people that have accessed the White Paper and reached out to members of our team to partner since the recent launch”

PROFESSOR DANIELLE TRACEY



THE FUTURE OF WORK AND CHILDCARE: TOWARDS EQUITY AND JUSTICE FOR WESTERN SYDNEY COMMUNITIES.

2023

Team members: Dr Jenna Condie, Associate Professor Kate Huppatz; Dr Sheree Gregory; Sukhmani Khorana; Dr Nicole Bridges; Dr Emilee Gilbert; Donna James; Professor Amanda Third; Dr Joanne Orlando; Liz Ayres; Cris Townley; Professor Rebekah Grace; Associate Professor Christine Woodrow

This white paper advocates for more equitable models of work and childcare that prioritise gender equity, gentle parenting, community building, social support, and climate justice. The care economy in Western Sydney is under-resourced and inflexible, with current policies prioritising economic growth over family and community relationships. Women, especially those from disadvantaged or marginalised backgrounds, face greater challenges in accessing education and earning less than men.

Meaningful change is reliant on better understanding the complex interplay between workforce participation and childcare at the local level. However, there are significant deficits in the data and evidence needed for guiding good policy decisions. This data vacuum, particularly in relation to qualitative data that records the lived experiences of women, children and their families, results in a lack of awareness about what is needed to fix

our childcare systems. First Nations, migrant and refugee women and their families are concentrated in western Sydney localities, and the white paper advocates for a better understanding of the lived experiences of these women as a priority.

The paper culminated in a vision statement and a place-based research agenda designed to influence and instigate socially-just policy and practices that respond to intersecting crises. The research agenda centres on 6 proposed streams as immediate and urgent priorities: defining gendered workforce participation, understanding the childcare sector, mapping formal childcare services, generating a childcare stress metric, collecting evidence on innovative models and informal childcare supports, and co-creating equitable and just systems through design justice workshops with local people, groups, and the sector.

FUTURE DIRECTIONS

One opportunity that has emerged from this work is the pilot of mobile childcare at Western Sydney University's Liverpool campus. This project, which is led by Dr Sharlotte Tusasiirwe and Dr Jenna Condie, and supported by a number of student and staff partners, and the School of Social Sciences, is being delivered in partnership with Liverpool Neighbourhood Connections. This pilot project offers informal childcare to a disadvantaged region that needs more campus-based options for childcare and will produce an evaluation and recommendations for continuation and expansion.



RESEARCH WEEK EVENTS

Research Week is the annual showcase of research excellence, progress and impact. It is a platform for leading researchers and academics to impart knowledge on how they address complex national and international issues and identify opportunities to shape a better world.



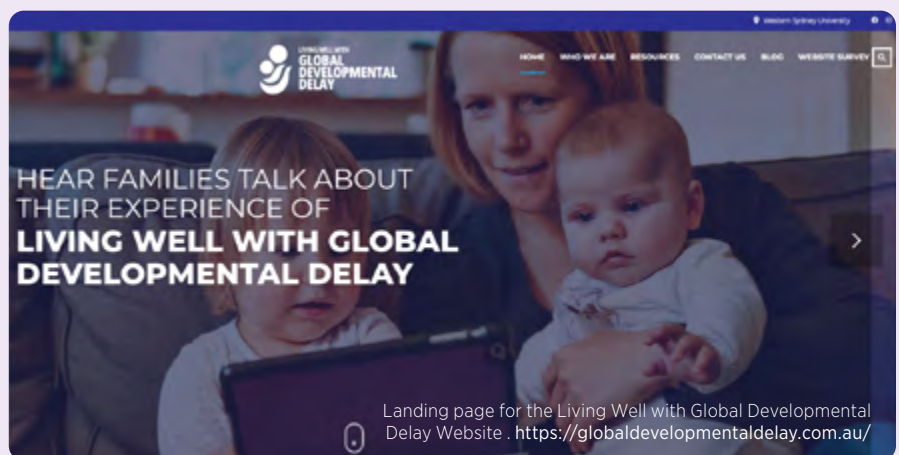
2022: TRANSFORMATION IN EDUCATION AND WORK: IMPACT AND EVOLVEMENT OF DIGITAL TECHNOLOGY

ABOUT THE EVENT

This Research Week event examined the transformation in education and work caused by digitalisation. It highlighted novel and innovative approaches to the integration of digital technologies as they have rapidly evolved and increased over recent years. A series of presentations from multidisciplinary researchers and industry representative was followed by a panel discussion, with the event providing an opportunity to share new and future uses of digitalisation in education to better prepare young people for Australia's future workplace.

OUTCOME

The event showcased the various teaching and learning initiatives and research conducted at Western. For those attending it was also an opportunity to ask questions and get feedback, discuss insights with peers, be inspired with new ideas and identify experts for collaborative research. It also highlighted the need to bring in more government and industry collaborations and partnerships.



2022: LAUNCH OF LIVING WELL WITH GLOBAL DEVELOPMENTAL DELAY WEBSITE

ABOUT THE EVENT

The RTCs for Education and Work hosted the launch of the 'Living Well with Global Developmental Delay' website in November 2022 as a signature event for Research Week. The launch was the culmination of a three-year project funded through the Department of Social Services Information, Linkages and Capacity Building program. The project team comprised Associate Professor Christine Johnston and Professor Danielle Tracey from the School of Education, Dr Tim Moore (Centre for Community Child Health, Murdoch Children's Research Institute), Kerry Dominish (CEO of EarlyEd) and John Forster (CEO of Noah's Ark) and Research officer Dr Matthew Breaden.

The project aims were to:

- develop a website offering detailed, evidence-based information reflecting literacy levels and learning needs of individuals and families living with Global Developmental Delay (GDD)

- co-design the resources with those living with GDD, with the team ably supported by a group of parents/carers who have children identified as having GDD, and
- enable an exploration of co-design principles leading to recommendations for practice.

OUTCOME

The event contributed to growing the University's reputation by attracting participants across education, healthcare, and various support services representing a mix of industry and government organisations. The launch heightened awareness and knowledge among a wider audience, empowering individuals, families, educators, and healthcare professionals to access relevant and reliable information conveniently.



2023: BALANCING WORK AND CARING RESPONSIBILITIES: SUPPORTING CARERS IN THE WORKPLACE

ABOUT THE EVENT

This Research Week event involved a panel discussion with industry and government partners to develop a deeper understanding of the complexities encountered by organisations interested in exploring innovative ways to better support carers in the workplace.

Workplaces often offer resources such as information, policies, portals, and hubs to assist parents caring for their children. However, it is crucial to recognise that working carers have distinct needs and experiences from working parents, and often do not have the same levels of support. Carers represent 11% of all Australians (ABS, 2018) and this sizable group of employee, who combine paid work with caring for someone with a disability, mental illness, drug or alcohol dependency, chronic condition, terminal illness, or someone who is frail and/or aged (see Carers Recognition Act, 2010).

Hearing from Industry about their needs helps ensure research is relevant, feasible and impactful. The event served as a catalyst for three subsequent Research Theme-supported workshops on the topic of 'Carers in the Workplace' (see Focus Area 2, above).

2023: UNCOVERING THE CARERS GAP FOR STAFF IN HIGHER EDUCATION

ABOUT THE EVENT

Caring roles are often seen as incompatible with carer progression for both academic and professional staff. Projects supported by Western Sydney University's Vice-Chancellor's Gender Equity Fund have helped to map career pressure points for staff who are parents of dependent children. There remains a need to focus on specific challenges of carers for persons with chronic illness, with disability, or who are elderly. Given the gendered division of care, addressing this carers research gap is critical for promoting gender equity, diversity and inclusion across the higher education sector. Building an evidence-base to discern carer numbers, the issue they face, and supports they need is essential to informing a clear articulation of the differences between parental and carer responsibilities, and how they can be better supported across the sector.

Led by the SAGE Parents and Carers SWAG, with collaboration with the Education and Work Research Theme, this session reviewed recent research on carer experiences in higher education and engaged the audience in establishing foundational research questions for future projects addressing the carers research gap at Western Sydney University.

HEALTH AND WELLBEING AND EDUCATION AND WORK 2022 FUNDED PROJECTS AND OUTCOMES

This section describes funded projects supported in 2022 under the Health and Wellbeing and/or Education and Work Research Themes and resulting achievements to date. A list of all funded projects from 2000-2023 is provided in the Appendix.



Left: Cherylea Browne. Right: Cherylea's laboratory on Campbelltown campus

INVESTIGATING A NOVEL, HOME-BASED TREATMENT FOR MAL DE DEBARQUEMENT SYNDROME

Team members: Dr Cherylea Browne; Dr Rocco Cavaleri; Dr Simon Summers

Theme alignment: Health and Wellbeing

Funding: \$6,800

Description: Mal de Debarquement Syndrome (MdDS) is a rare neurological condition that affects the vestibular system and currently has no cure. Symptoms of MdDS include continuous swaying, rocking, or bobbing sensations that typically arise following a motion experience such as traveling on sea. This can leave patients with a feeling of chronic "sea legs" or "sea sickness", despite being on stable ground. In addition, people living with MdDS commonly experience chronic fatigue, cognitive slowing, migraines, unsteadiness, loss of coordination, and anxiety. As the research of MdDS is still in its infancy, the underlying cause and aetiology of symptoms remain unknown, and thus treatments for this condition are often ineffective.

One treatment that has shown promise is the Vestibular Ocular Reflex (VOR) Protocol, which is a form of manual therapy capable of reducing motion perception by recalibrating a dysfunctional VOR. However, this protocol is not considered a cure, as patients still report residual symptoms following treatment.

Exploration of novel avenues to bolster the effectiveness of the VOR protocol is therefore warranted. Recently, studies have demonstrated that specific regions of the brain have altered activity among people with MdDS, i.e., the entorhinal cortex and the amygdala. These regions are involved in spatial coding and emotional/memory encoding, respectively, suggesting that dysfunction in such regions could play a role in the abnormal perception of constant motion. As such, studies point towards neuromodulation techniques as a potential means of targeting symptoms of MdDS and enhancing the effectiveness of existing treatments. Indeed, recent studies have shown that Transcranial Direct Current Stimulation (tDCS), a non-invasive form of brain stimulation, improves symptoms associated with MdDS such as depression, dizziness, and imbalance. This study combined tDCS with VOR rehabilitation in order to bring patients to a state of remission or significantly reduce symptoms more than if they were to try the treatments individually. The study also aimed to investigate the effectiveness of these treatments in a home-based setting, maximising the potential utility and uptake of the treatment protocol. After an initial delay in sourcing the equipment for this project, Cherylea and her team are now sprinting through this work, with only two more participants to go!



Gough Lui and Titus Jayarathana



Randomised data from boards being received, stored and visualised in real-time using The Things Stack, MariaDB, Grafana and Chromium mocking up a dashboard on the Raspberry Pi 400 (later ported to LattePanda Delta) as a stress test.

SMARTER –PROOF-OF-CONCEPT EDGE INTELLIGENT ARCHITECTURE FOR NEXT-GENERATION SMART EMERGENCY ROOMS

Team members: Dr Gough Lui and Titus Jayarathana (co-leads), Professor Paul Breen, Professor Gaetano Gargiulo, Professor Bahman Javadi, Associate Professor Anupama Ginige, Dr Jim Basilakis, Dr Nicholas Moore, Professor Paul Middleton, Professor Anders Aneman and Neil Anderson.

Theme Alignment: Health and wellbeing

Funding: \$7,000

Description: Emergency departments (EDs) are an essential component of Australia's health care system. In 2020–21, there were 8.8 million presentations to EDs in public hospitals—a rate of 342.5 presentations per 1,000 population for this period. The number of presentations to EDs increased 6.9% compared to 2019–20, despite ongoing restrictions to health care due to the ongoing COVID-19 pandemic. During this time, 90% of ED visits were completed within 8 hours—an increase of 1 hour since 2016–17 when 90% of visits were completed within 7 hours. Given the long waiting time at EDs, it is

essential to closely monitor patients and make sure that they receive medical attention they need in a timely manner. In this project, the team aimed to tackle the pressing problem by developing a proof-of-concept, edge-intelligent architecture including a wearable sensor to make waiting in the emergency room less life threatening. This system comprised of a FOREHEAD/Sternum Electronic Recorder (FOSTER) sensor attached to the patient's body which collects and transmits their physiological data to a nearby edge computing system for analysis and to provide real-time feedback to ED nurses and doctors.

The SmartER system is based on sensor development at The MARCS Institute for Brain, Behaviour & Development, cloud, edge, and machine learning expertise within the School of Computer, Data and Mathematical Sciences and clinical insights from our colleagues at South Western Sydney Local Health Districts emergency department. The team planned to couple FOSTER to a low-power Long Range (LoRa) radio wide-area network (WAN) which would allow physiological data from hundreds of patients to be simultaneously and

securely captured in real time with minimal cost and infrastructure requirements. An edge-processing system would “chart” patients based on their presenting physiology and input data (e.g., age, condition).

In this project the integration of FOSTER with LoRaWAN was commenced to provide connectivity to a local edge device (e.g., Raspberry Pi) which would perform data collection and analysis but was not successful within the funding and time available and so the project was suspended. However, the proven elements of this technology were critical to a Small Business Innovation Research (SBIR) grant proposed by Professor Paul Breen for suicide prevention/proof-of-life in prisons and for another SBIR grant proposed for improving livestock survival in export circumstances. Both proposed systems would utilise the LoRaWAN and edge AI architecture investigated in this project, with different sensors -millimeter-wave (mmWave) contactless vital sign sensing in the former and skin-surface temperature sensing in the latter.



Wilson Wong



Left: The single-cell RNA sequencing HIVE™ collector devices. **Right:** The base of HIVE™ collector device sealed with the membrane for further lysis, hybridization and bead recovery processing, followed by later synthesis and amplification steps to generate the sample library, for single-cell RNA sequencing.

NON-CODING RNA EXPRESSION IMPROVE PANCREATIC ISLET CELL HEALTH AND QUALITY FOR TRANSPLANTATION

Team members: Dr Wilson Wong, Dr Mugdha Joglekar, Professor Wayne Hawthorne, Dr Caroline Janitz, Professor Anand Hardikar

Theme Alignment: Health and Wellbeing

Funding: \$6,950

Description: Type 1 Diabetes (T1D) is currently managed via multiple daily insulin injections and glucose monitoring. Transplantation of human cadaver pancreatic islets is the only approved cell therapy for T1D in several countries, including in Australia. Islet cell transplantation improves well-being and health of individuals with Type 1 Diabetes, through enabling them to become insulin-free. However, islet cell transplantation relies on yielding good islet cell quality. Wilson's team previously identified key non-coding (nc)RNAs that are positively associated with and predictive of good quality of isolated islets, even before initiating islet isolation. They also demonstrated

that ncRNA (such as *MALAT1*) was positively associated with post-isolation β -cell viability. Others verified that the levels of the ncRNA *MALAT1* are higher in viable islet cells as compared to injured/dying islet cells. Previous studies have also identified *MALAT1* is regulated by hypoxia, which is one of the major factors leading to cell death during organ harvesting and islet isolation. Wilson's research had led to his Australian Diabetes Society Lindsey Baudinet rising star award (2020) to follow up on this research to perform overexpression studies on these key ncRNAs in islets to identify mechanisms involving ncRNAs such as *MALAT1* to improve islet cell quality.

The pancreatic islets are highly heterogeneous in terms of the types and numbers of different cell types, therefore raising the question: "which cell types in islets demonstrate improved quality when they are overexpressed with ncRNA *MALAT1* under hypoxic conditions?" The current project leveraged on Wilson's existing project to gain a deeper insight into the transcriptomic changes at a single-cell resolution following ncRNA overexpression in

pancreatic islet cells. The project generated data to use in future grant applications and aimed to prevent islet cell death from hypoxia prior to islet cell transplantation. Additionally, this research provided new knowledge that will help generate good quality islets suitable for cell transplant therapy in treating Type 1 diabetes.

At present the RTP funding, along with the Australian Diabetes Society, Lindsey Baudinet and family funding support has generated data which have been presented at several conferences (Australasian Diabetes Congress, Health Beyond Research and Innovation Showcase Discovery and Translational Science Session and Western Sydney University Health and Science Research Cluster Showcase). The results generated from this project are at present being written up into a manuscript for publication.



Feng Li

MAGNETIC METALLO-SUPRAMOLECULAR CAGES: STIMULI RESPONSIVE SYSTEMS FOR GUEST RECOGNITION, SENSING AND DRUG DELIVERY

Team members: Dr Feng Li, Professor Chuan Guang Li, Associate Professor Mourad Tayebi, Professor Jack Clegg (University of Queensland), Professor Shinya Hayami (Kumamoto University), Dr Christopher Marjo (University of NSW), Joseph Tadros

Theme Alignment: Health and Wellbeing, Environment & Sustainability

Funding: \$6,920 from Environment & Sustainability

Description: Efficiently separating molecules is a big challenge in the chemical sciences, and current methods for purifying industrial chemicals use a significant amount of energy. The demand for these chemicals is expected to triple by 2050. Feng's project addresses this need by developing technologies for efficient separation, sensing, and catalysis using the molecular cages.

The aim of this project was to develop novel magnetic materials with molecular separation capabilities. These materials, like molecular cages, can selectively bind to various chemical substances. The cages can change their magnetic properties when they bind to molecules, making them useful as sensors and drug delivery systems in the pharmaceutical industry. When affixed to surfaces, like silicon, they can also be used for facilitating separations and creating real-time sensors for flow systems in industrial applications.

The project used molecular engineering principles to design magnetic capsules and cages with specific sizes and shapes. The proposed materials, which respond to stimuli, will enhance understanding of creating metallo-supramolecular capsules and cages with specific host-guest chemistry. These materials show promise for various applications in catalysis, separation, storage, energy, and nuclear uses. The project also explored the use of these materials in the

pharmaceutical industry for drug delivery systems, offering potential advantages such as high efficacy, low toxicity, and controlled release. The project focused on the use of metal-directed assembly to construct magnetic supramolecular entities with central cavities for binding specific molecules. By varying the components, the size, shape, and properties of these architectures can be tailored for specific applications. This approach has already shown success in discriminating between anions, encapsulating aromatic guests, catalysis, sequestering gases, and drug delivery.

The outcomes of the project include the submission of three ARC grants, with one already awarded (\$1,341,398), and securing \$49,000 in industry funding, along with \$24,000 from the Australian Synchrotron Beamtime. Additionally, the project resulted in the publication of 10 journal articles.



Diana Karamacoska



The biggest dementia workshop recorded to date with the Vietnamese community. 104 people came to learn about the brain and memory loss.

TESTING THE EFFECTIVENESS AND SUSTAINABILITY OF A STUDENT CO-FACILITATED DEMENTIA EDUCATION PROGRAM

Team members: Dr Diana Karamacoska, Associate Professor Genevieve Steiner, Professor Nicky Morrison, Professor Ann Dadich, Dr Joyce Siette, Associate Professor Michelle DiGiacomo, Cynthia Death, Vickie Tierney

Theme alignment: Education and Work, Health and Wellbeing

Funding: \$6,300 from Education and Work, \$6,300 from Health and Wellbeing

Description: Over 12,500 people live with dementia in South Western Sydney and by 2050, this region is expected to have the highest increase in dementia prevalence in all of NSW. Diana was previously funded through the RTP (*Building partnerships to transform South Western Sydney into a dementia-friendly region*) to undertake a study in which she found that dementia literacy is low within communities and planning sectors, and the current supply of home care packages in this region will not meet future demands. This combination perpetuates barriers to the wellbeing, inclusion, and help-seeking faced by people with dementia; especially for those from culturally and linguistically diverse (CALD)

backgrounds. Inaccessible and culturally inappropriate education, support services, and research continue to drive health inequities. To address this, Dr Karamacoska was awarded grants from ClubsNSW and the Maridulu Budyari Gumal Sydney Partnership for Health, Education, Research and Enterprise (SPHERE (attracting \$13k) to pilot a 2hr online dementia education program targeting 1) English, Arabic, and Vietnamese speaking communities; and 2) community planners from local and state government. Dr Karamacoska found that participants' dementia literacy improved following the program, however, additional education is required to address ingrained cultural beliefs, negative attitudes, as well as providing information on access to support services, and knowledge about dementia-friendly or enabling environments.

In the current project, Dr Karamacoska aimed to refine this dementia education program to increase its reach and impact, and enrich the pilot data to be used for grant applications. This was to be achieved by:

1. adapting content to include supplementary education targeting cultural beliefs and attitudes and accessibility of local services;
2. exploring the feasibility and sustainability of initiating University students as co-facilitators;

3. delivering the program in online and face-to-face formats; and

4. assessing the program's impact on participants' dementia literacy, cultural awareness, and graduate capital.

Health science and urban planning students were recruited through university placements and volunteering opportunities and trained to co-facilitate a dementia education program targeting CALD communities, support workers, and planners. Six bilingual educators were trained in its initial delivery and the program in the current project was translated into Cantonese, Mandarin, and Greek for delivery alongside the existing English, Arabic and Vietnamese versions. From this work, one domestic and three international conference presentations plus 2 workshops with >50 researchers were delivered, a podcast interview was developed and a journal article has been published. Additionally, Diana was invited to become vice-chair of the Partnering with Research Participants committee within the International Society to Advance Alzheimer's Research and Treatment and she secured four funding applications totalling \$504,000, including funding from the NHMRC and through SPHERE.



Amit Arora

ENABLERS AND BARRIERS TO IMPLEMENTING ORAL HEALTH PROMOTION PROGRAM IN PRESCHOOLS AND PRIMARY SCHOOLS

Team members: Dr Amit Arora, Susan Cartwright, Dr Prathyusha Sanagavarapu, Dr Rhiannon White, Dr Sowbhagya Micheal, Jinal Shashin Parmar, Dr Navira Chandio

Theme alignment: Education and Work, Health and Wellbeing

Funding: \$7000 (funded by Education and Work)

Description: Dental caries (tooth decay) is one of the most prevalent non-communicable diseases of global public health concern affecting children. Supervised toothbrushing programs are launched in many countries as an oral health promotional strategy to address the debilitating effects of tooth decay. Despite the high burden of dental caries in Australian children, dental caries are preventable. Effective preventive measures for dental caries in

children require adoption of good oral hygiene and dietary practices such as a low sugar diet, regular toothbrushing with age-appropriate fluoridated toothpaste and regular dental visits. Several oral health promotion programs have been implemented worldwide including Australia. However, our recent review noted that these are met with significant barriers in implementation and sustainability long-term. There is limited data from Australia on perceptions of preschool and primary school and teachers, children, and parents on content, implementation strategies and sustainability to embed the oral health program in pre-schools and primary schools.

Amit's project set out to answer the following research questions:

1. What are the key enablers and barriers for teachers and early childhood educators in implementing the Oral Health Program in their curriculum and pedagogical practices?
2. What are the views of parents and children on the value and content of oral health promotion programs for making this as a part of daily routine?
3. What are the key influencing factors in the engagement with oral health promotion program content, in the opinion of teachers/educators, parents and children?
4. What are the opportunities for oral health promotion in pre-school and primary school settings using a multi-disciplinary approach to reduce the burden of dental caries among children in urban and rural areas? This project was a qualitative study to identify enablers and barriers for oral health promotion program in preschools and primary schools through engaging with teachers, children, and parents.

The papers from this work provided teachers insights about their role in how they can effectively integrate oral health programs into their curriculum and pedagogical practices, and parent's understandings of better ways to engage their children on routine oral health care. New partnerships with three pre-schools in Sydney and two from rural NSW were established during this project to support ongoing research in this space.

Outputs and Outcomes from this project so far include:

- One manuscript published in Q1 journal (<https://bmcoralhealth.biomedcentral.com/articles/10.1186/s12903-022-02270-7>)
- Two manuscripts under review in Q1 and Q2 journal respectively
- One manuscript in draft stage and anticipated to be submitted to a Q1 by March 2024
- Two Master of Public Health Dissertation students completed Dissertations, including a Fulbright Scholar
- School of Health Sciences and Colgate Palmolive Partnership Grant successful – \$20k
- Planning to recruit a PhD student in 2024 to expand the scope of the project



Anthony Uhlmann

AGEING CREATIVELY: CREATIVE WRITING AS A TOOL FOR HEALTHY AGEING

Team members: Professor Anthony Uhlmann, Dr Rachel Morley, Dr Kate Fagan, Dr Melinda Jewell, Associate Professor Jed Montayre

Theme alignment: Health and Wellbeing, Urban Living Futures and Society

Funding: \$6,973 (funded by Urban Living Futures and Society)

Description: Professor Uhlmann's project builds upon an internally funded 2015-2016 pilot study that investigated three key research questions:

1. What are the best methods and practices of teaching creative writing in Aged Care facilities?
2. How can different creative writing practices enhance a subject's sense of wellbeing and belonging?
3. What are the best methods for collecting and analysing data about participants' experiences in joining creative writing groups for senior citizens?

This previous study resulted in the successful design and delivery of a pilot creative writing workshop model for use in Aged Care facilities. Through user testing, and qualitative and quantitative data collection and analysis, 'Ageing Creatively' demonstrated that the sustained use of creative writing activities in Aged Care settings can lead to improved wellbeing, self-esteem, agency, sense of capacity and purpose. It showed how the writing process can foster a sense of meaning, identity, and social inclusion for older writers.

Outcomes from the 2015-2016 study included:

- i. draft creative writing curricula purpose-designed for older writers;
- ii. publication of an anthology produced by writing group members;
- iii. a showcase performance event;
- iv. development of an early web model for dissemination of creative works; and
- v. publication of a scholarly article in the international academic journal *New Writing*.

Stage 2 of this project, which was the focus of the current project, was to mobilise the learnings and successful outcomes from our Stage 1 pilot to develop and consolidate an expanded set of new curricula (creative writing teaching and facilitation resources) that can be distributed and used in Aged Care centres at national scale. The pilot indicated that given the means and supports, some can self-manage continued facilitation of a writing group, while others require more formal (yet occasional) input from a trained facilitator. To generate a best-practice model for establishing writing groups in Aged Care residential settings that will translate at scale across diverse national locations, Anthony's team wanted to better identify and understand the

curricula and methods that are most effective in enabling an inclusive group writing practice that sustains over a lengthy time-period. This would enable us to 'hand over' agency and management for writing groups to individuals and Aged Care centres themselves, and ideally, seed the formation of many more writing groups nationally. Training resources would be available via an open-access digital platform, hosted by Western Syd Uni. The current project focused on the below additional research questions:

4. What are the best methods and practices for sustaining interest in creative writing practice among senior citizens over a lengthy time-period?
5. How can interdisciplinary insights from Education and Creative Writing be mobilised to develop strategies and resources for teaching self-facilitation to writing groups in Aged Care settings, and that can 'upskill' activities officers in Aged Care settings to assist and facilitate writing groups?
6. How can best practice models, curricula and resources for establishing self-managing writing groups in Aged Care settings be shared nationally?

Project methods included pre-intervention curriculum development and post-intervention analysis; researching, testing and developing curriculum (with input from colleagues in Aged Care and Education research); a model for inclusive public events; and a suite of published outputs. Anthony's team evaluated the success and impact of their project by collecting reflections, interviews, writing samples and attendance data from participants and Aged Care centres. As a result of this project, an ARC linkage application has been submitted in 2023 and is currently under review.



Vivienne Chuter

ENHANCING DIABETES FOOT CARE IN RURAL FIRST NATIONS COMMUNITIES

Team members: Professor Vivienne Chuter, Matthew West, Uncle Barry Smith, Miss Zainab Al-Modhefer, Professor Athula Ginige, Professor James Gerrard (University of Newcastle), Dr Sean Lanting, Dr Sean Sadler, James Charles (Griffith University), Professor Jon Golledge, Professor Rob Fitridge (University of Adelaide) Golledge, Professor Rob Fitridge

Theme Alignment: Health and Wellbeing, Environment and Sustainability

Funding: \$6,226 (from Environment and Sustainability)

Description: Foot disease affects 70 000 Australians every year resulting in 7000 amputations and more the \$5 billion in annual health care costs. Aboriginal and Torres Islander people have a five-fold increased

risk of foot disease including foot ulcer and infection, and experience rates of amputation up to 38 times higher than non-Indigenous Australians. For First Nations people, foot disease occurs at a younger age, is more severe and is more likely to result in hospitalisation and death. However, they are less likely to access foot care due to lack of engagement with Western models of health care, and lack of access to culturally-safe services. For rural and remote areas, outreach and telehealth health service provision are the mainstay of foot care delivery. Use of mobile applications (apps) to support management of chronic conditions including diabetes, to link patients with local health or telehealth services, to provide health education and for lifestyle improvements such as smoking cessation have been shown to be effective for First Nations and non-Indigenous people. However, there are currently no available apps to allow patient-driven remote monitoring for people with, or at risk of foot disease. A culturally responsive app co-designed with a First Nations rural community allowing upload of data relating to foot health, (visual records, symptom self-report, current self-care activity) has the potential to assist with timely identification/ triage of patients in urgent need of foot care, tailoring of health education, pending appointment/ service availability alerts and relevant health promotion resources. Community feedback on service access and safety, as well as health practitioner evaluation of practitioner focussed interfaces in the app will allow collection of a comprehensive suite of data to evaluate and

improve both the app and service delivery models. This app would be translatable across Communities, to non-Indigenous rural and remote populations, as well as across health professions. The specific aims of this research project were to:

1. use a co-design process with an Aboriginal rural Community (Wellington), and health practitioners working in First Nations footcare delivery to design an app to support patient-driven remote monitoring.
2. develop culturally appropriate resources for the app to support engagement of First Nations patients and health practitioners with the app.
3. implement and evaluate the app in the Wellington Community for end user perspectives (First Nations patients, key community stakeholders and healthcare practitioners). This work has led to the development of new collaborations internally with the School of Computing and IT and externally with additional Aboriginal Medical Services in rural New South Wales to further support this project, the submission of two external funding applications currently under review and a publication reviewing the literature on the use of mHealth apps to assess and manage diabetes related foot health.

SHORT SUMMARY: URBAN LIVING FUTURE AND SOCIETY ACTIVITIES IN 2023

The Research Theme Champion Urban Living Future and Society (ULFS) at Western Sydney University plays a pivotal role in steering and advancing cutting-edge research endeavours that address the multifaceted challenges and opportunities associated with urban development. This influential position involves overseeing a diverse array of research projects that explore the intersection of urban living, future technologies, and societal dynamics.

By facilitating knowledge exchange and promoting impactful research outcomes, the ULFS champions contribute to shaping urban policies, enhancing community wellbeing, and addressing the complex challenges that arise in the rapidly evolving urban landscape.

A summary of the activities that ULFS has participated throughout 2023 are summarised below:

1. Net Zero Future Generation Event

Professor Mirza organised to discuss the future generation and how net zero can contribute to our future;

2. Urban Living Futures and Society Report

In March ULFS released a comprehensive [Research Theme Report: 2020-2022](#), highlighting the research theme's accomplishments;

3. Science and Engineering Round Table "Future of Western Sydney Region"

Professor Mirza was invited to participate in an important discussion with Engineering Australia regarding the development of the Western Sydney Region which related to urban living and future technologies to promote sustainable urban development strategies. The key partners, WSP and Aurecon, were also involved in this collaborative effort;

4. International Engineering Bangladesh Chapter

Professor Mirza was an invited keynote speaker for the Bangladesh Australia Engineer Association focusing on the Gender and Diversity in engineering that fulfills the equity and inclusion;

5. JMI Policy Challenge Grant 2023

Continuing ULFS commitment to social impact, Professor Georgeou supported the submission of and application for the JMI Policy Challenge Grant 2023. This application aimed to build upon the achievements of the 2022 Short Sprint funding recipients' project: "Ageing and the transition of care for persons with disabilities and their carers from minority migrant communities in Western Sydney";

6. Sciences Meets Parliament (Canberra)

Professor Mirza participated in discussion groups with parliamentarians about university funding related to Urban Future Transformation, Gender and Diversity and promoting and retaining STEM education;

7. First RTC Zero Carbon Event

Stemming from the zero carbon series of events led by the RTP, ULFS has formed an academic group to look at possible infrastructures in Western to support work towards zero carbon;

8. Women, Peace and Security RoundTable (Sydney Policy Lab)

Professor Georgeou was involved in drafting recommendations that are outlined in the document [What do peace and security mean to diverse women in Australia? Roundtable summary and recommendations for Action](#) that was presented to representatives from DFAT, Defence, ACMC and other Government agencies involved in implementing the WPS National Action Plan on 23 May 2023;

9. Himalayan University Consortium (HUC) Steering Committee Meeting

Professor Georgeou is a member of the HUC Steering committee and discussed research partnerships and the opportunities and potential impacts of ULFS collaborations;

10. SaveBoard Site Visit

ULFS arranged a site visit to SaveBoard. The attendees include Professor Mirza, Associate Professor Perry, Professor Georgeou, Professor Pfautsch and director of Centre for Urban Transformation, Professor Morrison. The company locally manufacture high performance low carbon building materials. This is a great opportunity for Western to collaborate moving towards the carbon zero pledge;

11. INSA, Rennes, France Research Visit

Professor Mirza visited the INSA, Rennes in France to give a keynote on a zero carbon future project. INSA is interested collaborative project in building Rennes city infrastructure to fulfill the net zero pledge and UN SDGs.

12. ULFS Research Week – Local Economies and Sustainable Urban Futures

ULFS organised a Research Week event on Local Economies and Sustainable Urban Futures to showcase the latest research and collaborations in sustainable living, including community economies, circular urban economies and building with waste materials at Western Sydney University. Associate Professor Healy delivered a Provocation entitled “Local, Cooperative and Interconnected: Towards Liveable Futures,” followed by Dr. Lyne response to Stephen’s Provocation. The second part of the event was a panel presentation which included: “Theme 1: Research and Industry trends towards a circular economy in construction” presented by Associate Professor Senaratne with her industry partner Mr. Joe Karten, Head of Sustainability from Built. Theme 2: “Local economic planning in the transitioning economy of Lithgow” presented by Associate Professor Perry with Associate Professor Crabtree. Theme 3: “Developing a Circular Economy at Narara Ecovillage” presented by Professor Leonard, with Mr. Dave Burrow;

13. White Paper Launch

The White Paper entitled “The Unconventional Strength toward STEM Cohort” was launched to provide an overview of the strength and importance of the STEM Cohort for Indigenous Women in Australia. This paper fulfills the UN SDGs 4,5,8,10 and 17 by discussing breaking stereotypes in the STEM workforce, increased female representation in STEM fields helps provide diverse perspectives, leading to more innovative solutions and improved problem-solving and advocacy and support by providing mentorship, networking opportunities, and resources to help them succeed;

14. Sustainability Research Round Table

Professor Mirza and Associate Professor MacMillan participated in this roundtable set up by the Nepean Blue Mountains Local Health District (NBMLHD) Climate Resilient Healthcare Working Group (CRHWG). The aim of the roundtable was to develop opportunities for research and collaboration between health staff and universities, outside of the normal clinical research space e.g. with experts in built design, planning, policy, waste management, climate and resilience etc.

15. World Engineering Conventions

Professor Mirza was invited as a plenary speaker on “Women Can do it” to increase and promote women in engineering, aligning with the Equity and Inclusion priority area of the RTP;

16. South East Asia Universities Visits

Professor Mirza was invited by the University Tenaga Malaysia (UNITEN), Kuala Lumpur Malaysia and the National University Singapore (NUS) as a guest speaker to present a forum related to the gender and equality gap in terms of strategising STEM Education for Inclusive Community Development, aligning with the Equity and Inclusion RTP priority area;

17. Women in Engineering Summit

Professor Mirza was invited to be the panel at Women in Engineering Summit 2023, where she addressed the skill shortage within this industry in terms of hiring and retaining successful engineers, aligning with the Equity and Inclusion priority area of the RTP;

18. Pakistan Australia Engineering Society

Professor Mirza was invited to meet with the Pakistan Acting High Commissioner Ayesha Saeed on how to increase the number of Women in Engineering careers and how to help the women of Pakistan to be in STEM Education.

19. Climate Smart Conference 2023

Professor Mirza was invited to be part of a panel to talk about climate change and resilient societies where she had the opportunity to meet and discuss with colleagues who are trying to fulfill the 2050 Carbon Zero pledge in Australia.

SHORT SUMMARY: ENVIRONMENT AND SUSTAINABILITY ACTIVITIES IN 2023

The Environment and Sustainability Research Theme (E&S) facilitates, guides and promotes research related to climate, agriculture, water and ecosystems as well as liveability, transitioning economies and environmental values. While we support research in all areas of the Sustainable Development Goals (SDGs), we focus on the following SDGs:



SDG 17 drives the work of our Research Theme Champions because the wicked problems that confront environment, society and economy can only be solved in partnerships – partnerships with industry, partnerships with society, and research partnerships that cross traditional disciplinary boundaries.

Our theme-specific priorities in 2023 included conservation in the Cumberland plain, an ecology hub that crosses the blue mountains, biodiversity and carbon markets, and assisting economies transitioning to a post carbon future.

In addition, we contributed to the cross-theme research areas of Zero Carbon, and Equity and Inclusion. Global warming is the greatest existential threat of our time and we encourage research that helps our society shift to a prosperous, equitable and sustainable future. For our theme, equity and inclusion implies that all people and all living things have equitable and sustainable access to our common resources, which are our lands, waters, ecosystems and atmosphere.

Some of our main activities in these areas are described below:

1. Conservation in the Cumberland Plain

Associate Professor Perry leads the “engaging with peoples and cultures” theme of the [Research Strategy to Support the Cumberland Plain Conservation Plan](#). In 2023, the main activity driven by the research theme was a highly successful Research Week event run with the [Cumberland Plain team](#) at the Hawkesbury Institute for the Environment, led by Associate Professors Paul Rymer and Uffe Nielsen. The theme for the day was “Conserving and restoring the Cumberland Plain for shared cultural, social and ecological values”. With speakers from WSU, NSW Department of Planning and Environment, National Parks and Wildlife, and the Greater Sydney Parklands, the event attracted 55 participants with half being external to the University. Future priorities were established which assists participants to apply for grant funding under the research strategy.

2. Zero carbon events

The RTCs led one of the RTC program’s “zero carbon” events, contributed to other events, and led the writing of reports such as [Our Shared Responsibility](#). The events encourage interdisciplinary groups to turn their research to saving the planet, an extremely wicked problem. Outcomes include several grant

applications that will potentially lead to funding in 2024, including an application by RTC Associate Professor Neil Perry and an interdisciplinary and cross-institutional team under the NSW Decarbonisation Hub. RTC Associate Professor Perry also contributed to the planning and writing of a proposed CRC on Net Zero Cities, which is led by Professor Greg Morrison from the Urban Transformation Research Centre, our partner in the Zero carbon events.

3. Ecology Hub

Professor Brendan Choat continued to lead the creation of the Blue Mountains Hub for Ecology and Conservation, which will bring researchers, government and industry together to create an innovative, technology-driven plot network throughout the Blue Mountains National Park for monitoring and environmental evaluation. Funding is being sought both externally and internal to the University with expected outcomes in 2024.

4. Biodiversity and carbon markets

Along with applied research on the state of biodiversity markets in NSW, research theme champions assisted the University in pricing strategies for the University’s biodiversity offset credits and participated in workshops on carbon offsets that assist the University in achieving net zero carbon.

5. Transitioning economies

Work continues at the [Maldhan Ngurr Ngurra - Lithgow Transformation Hub](#) to help the economy, society and environment of Lithgow transition to a post-carbon future. Our research theme champions and researchers contribute to a large grant centred at the Hub that builds capacity in Lithgow such as environmental monitoring. RTC Associate Professor Perry also contributes economic advice for Lithgow City Council on its Lithgow Emerging Economy Plan and advises the NSW government on transitioning economies as part of the Royalties for Rejuvenation program.

6. Equity and Inclusion

The work in Lithgow supports the cross-theme research area of Equity and Inclusion. Our aim is for a prosperous and inclusive society in a post-carbon Lithgow. We also supported and contributed to two events run in partnership with the Institute for Culture and Society (ICS). The first event was led by former RTC Professor Juan Salazar, which brought local and international indigenous leaders into dialogue around the theme of Water Justice. The second event was led by ICS researchers Associate Professor Stephen Healy and Dr Declan Kuch on Terrestrial Politics in Uncertain Times, which brought the concerns of ecology and society together and included a one-day workshop in Lithgow on future zero-carbon industries.





ALICE BARRATT: Tiny master of the big desert sky

Description: This white-backed swallow (*Cheramoeca leucosterna*) weighs only 13 g but is a true master of the sky. All day it hawks, coursing through the air in pursuit of insects in an awe-inspiring feat of aerial acrobatics. At dusk, it will disappear in an underground burrow, diving into a hole only marginally bigger than itself with impressive speed and grace.

APPENDIX

This Appendix provides a full list of all projects from 2020-2023 funded through the RTP. This includes projects supported by all four themes.

2020 FUNDED PROJECTS

Combined, projects funded in 2020 have resulted in the following achievements:

- 4 presentations delivered
- 4 journal articles published
- 11 submitted funding applications
- 2 media outputs
- 1 patent
- 12 new collaborations with external organisations
- 4 new collaborations with internal researchers
- \$823,635 of secured funding

PROJECT TITLE: Assessing student learning outcomes and educational impact through technology driven active learning
Team members: Nicole Stegemann, Dorothea Bowyer, Lisa Rohanek
Theme alignment: Education and Work
Funding: Education and Work

PROJECT TITLE: Economic Cost of Unwanted Automatic Fire Alarms on Workers
Team members: Kathy Tannous, Moin Uddin Ahmed
Theme alignment: Education and Work
Funding: Education and Work

PROJECT TITLE: Student mothers and COVID19: Sustaining gender equity and student wellbeing
Team members: Dorothea Bowyer, Anne Jamison, Chloe Taylor, Miliisa Deitz, Tinashe Dune
Theme alignment: Education and Work; Health and Well-being
Funding: Education and Work

PROJECT TITLE: Individual Differences in Children and Adolescents in Detecting Different Types of Online Deception
Team members: Jacqui Taylor-Jackson, Joanne Orlando, Alana Maurushat, Jenna Condie, Abubakar Bello
Theme alignment: Education and Work
Funding: Education and Work

PROJECT TITLE: Predicting mental status from text-based communications in the workforce
Team members: Mark Antoniou, Christa Lam-Cassetari, Weicong Li
Theme alignment: Education and Work
Funding: Education and Work

PROJECT TITLE: Women's Investment Practices in Australia (WIPA)
Team members: Sheree Gregory, Emilie Baganz
Theme alignment: Education and Work
Funding: Education and Work

PROJECT TITLE: Achieving Gender Equality in Cybersecurity Education
Team members: Jeff Foster, Jacqui Taylor-Jackson, Abubakar Bello, Jenna Condi, Tomas Trescak, Ana Hol, Alana Maurushat
Theme alignment: Education and Work
Funding: Education and Work

PROJECT TITLE: Using extended reality to enable inclusive communication for hearing impaired
Team members: Tomas Trescak, Anton Bogdanovych, John Cass, Tamara Watson
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Documenting Creative Cultural Wellbeing in Challenging Times
Team members: Karin Mackay, Jennifer MacRitchie, Kylie Budge, Sandra Garrido, Lyn Tieu, Nicole Peel, Alison Short, Neil Hall, Rachael Morley
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Mapping the care needs of nursing home residents
Team members: Karen Liu, Nikki Tulliani, Loren Pordage
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: "I see you:" Understanding and enhancing the experience of video calls in supporting social connection and communication in early childhood.
Team members: Christa Lam-Cassetari, Virginia Schmied, Paola Escudero, Nicole Traynor
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Vital Sensor for Low Cost Monitoring at Scale (FOSTER)
Team members: Paul Breen, Gaetano Gargiulo, Titus Jayarathna, Sally Longmore, Gough Lui.
Theme alignment: Health and Wellbeing
Funding: Health and wellbeing

PROJECT TITLE: Medical device for home-based anorectal biofeedback therapy
Team members: Jerry Zhou, Bahman Javadi, Vincent Ho
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: CANAL: Cannabis for Endometriosis related pelvic pain – an Australian Longitudinal study.
Team members: Mike Armour
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Sensor Enabled Smart Living & Work Spaces
Team members: Jim Basilakis, Heidi Bjerling, Bahman Javadi, Anupama Ginige
Theme alignment: Urban Living Futures and Society
Funding: Urban Living Futures and Society

PROJECT TITLE: Asian Australians' experiences of racism during the COVID19 pandemic

Team members: Alanna Kamp, Nida Denson, Kevin Dunn, Rachel Sharples, Susan Sisko; Matteo Vergani, Jessica Walton.

Theme alignment: Urban Living Futures and Society

Funding: Urban Living Futures and Society

PROJECT TITLE: Optimisation of building shapes for the breath of residents and cities

Team members: Kejun Dong, Kenny Kwok (USyd)

Theme alignment: Urban Living Futures and Society

Funding: Urban Living Futures and Society

PROJECT TITLE: Technology-based-data driven government accelerators to improve women's safety in urban areas of Sydney

Team members: Jenna Condie, Roger Dawkins, Calvin Frith, Stephanie Strilakos, Transport for NSW.

Theme alignment: Urban Living Futures and Society

Funding: Urban Living Futures and Society

PROJECT TITLE: Building multicultural communities: an intersectional study of Muslim Women footballers in Australia and New Zealand

Team members: Jorge Knijnik, Zainab Mourad, Holly Thorpe (Uni of Waikato).

Theme alignment: Urban Living Futures and Society

Funding: Urban Living Futures and Society

PROJECT TITLE: Governance models for effective multi-nodal urban economic development

Team members: Ryan Van Den Nouwelant, Nicky Morrison, Phil O'Neill.

Theme alignment: Urban Living Futures and Society

Funding: Urban Living Futures and Society

PROJECT TITLE: Car parks as innovation hubs for urban cooling

Team members: Sebastian Pfautsch, Awais, Piracha, Ryan van den Nouwelant, Nicky Morrison

Theme alignment: Urban Living Futures and Society

Funding: Urban Living Futures and Society

PROJECT TITLE: Getting out: Women's housing and homelessness pathways after prison

Team members: Gabrielle Drake, Brian Stout, Corrinne O'Sullivan, Robyn Oxley, Maggie Hall, Rimple Mehta, Robyn North, and Women's Justice Network colleagues Gloria Larman, Frans Drake and Ally Colquitt.

Theme alignment: Urban Living Futures and Society

Funding: Urban Living Futures and Society

PROJECT TITLE: Conceptualizing the Risk factors in developing Critical Infrastructure Resilience through Public Private Partnership

Team members: Robert Osei-Kyei, Vivian Tam, Fidelis Mashir

Theme alignment: Environment and Sustainability

Funding: Environment and Sustainability

PROJECT TITLE: Evaluation of a novel salt absorbent for desalination of brackish water

Team members: Mariam Darestani, Graeme Miller (QUT), David Garman, Basant Maheshwari

Theme alignment: Environment and Sustainability

Funding: Environment and Sustainability

PROJECT TITLE: Food waste to poultry feed and liquid fertilizer: A sustainable approach

Team members: Dharma Hagare, Vijay Jayasena, Zhonghua Chen

Theme alignment: Environment and Sustainability

Funding: Environment and Sustainability

PROJECT TITLE: Feasibility study on recovering Rare Earth Elements (REEs) using nano-modified beads

Team members: Mariam Darestani, David Garman, Richard Yang

Theme alignment: Environment and Sustainability

Funding: Environment and Sustainability

PROJECT TITLE: Factors and Solutions to Youth Disengagement From Conversation Initiatives in Rural PNG: A Psychological Approach

Team members: Hannah Sarvasy, Katherine Gibson, Christa Lam-Cassattari, Andrew Milne

Theme alignment: Environment and Sustainability

Funding: Environment and Sustainability

PROJECT TITLE: Building blue and green grids: improving soils through waste recycling in western sydney parkland

Team members: Jason Reynolds, Jeff Powell, Lyndall Pickering (Sydney Water)

Theme alignment: Environment and Sustainability

Funding: Environment and Sustainability

PROJECT TITLE: Treatment of sarcoptic mange infected bare-nosed wombats (*Vombatus ursinus*)

Team members: Julie Old, Hayley J Stannard

Theme alignment: Environment and Sustainability

Funding: Environment and Sustainability

PROJECT TITLE: Innovative cultivation, evaluation and enhanced health application of Chinese medicinal herbs in Australia and China

Team members: Xiaoshu Zhu, Zhonghua Chen, Yi Guo, Roger Attwater, Beijing University of Chinese Medicine team

Theme alignment: Environment and Sustainability

Funding: Environment and Sustainability

2021 FUNDED PROJECTS

Combined achievements resulting from 2021 funded projects include:

- 9 presentations delivered
- 18 journal articles published
- 11 submitted funding applications
- 1 award
- 4 media outputs
- 14 new collaborations with external organisations
- 1 new internal collaborations with researchers
- >\$807,183 in external funding secured

PROJECT TITLE: Covid-19, Adequate Internet & Schooling: Reconceptualising the Human Right to Education in the 21st Century

Team members: Azadeh Dastyari, Catherine Renshaw, Anna Cody, Tanya Notley, Jennifer Whelan

Theme alignment: Education and Work

Funding: Education and Work

PROJECT TITLE: Civic Education, Sovereignty and the Unravelling of Democracy in Myanmar

Team members: Catherine Renshaw, Rachel Sharples, David Tait

Theme alignment: Education and Work

Funding: Education and Work

PROJECT TITLE: Women in Academic Administrative Leadership: Constructions and Experiences of Gendered Dynamics

Team members: Emilee Gilbert, Sarah Duffy, Michelle O'Shea, Chloe Taylor

Theme alignment: Education and Work; Health and Well-being

Funding: Education and Work

PROJECT TITLE: Virtual Reality-based Sensory Rooms: Optimising design and implementation principles to enhance the community participation of people with disability

Team members: Caroline Mills, Danielle Tracey, Robert Gorkin, Ryan Kiddle, Ken Kencevski

Theme alignment: Education and Work; Health and Well-being

Funding: Education and Work

PROJECT TITLE: Cultural Immersion Program (Western CIP): A Western Sydney University Community Engaged Teaching Strategy to Enhance Students' Learning of Cultural Issues Relevant to Health Care

Team members: Olayide Ogunsiji, Tinashe Dune, Valentine Mukuria, Renu Narchal, Neil Hall, Melissa Monteiro, Kamalie Dabboussy

Theme alignment: Education and Work; Health and Well-being

Funding: Education and Work

PROJECT TITLE: Mental health in the workplace: co-designing resources to enhance leadership, emotional intelligence and the new work@home workplace

Team members: Diana Jefferies, Virginia Schmied, Evelyn Smith, Rachel Bentley, Ann Dadich, Paul Glew, Aileen Pamonag Lane

Theme alignment: Education and Work; Health and Well-being

Funding: Education and Work

PROJECT TITLE: Menstruation Matters: An online intervention to improve menstrual health literacy

Team members: Mike Armour: Kath Holmes, Donna Ciccio, Caroline Smith, Tania Ferfolja, Christina Curry, Freya Macmillan

Theme alignment: Education and Work; Health and Well-being

Funding: Education and Work

PROJECT TITLE: Development of a New 3D Printing Technology for Fabricating Micro Carbon Fibre Composites

Team members: Richard Yang, Mariam Darestani, Sarah Zhang, Baolin Wang, Khin Soe

Theme alignment: Urban Living Futures and Society; Environment and Sustainability

Funding: Urban Living Futures and Society and Environment and Sustainability

PROJECT TITLE: Improving climate change resilience of health infrastructure

Team members: Sebastian Pfautsch, Nicky Morrison, Awais Piracha, Ryan Neuwelant, Wendy Hird, Laine Simpson, Ingrid Segrovia.

Theme alignment: Urban Living Futures and Society; Environment and Sustainability

Funding: Urban Living Futures and Society and Environment and Sustainability

PROJECT TITLE: My Place: An app for young people in out-of-home-care (foster care) and their carers and case workers

Team members: Milissa Deitz, Rachel Morley, Amanda Third, Rebekah Grace.

Theme alignment: Health and Wellbeing and Urban Living Futures and Society

Funding: Health and Wellbeing and Urban Living Futures and Society

PROJECT TITLE: Certification for recycle and reuse of local waste material for stockpile

Team members: Chin Leo, Sarah Zhang, Pan Hu, Tao Zhong, Vivian Tam, Geoff McNamara.

Theme alignment: Urban Living Future and Society and Environment and Sustainability

Funding: Urban Living Future and Society and Environment and Sustainability

PROJECT TITLE: Building partnerships to transform South Western Sydney into a dementia-friendly region

Team members: Diana Karamacoska, Gen Steiner, Nicky Morrison, Ann Dadich, Cameron McAuliffe, Michelle DiGiacomo, Sandra Loyola Sandoval, Jennie Pry, Tina Britton.

Theme alignment: Health and Wellbeing and Urban Living Futures and Society

Funding: Health and Wellbeing and Urban Living Futures and Society

PROJECT TITLE: Improving prolonged procedural care: Uses of music to address quality of life (QoL) and anxiety in selected applications
Team members: Alison Short, Neil Hall, Tina Read, Caroline Smith, Angela Makris, Gregory Webb, Natasha Andreadis
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Exercise diagnosis of heart-lung function in health and disease
Team members: Simon Green, Chloe Taylor, Belinda Cochrane
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Childhood overweight/obesity prevention and management in dental setting
Team members: Amit Arora, Li Li
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Places for Belonging – An exploration of the places, practices and modalities that promote inclusive, cohesive, thriving communities
Team members: Rachael Jacobs, Sukhmani Khorana, Jane Stratton, Anna Cristina Pertierra.
Theme alignment: Urban Living Futures and Society
Funding: Urban Living Futures and Society

PROJECT TITLE: Fully sustainable 3D printed house in education
Team members: David Cole, Ali Hellany, Josh Wodak
Theme alignment: Urban Living Futures and Society
Funding: Urban Living Futures and Society

PROJECT TITLE: Towards the next generation of truly wearable biomedical monitor: Precision physiological feature extraction using Morphic Sensors
Team members: Gaetano Gargiulo, Paul Breen, Updal Gunawardana, Neil Anderson, Aiden O'Loughlin
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Tetrathiomolybdate and Curcumin Loaded Nanoparticle Delivery System as a Chelation Therapy for Triple Negative Breast Cancer
Team members: Michelle Liu, Tara Roberts, Dennis Chang
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Smart Watch Digital Health Technology for Next Generation Psychology Virtual Care
Team members: Gough Lui, Titus Jayarathna, Paul Breen, Mark Antoniou, Dervla Laughnane
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Improving the mental wellbeing of Arabic speaking refugees: a whole of community mental health promotion program
Team members: Shameran Slewa-Younan, Andre Renzaho, Russell Thomson, Isle Blignault, Gabriela Martinez
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Micronutrient levels and symptom burden of patients attending an integrative oncology service in an Australian Cancer Hospital
Team members: Suzanne Grant, Carolyn Ee, Judith Lacey, Ki Kwon, Ashanya Malalasekera, Haider Mannan
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Novel absorbent for removal of polyfluoroalkyl substances (pfas) toxins from soil and water
Team members: Mariam Darestani, Jason Reynolds, Bijan Markhali, Adam Farahani
Theme alignment: Environment and Sustainability
Funding: Environment and Sustainability

PROJECT TITLE: Designing Circular Economy (CE) Strategies for Reduction in Global Material Footprint in Western Sydney: Manufactured Products
Team members: Sasha Alexander, James Barry, Igor Silva, Alison Gill, Vivian Tam, Richard Yang, Karen Yevenes, Wayne Fallon
Theme alignment: Environment and Sustainability
Funding: Environment and Sustainability

PROJECT TITLE: Electrochemical sensors for detention of nutrients in soil
Team members: Mariam Darestani, Richard Yang, Ali Hellany, Adam Farahani
Theme alignment: Environment and Sustainability
Funding: Environment and Sustainability

2022 FUNDED PROJECTS

Combined achievements from 2022 funded grant scheme projects include:

- 5 presentations delivered
- 1 podcast created
- 1 invited role into a professional organisation committee
- 12 journal articles published (an additional 3 in progress)
- 14 submitted funding applications
- 4 patents
- 13 new collaborations with external organisations
- 3 new collaborations with internal researchers
- \$1,397,398 in external funding secured

PROJECT TITLE: Testing the effectiveness and sustainability of student co-facilitated dementia education program

Team members: Diana Karamacoska, Genevieve Steiner, Nicky Morrison, Ann Dadich, Joyce Siette, Michelle DiGiacomo, Sandra Loyola-Sandoval, Cynthia Death, Vickie Tierney

Theme alignment: Education and Work

Funding: Education and Work; Health and Well-being

PROJECT TITLE: Enables and barriers to implementing Oral Health Promotion Program in preschools and primary schools

Team members: Amit Arora, Susan Cartright, Pratyusha Sanagavarupu, Rhiannon White, Sobhagya Michael, Jinal Shashin Parmar, Navira Chandio

Theme alignment: Education and Work; Health and Well-being

Funding: Education and Work

PROJECT TITLE: Investigating a Novel, Home-Based Treatment for Mal de Debarquement Syndrome

Team members: Cherylea Browne, Rocco Cavaleri, Simon Summers

Theme alignment: Health and Wellbeing

Funding: Health and Wellbeing

PROJECT TITLE: SmartER –Proof-of-concept edge intelligent architecture for next-generation Smart Emergency Rooms

Team members: Gough Lui and Titus Jayarathana (co-leads), Paul Breen, Gaetano Gargiulo, Bahman Javadi, Anupama Ginige, Jim Basilakis, Nicholas Moore, Paul Middleton, Anders Aneman and Neil Anderson.

Theme alignment: Health and wellbeing

Funding: Health and Wellbeing

PROJECT TITLE: Non-coding RNA expression improve pancreatic islet cell health and quality for transplantation

Team members: Wilson Wong, Mugdha Joglekar, Wayne Hawthorne, Caroline Janitz, Anand Hardikar

Theme alignment: Health and Wellbeing

Funding: Health and Wellbeing

PROJECT TITLE: Magnetic Metallo-Supramolecular Cages: Stimuli Responsive Systems for Guest Recognition, Sensing and Drug Delivery

Team members: Feng Li, Chun Guang Li, Mourad Tayebi, Professor Jack Clegg (The University of Queensland), Shinya Hayami (Kumamoto University), Christopher Marjo (UNSW), Joseph Tadros

Theme alignment: Health and Wellbeing, Environment & Sustainability

Funding: Environment & Sustainability

PROJECT TITLE: Ageing Creatively: Creative Writing as a Tool for Healthy Ageing

Team members: Anthony Uhlmann, Rachel Morley, Kate Fagan, Melinda Jewell, Jed Montayre

Theme alignment: Health and Wellbeing, Urban Living Futures and Society

Funding: Urban Living Futures and Society

PROJECT TITLE: Enhancing diabetes foot care in rural First Nations Communities

Team members: Vivienne Chuter, Matthew West, Uncle Barry Smith, Zainab Al-Modhefer, Athula Ginige, James Gerrard, Sean Lanting, Sean Sadler, James Charles, Jon Golledge, Professor, Rob Fitridge

Theme alignment: Health and Wellbeing, Environment and Sustainability

Funding: Environment and Sustainability

PROJECT TITLE: Utilising the Naturally Grown Aquatic Weeds to Produce valuable By-Products – an opportunity to demonstrate the application of Circular-Economy principles for managing urban waterways

Team members: Dharma Hagare, John Zhu, Michelle Mak, Swaminathan Palanisami

Theme alignment: Environment and Sustainability

Funding: Environment and Sustainability Short Sprint Funding

PROJECT TITLE: Evaluation framework for social and ecological impact of environmental documentaries

Team members: Juan Salazar, Mitzi Goldman; Lucy Corrigan; Malini Sur; Ien Ang

Theme alignment: Environment and Sustainability

Funding: Environment and Sustainability Short Sprint Funding

PROJECT TITLE: Ageing and the transition of care for persons with disabilities and their carers from minority migrant communities in Western Sydney

Team members: Daniel Doh, Karen Soldatic, Nichole Georgeou, Lise Mogensen, Rohini Balram

Theme alignment: Urban Living Futures and Society

Funding: Urban Living Futures and Society

PROJECT TITLE: Experimental study on the swelling characteristics and stabilisation of Bringelly shale
Team members: Pan Hu, Chin Leo, Samantha Liyanapathirana; Qinghua Zeng; Jeff Hsi, Idy Li
Theme alignment: Urban Living Futures and Society
Funding: Urban Living Futures and Society

2023 FUNDED PROJECTS:

Combined achievements from 2023 funded projects include:

- 2 published journal articles (1 additional in preparation)
- 2 external funding applications submitted
- 1 book
- 9 new collaborations with external organisations
- 2 new collaborations with internal researchers
- 2 Honours student thesis projects successfully completed

PROJECT TITLE: Transition to Post Schooling for Autistic Young People
Team members: Caroline Mills, Danielle Tracey, Alex Varley
Theme alignment: Education and Work
Funding: Education and Work

PROJECT TITLE: Football for good: evaluation of the 'Festival 23', before, during and after the FIFA Women's World Cup Australia/New Zealand 2023
Team members: Jorge Knijnik, Lynn Kemp, Jennifer Cheng, Sally Nathan, Anne Bunde-Birouste
Theme alignment: Environment and Sustainability
Funding: Environment and Sustainability

PROJECT TITLE: The cost-effectiveness and equity implication of a nationwide supplementation of calcium and vitamin D on the burden of osteoporosis in China
Team members: Lei Si, David Lim, Mingsheng Chen, Fan Yang, Yawen Jiang, Lizheng Xu, Guoliang Zhou
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: The development of Child and Adolescent Centred Nutrition Indicators (CAN-I)
Team members: Catharine Fleming, Amanda Third, Stephanie Hannan, Deepika Sharma, Kathryn Backholer.
Theme alignment: Health and Wellbeing
Funding: Health and Wellbeing

PROJECT TITLE: Exploring families' perceptions of the physical and psychosocial impacts of vigorous physical activity and muscle-strengthening activity
Team members: Justin Guagliano, Emma George, Aymen El Masri, Lei Si, Erin Mackenzie, Keehan Diamond, Botille Vette-Welsh, Kenneth Tuala.
Theme alignment: Education and Work, Health and Wellbeing, Urban Living Futures and Society
Funding: Education and Work, Health and Wellbeing and Urban Living Futures and Society

PROJECT TITLE: Solar reflective coating for MSFRC railway sleepers - A sustainable approach
Team members: Olivia Mirza, Laura Melo c e de Almeida, Christophe Camille, Md Abdul Alim.
Theme alignment: Environment and sustainability, Urban Living Futures and Society
Funding: Environment and sustainability, Urban Living Futures and Society

PROJECT TITLE: Encouraging Optimal Occupant Behaviours Through a Real-Time Measuring and Messaging System
Team members: Laura Melo c e de Almeida, Keivan Bamdad, Matt Stevens.
Theme alignment: Environment and Sustainability
Funding: Environment and Sustainability

PROJECT TITLE: Exploring the use of the CaringLife app for young people transitioning from Out-of-Home care to independence
Team members: Melissa Deitz, Rachel Morley, Stacy Blythe.
Theme alignment: Health and Wellbeing and Urban Living Futures and Society
Funding: Health and Wellbeing and Urban Living Futures and Society

PROJECT TITLE: Mechanisms of social isolation among complex, at-risk populations
Team members: Kate McBride, Elizabeth Conroy, Gabrielle Drake, Benedict Osei Asibey, Emily Deans
Theme alignment: Health and Wellbeing, Urban Living Futures and Society
Funding: Health and Wellbeing, Urban Living Futures and Society

PROJECT TITLE: Co-designing a Tai Chi-based stress reduction program for students in higher education settings: A mixed method study
Team members: Emily Yang, Carolyn Ee, Erin Mackenzie, Janet Conti, Md. Nazmul Huda, Marcus Henning, Albert Yeung, Byeongsang Oh, Juanita Ruiz, Peijun Zhang, Uddin Ahmed.
Theme alignment: Education and Work, Health and Wellbeing
Funding: Education and Work

PROJECT TITLE: Re-imagining dementia prevention: Using arts-based public health initiatives to facilitate change

Team members: Joyce, Siette, Michelle Cantanzaro, Diana Karamacoska, Sukhmani Khorana, Rachel Jacobs, Yan Zhang, Sandra Loyola-Sandoval, Vickie Tierney

Theme alignment: Health and Wellbeing, Urban Living Futures, Environment and Sustainability, Education and Work

Funding: Health and Wellbeing, Urban Living Futures and Education and Work

PROJECT TITLE: Efficacy of community-based food hubs on food security, lifestyle behaviours and health

Team members: Freya Macmillan, Jayne Travers-Drapes, Anton van den Berg, Karen Wardle, Linda Stanbury, Katherine Kent, Catharine Fleming, Lei Sei, Kate McBride, Nicky Morrison, David Simmons, Jason Wu, Kathy Trieu

Theme alignment: Health and Wellbeing, Urban Living Futures and Society, Environment and Sustainability, Education and Work

Funding: Urban Living Futures and Society, Environment and Sustainability, Education and Work

2021-2023 HANDS-ON RESEARCH GRANT PROJECTS

The following Early Career Researchers have received a Hands-on Research Grant:

YEAR	NAME	AFFILIATION	PROJECT TITLE
2021	Dr Allison Fuller	School of Humanities and Communication Arts	Investigating online telehealth music therapy delivery by local Registered Music Therapists
2021	Associate Professor Jed Montayre	School of Nursing and Midwifery	What does an age-friendly community look like?
2022	Jincy Immanuel	School of Medicine	Complications of diabetes in pregnancy
2022	Maddie Radnan	The MARCS Institute	Integrating technology in autobiographical memory research
2022	Alicia Haines	School of Science	Evaluation of portable fluorescent devices for latent DNA detection on crime scene exhibits
2023	Antonia Goetz	The MARCS Institute	Investigating cognitive load in the brain: a functional near-infrared spectroscopy approach
2023	Rossana Rosa Porto	School of Medicine	Advancing body temperature recording in mice to improve scientific validity and animal welfare of pre-clinical research into brain disorders at Western



FAIZEL BANDI: Influence: IT, education, urban careers

Description: This image illustrates the student's choices and lives of choosing information technology as a career. Many students realised that most of the IT jobs are located in the city area and they have to leave their homes. The research theme of education's influence on student career choice and the geography of IT jobs.

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