



ITTC in Optimal Ageing **RESEARCH SHOWCASE**

27 October 2026
Monash College

optimalageingcentre.com.au



Event details

- Tuesday 27 October 2026
- Monash College, Room 803, 750 Collins Street, Melbourne
- 9:30 am - 4:30 pm
- No cost for attendance
- Register [here](#). Registration closes 22 October 2026, 5 pm

Program overview

With an overarching theme of supporting older adults, the inaugural Industrial Transformation Training Centre (ITTC) in Optimal Ageing Research Showcase brings together researchers and industry stakeholders to share current research and industry perspectives on cognitive health, digital health interventions, and advances in human-robot interaction.

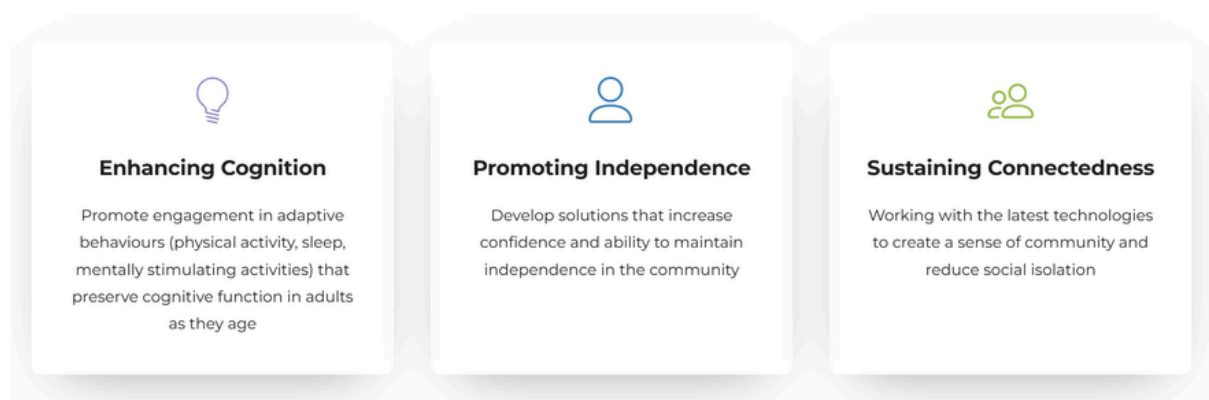
The program includes:

- A fireside chat with Alan Finkel
- Chief Investigator insights with Rosin McNaney
- Postdoctoral Researcher highlight presentations
- Poster Spotlight presentations from ITTC in Optimal Ageing PhD students followed by a poster session
- A dynamic, interactive debate led by our industry partners and senior academics on the realities of cross-sector collaboration
- Opportunities to network with researchers, industry representatives, and community stakeholders

About the ITTC in Optimal Ageing

The ARC Training Centre for Optimal Ageing aims to address issues identified by older adults as essential for quality of life. With our industry partners, we aim to train the next generation of researchers to understand, detect and improve psychosocial factors that support mental activity, physical health and social connectedness, and embrace advances in artificial intelligence, digital enriched environments and adaptive workplaces to deliver effective digital solutions.

Our projects span three core research themes:



By developing new capacity and capability to drive the digital transformation of industries supporting our ageing population, our Centre seeks to deliver economic and social benefits that enable Australians to live enriched, healthy and independent lives as they age.

Our partners

We're proud to collaborate with leading industry and academic research partners



Program

9:30 – 9:40 AM

Welcome and opening

Yen Ying Lim, Centre Director

9:40 – 10:40 AM

PhD Student Poster Spotlight Presentations

Rachel Sinanan From digital skills to capability: A biopsychosocial–digital framework of digital health literacy in adults aged 45+ years

Shelci Martin Understanding the barriers, facilitators, and functional needs associated with digital health tool use in adults aged 45+ years with Schizophrenia: Mental health professionals' perspectives

Irushi Ediriweera Digital support to enhance the wellbeing of ageing mental health peer workers: Preliminary findings from a needs assessment

Anna Sochiera Adapting CBT-I for people with MCI and their care partners

Shloka Dhareshwar Who spoke when? Evaluating automated speaker diarisation in telehealth cognitive assessments

Stephanie Simangunsong Beyond task completion: Towards socially aware robot behaviour

Ziyi Mak Co-design of a dementia risk factor management program for older adults with mild cognitive impairment: BetterBrains-Next

Joshua Ee Combining consumer wearable data and sleep diaries in personalised health coaching

Jayathma Chathurangani Software based assistive technology for people with intellectual disability

Saleh Masum Agentic software engineering for the development of eHealth systems

Basil George Digital literacy interventions for health workforces aged 45 years and older: A scoping review of direct and adjacent evidence

Beliz Yegencik Addressing loneliness in home care: A systematic review of interventions

Deepangika Pillai Expressive motion generation strategies for long-term robot use in elderly care

10:40 – 11:00 AM

Morning tea

11:00 – 12:00 PM

Fireside chat with Dr Alan Finkel AC

12:00 – 1:10 PM

Lunch and Poster Session

Program

1:10 – 1:30 PM

Postdoctoral Highlight Changes in cognition and dementia risk in the BetterBrains Trial to prevent cognitive decline
Emily Rosenich, Turner Institute for Brain and Mental Health, School of Psychological Sciences, Monash University

1:30 – 1:50 PM

Postdoctoral Highlight Adherence to an online dementia risk factor management program (BetterBrains) to prevent cognitive decline
Catherine Robb, Turner Institute for Brain and Mental Health, School of Psychological Sciences, Monash University

1:50 – 2:10 PM

Postdoctoral Highlight From understanding users to adapting AI responses: Predict, interact, measure, and control
Lirui Guo, Department of Electrical and Computer Systems Engineering, Faculty of Engineering, Monash University

2:10 – 2:40 PM

Chief Investigator Presentation Challenges and Opportunities for AI in Aged Care
Roisin McNaney, School of Computing and Information Systems, The University of Melbourne

2:40 – 3:10 PM

Afternoon tea

3:10 – 4:15 PM

ITTC in Optimal Ageing Great Debate

Topic: Is speed to market more important than scientific rigour in industry-academic ageing research partnerships?

4:15 – 4:30 PM

Awards and Close

Abstracts and biographies

Fireside chat with Alan Finkel

Dr Alan Finkel AC is an engineer, neuroscientist, entrepreneur and philanthropist, and a former Chief Scientist of Australia (2016–2020). He holds undergraduate and doctoral degrees in engineering from Monash University and undertook postdoctoral research in neuroscience at the Australian National University. He founded Axon Instruments, an international scientific instrumentation company, in 1983 and subsequently held a range of leadership roles across science, technology and education.



Dr Finkel served as Chancellor of Monash University from 2008 to 2016 and as President of the Australian Academy of Technology and Engineering. As Chief Scientist, he led the development of major national initiatives including the National Research Infrastructure Roadmap, the National Hydrogen Strategy and the review of Australia's electricity market. He continues to contribute to science, engineering, education and innovation in Australia.

Chief Investigator Presentation

Roisin McNaney Challenges and Opportunities for AI in Aged Care

About Roisin Associate Professor Roisin McNaney is a cross-disciplinary digital health researcher at the University of Melbourne, specialising in human-computer interaction, mental health, and inclusive design. Working at the intersection of healthcare and computing science, her research explores how emerging technologies can support complex health and care needs, including Parkinson's disease, youth mental health, and eating disorders.

Roisin has expertise in co-design methodologies and responsible innovation, ensuring diverse communities are actively engaged in the technology development process. She also directs the CSIRO Next Generation Graduates program in AI in Mental Health, driving national-scale digital innovations.



Postdoctoral Highlight Presentations

Emily Rosenich Changes in cognition and dementia risk in the BetterBrains Trial to prevent cognitive decline

Background: Multidomain lifestyle intervention trials show that targeting multiple modifiable dementia risk factors (MDRFs) can prevent cognitive decline. However, sustained engagement in interventions remains challenging. Person-centred approaches tailored to individuals' risk profiles and preferences may improve adherence to, and the effectiveness of, interventions. BetterBrains was an online, multi-domain, person-centred MDRF management program designed to address this challenge by providing personalized, telehealth-based coaching targeting each participant's MDRFs. This study aimed to characterise 24-month changes in cognition and dementia risk following BetterBrains participation.

Methods: 1053 participants were randomised and 1037 were included in the primary outcome analysis (mean age = 59.7 (+/-6.8) years, 82.4% women). Intervention participants (N=517) received telehealth-based person-centered goal setting, motivational interviewing, and follow-up support for MDRF management over 12-months. Cognition was measured at baseline and 24-months using a composite score comprising the (a) Cogstate Detection, (b) Cogstate One Card Learning, (c) Cogstate One Back, and (d) Cognitive Function Instrument. The Cardiovascular Risk Factors, Aging and Dementia (CAIDE) risk score assessed dementia risk at baseline and 24-months.

Results: The intervention group showed greater annual improvement on the cognitive composite score compared to the control group (between-group difference (control versus intervention) -0.050 SD per year, 95% CI -0.080 to -0.019; p=0.002). Dementia risk measured using the CAIDE risk score decreased over time, but the rate of change did not differ significantly between groups.

Conclusion: A digitally-delivered, person-centred, MDRF management program was effective in preserving cognitive health in middle age, with implications for scalable and individualised dementia prevention models.

About Emily Dr Emily Rosenich is a Research Fellow in the ARC Industrial Transformation Training Centre for Optimal Ageing at the Turner Institute for Brain and Mental Health, School of Psychological Sciences, Monash University. Emily's research investigates cardiovascular, lifestyle, and genetic contributors to cognitive decline and dementia. She has a particular research focus on the development and implementation of scalable, person-centred, lifestyle intervention programs to prevent cognitive decline in middle-aged adults at-risk of dementia. In addition to her scientific work, Emily is a passionate and award-winning science communicator and advocate for women in science, having received prior recognition for excellence in community outreach and engagement.



Abstracts and biographies

Catherine Robb Adherence to an online dementia risk factor management program (BetterBrains) to prevent cognitive decline



Background: Clinical trials of multidomain lifestyle interventions for dementia prevention are often characterised by suboptimal adherence, limiting the interpretability of their findings. In BetterBrains, intention-to-treat estimates of cognitive benefit were attenuated relative to per-protocol estimates, raising the possibility of dilution by incomplete engagement or a healthy-adherer effect. This study examined patterns and determinants of adherence and associated change in targeted risk factors.

Methods: A total of 1,037 Australians aged 40–70 years (mean 60.2 [SD 6.8]; 83% women) with a family history of dementia were enrolled into BetterBrains. Among 517 intervention-arm participants, adherence was defined by attendance at ≥ 6 telehealth coaching sessions and by latent class analysis (LCA) of coaching session attendance, goals set, and proportion achieved. Regression models examined baseline predictors of adherence and compared the Lifestyle for Brain Health (LIBRA) index trajectories across adherence groups and the control arm.

Results: Participants attended a mean 7.1 coaching sessions; 85% attended ≥ 6 sessions. LCA identified high (47%), moderate (42%) and low (11%) adherence classes. No baseline characteristic predicted adherence. LIBRA trajectories differed by adherence class (joint $p < 0.001$) and coaching attendance ($p = 0.015$). High adherers showed greater reduction in LIBRA than control by 12 months (-0.58 , 95% CI -0.95 to -0.21) and moderate adherers by 24 months (-0.50 , -0.85 to -0.16); neither low adherers nor those attending < 6 sessions differed from control, which was unchanged.

Conclusion: Adherence was high and consistent across baseline characteristics, and adherence intensity corresponded with reduction in LIBRA, supporting the scalability of online dementia risk factor management programs.

About Catherine Dr Catherine Robb is a Postdoctoral Research Fellow in the ARC Industrial Transformation Training Centre for Optimal Ageing, within the School of Psychological Sciences at Monash University. Her research focuses on healthy ageing and dementia prevention, with particular interests in modifiable lifestyle factors, genetic susceptibility and biomarkers associated with cognitive decline and dementia. She works across longitudinal cohort studies and multidomain lifestyle intervention trials, examining both predictors of cognitive ageing and factors that influence the effectiveness and uptake of dementia prevention strategies. Her research increasingly incorporates digital approaches, including AI-supported interventions and novel markers of cognitive change.



Lirui Guo From understanding users to adapting AI responses: Predict, interact, measure, and control

As intelligent systems become more interactive, meaningful human–AI interaction depends on both sides: understanding how people engage with intelligent systems, and understanding how those systems respond and adapt in return.

This research addressed both sides of this interaction through a Predict–Interact–Measure–Control (PIMC) workflow applied across four connected studies in the shared autonomous vehicle context. The first two studies focused on the human side, examining psychological factors in predicting user acceptance and observing how people interacted with LLM-based vehicle agents in open-domain conversations. The latter two focused on the system side, investigating how LLM-generated responses could be automatically measured and whether their attributes could be adaptively controlled. Together, this work developed a human-centered framework that links understanding users with measuring and shaping intelligent system behavior.

About Lirui Lirui Guo is a Postdoctoral Research Fellow in Human–Robot Interaction at Monash University and the ARC ITTC in Optimal Ageing. He recently submitted his PhD thesis, which explored how people interact with conversational AI systems in shared autonomous vehicles, from psychological factors and open-domain interaction to automated measurement and adaptive control. His current research extends these interests into embodied human–robot interaction and human-centered technologies for optimal ageing.

Abstracts and biographies

PhD student poster spotlight presentations

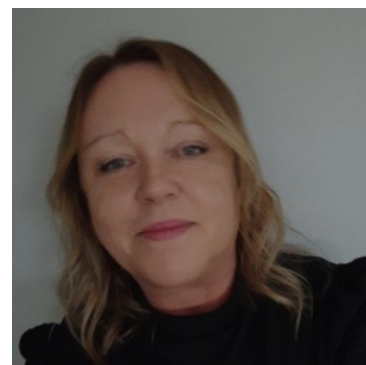
Rachel Sinanan From digital skills to capability: A biopsychosocial-digital framework of digital health literacy in adults aged 45+ years

Digital health literacy (DHL) increasingly extends beyond technical skills to include evaluating and applying health information in complex digital environments. Current interventions for adults aged 45 years and over, largely target technical confidence. This study examined whether biological (e.g., vision impairment), psychological (e.g., anxiety), social (e.g., lack of support) and digital (e.g., information searching) factors within a biopsychosocial-digital model independently predicted perceived DHL beyond demographics.

A cross-sectional embedded mixed methods design was used to survey 189 participants aged 45-93 years. Participants completed a biopsychosocial-digital model-based survey including validated measures of perceived DHL, functional limitations, digital self-efficacy, digital anxiety, critical thinking, social support and digital exposure alongside open ended questions. Hierarchical multiple regression assessed unique predictors of perceived DHL after controlling for demographics. Open ended responses were analysed using reflective thematic analysis. The biopsychosocial-digital model explained an additional 36% of variance in perceived DHL beyond demographic measures. Greater digital exposure and critical thinking were positively associated with DHL, while greater biological limitations and digital anxiety were negatively associated. Social support and self-efficacy were not unique predictors. Qualitative themes reflected biological, psychological, social and access related barriers to DHL, converging with the quantitative findings.

These findings support a multidimensional view of DHL, demonstrating that evaluative and psychological capabilities, not just technical skills, are key factors in digital health engagement. Identifying critical thinking, digital anxiety, and biological limitations as independent contributors, this study provides evidence for targeted, capability-building interventions, potentially improving digital health outcomes for adults in mid to later life.

About Rachel Rachel Sinanan is completing her PhD through Federation University Australia and the Optimal Ageing Centre, with industry partners Flourish Australia and the City of Ballarat. Following a 30-year career in industry, both nationally and internationally, Rachel transitioned into research in the ageing space, after experiencing the 'glass ceiling' of ageism herself. Returning to study, she is investigating digital health literacy and related training needs among adults aged 45 years and older, with the aim of co-developing and prototyping training solutions that support digital health inclusion and ageing well.



Shelci Martin Understanding the barriers, facilitators, and functional needs associated with digital health tool use in adults aged 45+ years with Schizophrenia: Mental health professionals' perspectives

Context: Schizophrenia is a severe and persistent mental disorder that substantially affects daily functioning, social participation, and quality of life. While treatment for schizophrenia has been proven to be effective in managing symptoms, there is limited evidence of treatment effectiveness on long-term functional outcomes, leaving many individuals with persistent psychosocial disability. These challenges are particularly pronounced among middle- and older-aged and older adults, who experience the combined effects of ageing and decades of mental illness yet remain underrepresented in schizophrenia and recovery-focused research.

Digital mental health interventions (DMHIs) offer a scalable and accessible avenue for support, but most existing tools are designed for younger users and prioritise symptom reduction over functional recovery. As a result, they rarely reflect the capabilities, priorities, or lived experiences of older adults with schizophrenia. This study seeks to explore the perceptions of mental health professionals of the functional and technology-related challenges faced by community-dwelling adults aged 45 years and over living with schizophrenia, and their insights on the perceived needs of this population

Method: This early-phase qualitative study will identify barriers, facilitators, and challenges related to functional capacity among community-dwelling adults 45 years and over with schizophrenia. Data will be collected through semi-structured interviews conducted via video-call or over the phone, incorporating questions around technology use, perceived challenges and concerns and everyday functioning. Qualitative data will be analysed using reflexive thematic analysis.

Findings from this study will be used to support a subsequent needs assessment involving adults aged 45 years and over living with schizophrenia.

About Shelci Shelci is a PhD candidate at Federation University and the Optimal Ageing Centre. Her research focuses on developing digital mental health interventions through co-development and co-design to improve functional outcomes. Her work aims to create evidence-based, user-centred digital solutions that support meaningful recovery.

Abstracts and biographies

Irushi Ediriweera Digital support to enhance the wellbeing of ageing mental health peer workers: Preliminary findings from a needs assessment

Context: Lived experience and peer work has been widely acknowledged as paramount to delivering person-centred care. Mental Health Peer Workers (MHPWs) are individuals employed in the mental health sector, who use their lived experience of navigating mental health challenges to help and support others experiencing similar issues. Many peer workers have reported to finding the role mutually beneficial, where MHPWs themselves experience a greater sense of hope and independence. However, they also experience several challenges including difficulties in supporting their personal wellbeing. Ageing adds an additional layer of complexity when supporting wellbeing. Evidence shows that middle aged and older adults are increasingly using digital technology for wellbeing support. The intersection of ageing, mental health peer work and digital technology remains largely underexplored. This study aims to explore and identify current wellbeing strategies used, barriers to engaging in wellbeing supportive behaviours and perceived needs and preferences for a digital support tool, to be co-designed at a later stage.

Methods: A survey-based needs assessment was conducted with MHPWs using a mixed methods approach. Descriptive statistics were used for quantitative analysis while content analysis was used for qualitative responses.

Results & Conclusion: Preliminary findings from n=20 respondents highlighted that engaging in hobbies was the popular wellbeing strategy, the main barrier was access and support related, and most respondents perceived a MHPW specific digital tool (mobile app) would be beneficial. The results signify a need for a digital wellbeing support tool for this population and future research should focus on identifying preferred content and features of the proposed tool.

About Irushi Irushi Ediriweera is a PhD candidate at Federation University and the ARC Optimal Ageing Centre. Her background is in Digital Health and Biomedical Engineering. Irushi's research focuses on co-developing a digital tool to support the wellbeing of mental health peer workers aged 45 years and older. The industry partners for this project are Flourish Australia and the City of Ballarat. Her research interests include lived experience-based co-design, digital tool development and supporting healthy ageing.



Anna Sochiera Adapting CBT-I for people with MCI and their care partners

Sleep disturbances are common among people living with mild cognitive impairment (MCI) and their care partners, contributing to poorer cognitive, emotional, and functional outcomes. Despite the effectiveness of behavioural sleep interventions, access remains limited and approaches are rarely tailored to dyadic care contexts. This study aimed to inform the development of a digital sleep coaching intervention by exploring lived experiences, barriers to engagement, and perspectives on digital delivery.

Methods: A qualitative co-design approach was used. Separate workshops were conducted with people living with MCI (n = 4), care partners (n = 11), and health professionals (n = 5) (total n = 20). Interactive activities explored sleep experiences, health management, and perceptions of digital interventions. Workshops were recorded, transcribed, and analysed using reflexive thematic analysis.

Results: Three key themes were identified. First, participants described significant emotional and cognitive burden within complex care contexts, with sleep disruption affecting both members of the caregiving dyad. Second, there was a strong need for personalised, context-sensitive support, with human coaching viewed as essential for building trust and adapting strategies. Third, engagement was dynamic and influenced by competing demands, cognitive capacity, and intervention fit. Digital delivery was seen as both an enabler and barrier, highlighting the need for usability and flexibility.

Conclusion: Digital sleep interventions for MCI should be person-centred, dyadic, and flexible. Combining digital platforms with human coaching and tailored support may enhance engagement and effectiveness in real-world care contexts.

About Anna Anna Sochiera, MSc Health Psychology, is a PhD researcher at Monash University's Turner Institute for Brain and Mental Health. Her research focuses on bridging the innovation-implementation gap in digital sleep health interventions for people living with mild cognitive impairment (MCI) and their care partners. Her PhD explores how evidence-based sleep interventions, including CBT-I-based approaches, can be adapted to meet the needs of people living with cognitive impairment and their care partnerships, while improving accessibility and real-world implementation. Anna's broader research interests include digital health, healthy ageing, sleep health, dementia, care partnerships, and co-design.

Abstracts and biographies

Shloka Dhareshwar Who spoke when? Evaluating automated speaker diarisation in telehealth cognitive assessments

Introduction: Changes in speech are among the earliest indicators of dementia, making them a promising non-invasive marker for cognitive decline. Neuropsychological assessments are a crucial part of dementia diagnosis and generate assessor-patient dialogue in real clinical settings. This not only supports extracting patient speech markers as early indicators of cognitive decline but also enables assessor-fidelity monitoring. Both use cases require accurate speaker diarisation, yet automated pipelines are rarely validated on long-form clinical audio; therefore, their reliability in this setting is unknown. This study evaluated the diarisation performance of the Redenlab Automatic Audio Preprocessing Pipeline (RAAPP) on telehealth-based cognitive assessment audio.

Methods: We obtained ten recordings (~5 hours) of adults aged 40+ with subjective memory concerns from the Healthy Brain Hub, a digital brain health assessment platform. Speaker turns were manually annotated to establish a baseline. RAAPP output was compared with the baseline annotations using pyannote.metrics. Diarisation quality was assessed using error-rate (ER) components, including speaker confusion, missed detection, and false alarms, as well as audio cluster purity and coverage.

Results: The mean diarisation ER was 17.6% (range, 7.7-30.9%). The largest error component was missed detection (7.3%), followed by false alarm (5.7%) and speaker confusion (4.7%). Purity was high throughout (mean 89.3%, range 84.3-95.5%). Audio coverage was low and varied based on the number of speakers in an audio file (84.5%, range 69.3-96.2%).

Conclusion: RAAPP produced clean, pure speaker clusters from telehealth-based neuropsychological assessment audio. However, improving speech detection and speaker count estimation is a priority for reliably separating assessors' and patients' speech. These results provide an initial diarisation benchmark for long-form clinical assessment audio.

About Shloka Shloka is a PhD candidate in the Dementia and Cognitive Ageing Lab at Monash University. Her research focuses on using digital markers, such as speech, to detect cognitive decline. With her industry partner, Redenlab, she is exploring speech as a cognitive biomarker, spanning hardware, preprocessing, software, and implementation. Through her research, she aims to help make early detection of cognitive decline accessible to all.



Stephanie Simangunsong Beyond task completion: Towards socially aware robot behaviour

Recent advances in robotics have expanded the capabilities of robots and the range of tasks they can perform. These advances have led to the increasing deployment of robots in shared human environments, where they are expected to complete tasks while navigating complex and dynamic surroundings. A new generation of artificial intelligence, known as Vision-Language-Action (VLA) models, allows robots to complete tasks from language commands. These models are trained from large datasets, typically obtained when no humans are in the environment. However, these models raise concerns regarding safety: how can we ensure that robots behave appropriately in human-shared environments?

This PhD aims to investigate how VLA-based robots can adapt their behaviour according to human-perceived comfort and safety. Rather than modifying the underlying model through training, which requires significant resources, the research will focus on how to surface the understanding already present in the model, and use it to guide action generation. By leveraging this knowledge, the proposed approach aims to enable robots to generate actions that account for interaction context and human-centred considerations without requiring additional robot-specific training. The research will first investigate the baseline behaviour of VLAs in human-shared environments. Using this baseline, the research will develop a framework that can guide the actions generated by VLA models to account for interaction context and human-centred considerations. The resulting framework will then be tested in a user study.

About Stephanie Stephanie Simangunsong is a first-year PhD student at Monash University, working in the area of robotics and human-robot interaction. Her research focuses on Vision-Language-Action (VLA) models and their use in human-robot interaction with a particular interest in how these models behave when operating in environments shared with humans. Her PhD investigates how the actions generated by VLA models can be guided to account for human-perceived comfort and safety. More broadly, her research is interested in enabling robots to operate appropriately in environments shared with humans, where task completion alone is not sufficient.

Abstracts and biographies

Ziyi Mak Co-design of a dementia risk factor management program for older adults with mild cognitive impairment: BetterBrains-Next

Introduction: Effective prevention strategies are urgently needed to mitigate the rising prevalence and burden of dementia. Multidomain lifestyle interventions targeting modifiable dementia risk factors have improved cognitive outcomes in cognitively healthy older adults. Yet it remains unclear whether comparable benefits extend to people with mild cognitive impairment (MCI), who report strong interest in reducing their dementia risk but face barriers to treatment access, sustained engagement and behaviour change. Practical implementation of evidence into routine care also remains limited. This study aims to co-design BetterBrains-Next, an adaptation of BetterBrains: an online, person-centred, dementia risk factor management program effective in cognitively healthy middle-aged to older adults, to suit older adults with MCI receiving in-home aged care.

Methods: Four online co-design workshops will be conducted in partnership with Aunty Grace, an Australian in-home aged care service provider. Workshops 1 and 2 (90 minutes each) will engage 10 clients with MCI and focus on adapting the BetterBrains-Next program by using participants' experiential knowledge to review and refine program content. Workshops 3 and 4 (60 minutes each) will engage 10 care managers and clinical quality staff and focus on developing implementation strategies by identifying the barriers and enablers to program delivery within Aunty Grace's model of care. Workshops will be recorded, transcribed and analysed thematically to inform the design of BetterBrains-Next.

Conclusion: By collaborating with consumers to identify their needs and preferences, this study will tailor the BetterBrains-Next intervention for older adults with MCI receiving in-home aged care services, to support program engagement and dementia risk reduction.

About Ziyi Ziyi is a PhD student at Monash University's School of Psychological Sciences and the ARC Training Centre for Optimal Ageing. Her Honours degree in Psychology shaped her interest in neuropsychology, cognitive decline and functional independence in later life. She is passionate about reshaping the meaning of growing older by making healthy ageing accessible. Ziyi's PhD project will co-design and pilot BetterBrains-Next, a personalised dementia risk factor management program for older adults with mild cognitive impairment. Partnering with in-home aged care provider Aunty Grace, her work focuses on implementing evidence-based dementia risk reduction strategies within a real-world model of aged care.



Joshua Ee Combining consumer wearable data and sleep diaries in personalised health coaching

The current state of integration of AI with personal health informatics demands a deeper level of personalisation. Clinicians and healthcare professionals experience a barrier of integrating heterogeneous sources of data to provide more personalised recommendations. Common data sources used in behavioural healthcare coaching include objective stream data and subjective patient self-reported data. Consumer wearables are a common tool to collect objective stream data and are used in a variety of scenarios such as heart rates, breathing rates, sleep metrics, and more. Self-reported sleep diary data is a common method of data collected by clinicians to evaluate a patient's perceived sleep, help identify the causes of sleep problems and guide medical treatment.

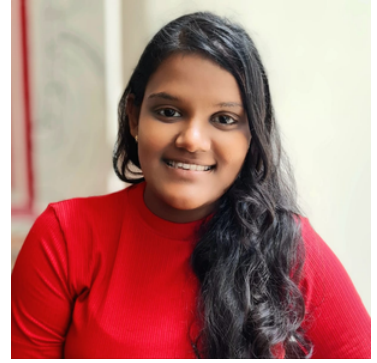
We used a research-through-design approach to develop and implement a system prototype. The developed interface integrates consumer-wearable and self-reported sleep diary data with a large language model to enable contextual conversational querying. The interface supports two forms of interaction with patient-generated health data: (1) side-by-side visualisation and interpretation of wearable and sleep-diary data, and (2) conversational querying through a chatbot to retrieve relevant information and flag potential metrics. This prototype will support more informed and personalised sleep-coaching recommendations by integrating wearable and self-reported data into clinicians' existing workflows.

About Joshua Joshua is an early career researcher looking to drive data integration and accessibility within a clinical context. With his experience in Software Engineering, he works alongside clinicians and healthcare professionals to co-design and understand the blockers of everyday processes that are hindering the ability to integrate heterogeneous sources of contextual information. By using data lakes and AI agents to engineer efficient integration pipelines, his goal is to allow healthcare providers to harness the capabilities of agentic AI to enhance their ability to provide personalised recommendations within their clinical practice.

Abstracts and biographies

Jayathma Chathurangani Software based assistive technology for people with intellectual disability

Assistive technology can support independent lifestyle for people with intellectual disability, but its value depends on fit with users' needs, abilities and context of use. Existing supports often rely on complex instructions or constant support network presence which limits the independence of the individuals with communication challenges and low literacy levels. This project takes a co-design approach, developed with experts from the industry partner - flagstaff group and informed by prior focus groups with their employees, who are the end users. Inputs from these stakeholders continue to inform development throughout its lifecycle towards an adaptive system that caters to a wide spectrum of individuals with intellectual disability. A software-based application is presented that prioritizes visual-first design and uses icon and audio-based interaction, step-by-step guidance, video guidance and supervisor configurable settings. More flexible functionalities and tracking capabilities are provided to the support network to configure the application to cater their users. This will enable task completion and timely help seeking without requiring a high level of text literacy and constant reliance on their supporters. Real world evaluation will take place in a workplace setting and will assess task completion, help seeking behaviour, usability, acceptability and autonomy. We aim to examine whether this intervention increases independent functioning while easing day-to-day demands on the surrounding support network. The project contributes to empirical evidence on literacy-inclusive, user-centred assistive technology design, with implications for workplace based digital support more broadly.



About Jayathma Jayathma Chathurangani is a PhD researcher at Monash University, working on co-designed assistive technology for people with intellectual disability. Before starting the PhD, she worked as a software engineer, holding a BSc (Hons) in Software Engineering and an MSc in Computer Science. Her research combines this background with a focus on an inclusive design, exploring how software can genuinely support independent functioning for people with intellectual disability in real-world settings such as the workplace, through a co-design approach involving individuals with intellectual disability and their support networks. Through this research, Jayathma aims to contribute empirical evidence on designing assistive technology around this distinct, specific needs of this cohort.



Saleh Masum Agentic software engineering for the development of eHealth systems

The rapid emergence of agentic AI is beginning to reshape how software systems are designed, developed, and maintained. This ongoing research explores Agentic Software Engineering (ASE) in the context of eHealth, investigating how AI coding agents can participate across the software development lifecycle, from requirements and design to implementation, testing, and evolution.

Using the development of a real-world eHealth application as a case study, the research examines both the opportunities and challenges of adopting an agent-driven development approach in a safety- and trust-sensitive domain. Particular attention is given to how human developers interact with and guide AI agents, how development activities and decisions are coordinated, and how qualities such as reliability, traceability, privacy, and trustworthiness can be maintained. We share early experiences from this ongoing work and discuss the broader implications of agentic AI for the future of software engineering and digital health.

About Saleh Saleh Masum is a PhD researcher at Monash University whose research sits at the intersection of Agentic Software Engineering and Digital Health. His work explores how software engineering is being transformed by AI agents, with a particular focus on applying agentic software engineering approaches to the design and development of eHealth applications. With years of industry experience in data-driven software systems and machine learning, Saleh is interested in bridging research and practice to build AI-enabled software that is reliable, scalable, safe and human-centred. His research reflects a strong commitment to developing intelligent software systems that are not only technically robust, but also safe, trustworthy, usable, and responsive to real-world healthcare needs.

Abstracts and biographies

Basil George Digital literacy interventions for health workforces aged 45 years and older: A scoping review of direct and adjacent evidence



The healthcare industry is shifting rapidly toward digital transformation, with clinical and patient care, and management becoming permeated with technology. Digital capability is acknowledged as a policy priority, but awareness of the practical support and sustaining of older health professionals' digital literacy is limited. This scoping review mapped direct and adjacent evidence on digital literacy interventions (Concept) for health workforces aged 45 years and older (Population) across health, aged, and community care settings (Context). Of 1,009 studies identified (2004-2025), only six met inclusion criteria following duplicate removal, title/abstract screening, and full-text review. This study used the Joanna Briggs Institute methodology and adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews reporting guidelines. Only one study specifically targeted healthcare workers, highlighting the limited workforce-specific evidence. Most interventions focused on general technology use or basic software skills rather than the broader digital competencies required in clinical practice. Co-design was largely absent, with minimal end-user involvement during early intervention development. None of the studies evaluated long-term retention of digital skills. The evidence bases specific to health workforces aged 45 years and older remains limited. Adjacent evidence suggests potentially transferable approaches to digital skills development, but differences in occupational context, technological demands, and clinical responsibilities limit direct applicability. Future research should prioritise co-designed, workforce-specific interventions developed and evaluated within health, aged care, and community care settings.

About Basil Basil P. George is a registered nurse, nurse academic, and researcher with extensive experience in intensive care, neonatal intensive care, clinical education, and higher education. He is a Lecturer in Nursing at RMIT University and a PhD researcher at Federation University. His research interests include digital health, digital literacy, ageing health workforces, workforce capability, and healthcare education. His previous research includes a quasi-experimental study examining the effectiveness of an educational intervention on first-year nursing students' knowledge and confidence in performing basic life support, published in *Contemporary Nurse*. His current doctoral research focuses on co-designing digital literacy solutions for experienced health workforces.



Beliz Yegencik Addressing loneliness in home care: A systematic review of interventions

Loneliness affects approximately 41% of home care clients in Australia, who often present with complex mental and physical health problems. The high prevalence of loneliness and comorbid health issues complicate this group's health and social needs, increasing reliance on multiple health and aged care services and limiting engagement with in-person, community-based resources. The unique characteristics and challenges faced by home care clients highlight the need for tailored strategies, yet there is limited research focused on this population. **Aims.** To identify interventions targeting loneliness or social isolation among home care clients and explore their key characteristics, reported outcomes, and feasibility to inform home care practices and support healthy ageing initiatives. **Methods.** A systematic review of peer-reviewed and grey literature was performed across five databases to capture studies published after 2015. The review protocol was registered with PROSPERO (CRD420261361208). **Results.** The search resulted in 2753 papers following the removal of 1139 duplicates, with 50 articles progressing to full-text screening. Our findings suggest that technology-enabled approaches emerged as the most common intervention type (e.g., mobile applications and artificial intelligence as social companions), followed by psychosocial programs (e.g., therapy and educational programs). **Implications.** This work contributes to the loneliness research by providing a comprehensive overview of the current interventions on loneliness and social isolation in the context of home-based aged care. Our findings seek to inform aged care organisations, practitioners, researchers and policymakers about evidence-based approaches to improving social connectedness among home care clients.

About Beliz Beliz Yegencik has a background in psychology and a strong interest in healthy ageing and loneliness research. Her academic training has provided a solid foundation in psychological theory, research methods, and the study of wellbeing across the lifespan. Throughout her research career, she has worked on diverse projects, and most recently, she was involved in clinical dementia trials, further strengthening her knowledge in the cognitive, social, and psychological aspects of ageing. She is passionate about social connectedness and mental health outcomes among older adults, with the aim of contributing to evidence-based interventions that promote well-being and improve quality of life.

Abstracts and biographies

Deepangika Pillai Expressive motion generation strategies for long-term robot use in elderly care

Socially assistive robots hold promise for aged-care settings, but their value depends on communication that is both expressive and easy to understand. When a robot waves, beckons, or gestures encouragingly, how it moves carries as much meaning as what it does — yet modifying movement to express an emotion risks obscuring the gesture's original intent or producing physically unrealisable motion.

This work presents a framework that learns to generate affectively styled variants of existing robot gestures while preserving their communicative meaning and physical feasibility. Rather than designing gestures from scratch, the system starts from a known reference gesture and learns how to perform it differently. Laban Movement Analysis descriptors — capturing qualities like suddenness, weight, and spatial directness — serve as an intermediate representation between an emotional target and the robot's joint trajectories. A bi-level optimisation searches for the movement profile that best communicates the target emotion: an inner optimiser generates physically valid trajectory variants, while an outer Cross-Entropy Method learner refines profiles using repeated assessments from a vision-language model as a scalable perceptual signal.

Evaluated across four gestures and six affective targets, the framework reliably produces feasible, gesture-preserving motion and measurable perceptual shifts toward intended emotions. Critically, profiles learned for a specific gesture outperform generic emotion-to-movement mappings applied across gestures — suggesting that how an affect is best expressed depends on what is being expressed. Fear, for example, proved consistently responsive across gestures, while happiness hit a ceiling because the reference gestures were already perceived as happy before any modification.

About Deepangika Deepangika Pillai is a PhD candidate at Monash University researching expressive motion generation for socially assistive robots in aged care, in collaboration with Andromeda Robotics. Her work explores how humanoid robots can generate communicative gestures that are understandable, engaging, contextually appropriate, and personalised to individual users. She holds an MSc in Robotics with Distinction from Heriot-Watt University. Her research interests span human-robot interaction, affective robotics, and adaptive robot behaviour. Her previous work involved developing a NAO humanoid robot for rehabilitation, using human pose estimation to provide adaptive exercises and personalised feedback.



Yuqing Xiao A multilingual, large language model-assisted medication self-management app for CALD older adults (Poster)

Polypharmacy is the norm in later life, and the older populations of migration-destination countries are increasingly culturally and linguistically diverse (CALD). Two barriers compound here: limited English proficiency, which drives medication error, and the low digital ability of the oldest age groups. Most medication apps assume a younger, digitally confident, English-speaking user; design-process evidence for CALD older adults is almost absent. Multimodal large language models (LLMs) enable in-language, photo- and voice-based support, but the nearest comparable system is English-only.

To develop a requirements-driven, multilingual, LLM-assisted medication self-management app for CALD older adults, and to evaluate it with them iteratively. This study used a 3-phase sequential explanatory mixed methods co-design in Australia. A total of 105 community-dwelling older adults and 41 health providers completed the survey. Participants used Chinese, English, or Hindi, and the median age group was 70–74 years; 78/105 (74.3%) were CALD background. Phase 1 identified 32 requirements. Interviews elaborated these findings in 7 themes. CALD older adults face challenges that go beyond language alone, but language, and the way it is presented, is the key that opens the door to culturally appropriate support. LLM-supported multilingual and multimodal features enabled workshop participants to complete medication management tasks independently and to judge the app acceptable; beyond that threshold, acceptance rested on social standing, control over disclosure, and family involvement rather than on features. Providers should establish language coverage before recommending a digital medication aid; designers should treat multilingual support as an elicitation-stage requirement.

About Yuqing Computer-science doctoral researcher (Monash University) in human-centric software engineering for digital health, specialising in requirements engineering and the design and evaluation of digital-health software for older adults, with a focus on equity for users in poorer health, with lower technology proficiency, and from culturally and linguistically diverse (CALD) backgrounds. The research combines evidence from multi-stakeholder user studies with practical tools and frameworks that help practitioners understand, model and carry senior end users' requirements through iterative development demonstrated through the real-world co-design of a medication-management app with older adults. Brings sustained experience in engaging multidisciplinary stakeholders, from senior end users to clinical and industry domain experts, and in convening cross-national research collaborations.



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