Research being undertaken by Deakin's ARC Research Hub for Digital Enhanced Living

Professor Kon Mouzakis

Hub Director

Co-Director, Applied Artificial Intelligence Institute (A^2I^2)

4th September 2020

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Overview

- ARC funding awarded in 2017
- Commenced operations in 2018 at Deakin University
- Hub officially launched by 2 Federal Ministers in August 2019
- 1st Digital Enhanced Living Symposium held in December 2019
- Governed by an externally chaired Hub Advisory Board

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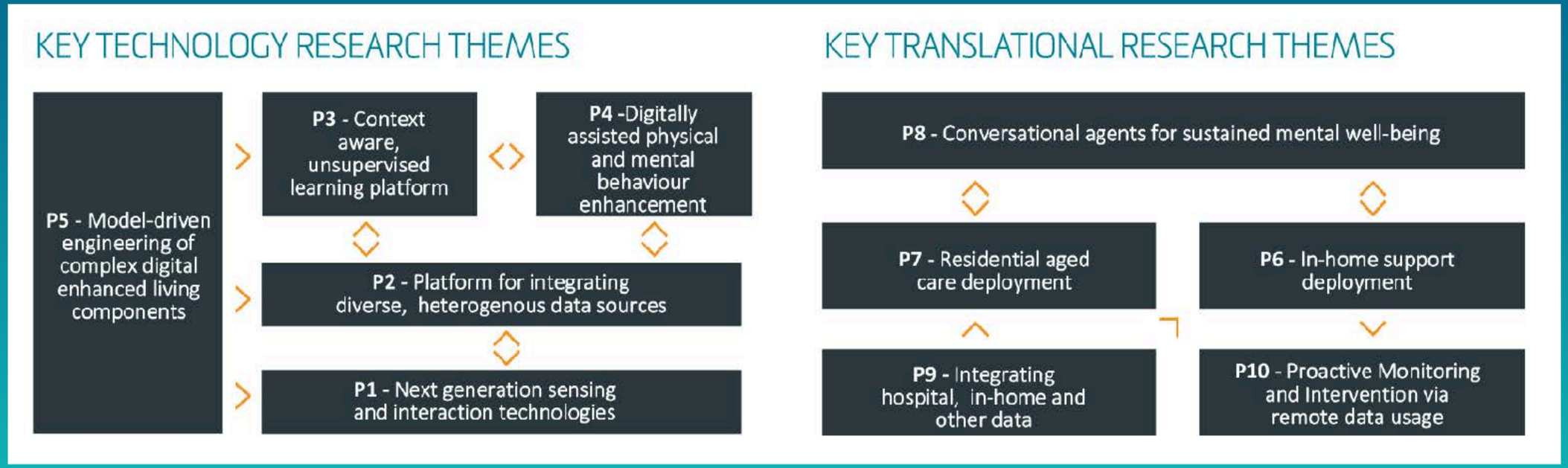
Research Themes



- 2 main themes - **Technology** and **Translational**
- All projects contribute to at least one of the themes

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Partners

Funding	University (International)	Industry
Australian Research Council	University of Copenhagen	Black Dog Institute
Deakin University (Admin Org)	Denmark Technical University	Dementia Australia
	Friedrich-Alexander University	Uniting AgeWell
University (Domestic)	Dublin City University	Uniting NSW.ACT
Flinders University	University of Auckland	Interrelate
Monash University	Auckland Technical University	Health Metrics
University of New South Wales		ACH Group
University of Technology Sydney		goAct
		iCetana
		C-Born Software
		*Cancer Council Victoria (*new)*

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PhD Projects

Name	Projects	University
Judith Hocking	**Tablet based conversational agent**	Flinders
Nicky Baker	**Health interventions based on functional health deficits**	Flinders
Roxanne Llamzon	**Interventions and generative mechanisms in Digital Enhanced Living**	UNSW
BK Lee	**Examining content and complementarity in Digital Ecosystems**	UNSW
Kerry Rigby	**Deploying Digital Enhanced Living technologies for residential aged care**	Deakin
Duc Xuan Nguyen	**Recognising multi-resolution activities in multi-modal, noisy sensory data**	Deakin
Hala Abdelkader	**Integrating hospital, in-home and other data**	Deakin
Ben Joseph Philip	**Model-driven engineering of digital enhanced living solutions**	Deakin
Shangeetha Sivasothy	**Sensor fusion for personalised models of a resident**	Deakin
Tara Johnson	**Understanding and addressing eHealth literacy barriers and enablers**	Deakin
Rebecca Nourse	**Smart home system for patients with cardiovascular disease**	Deakin

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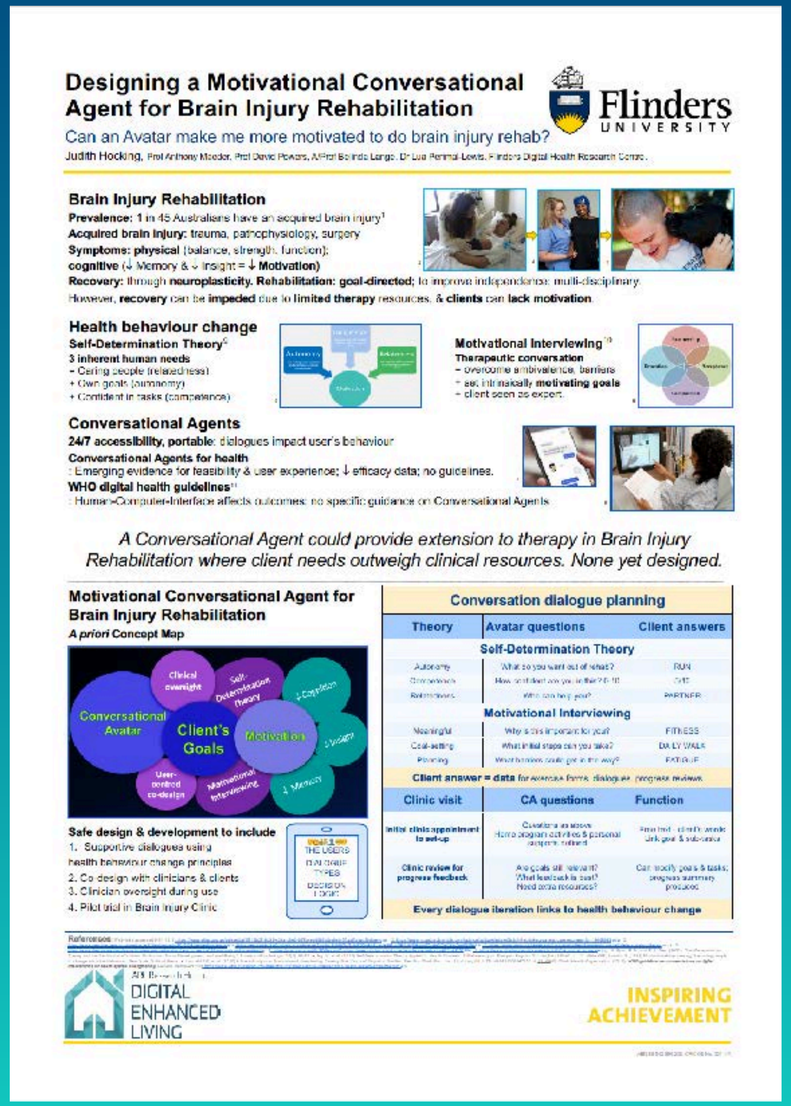
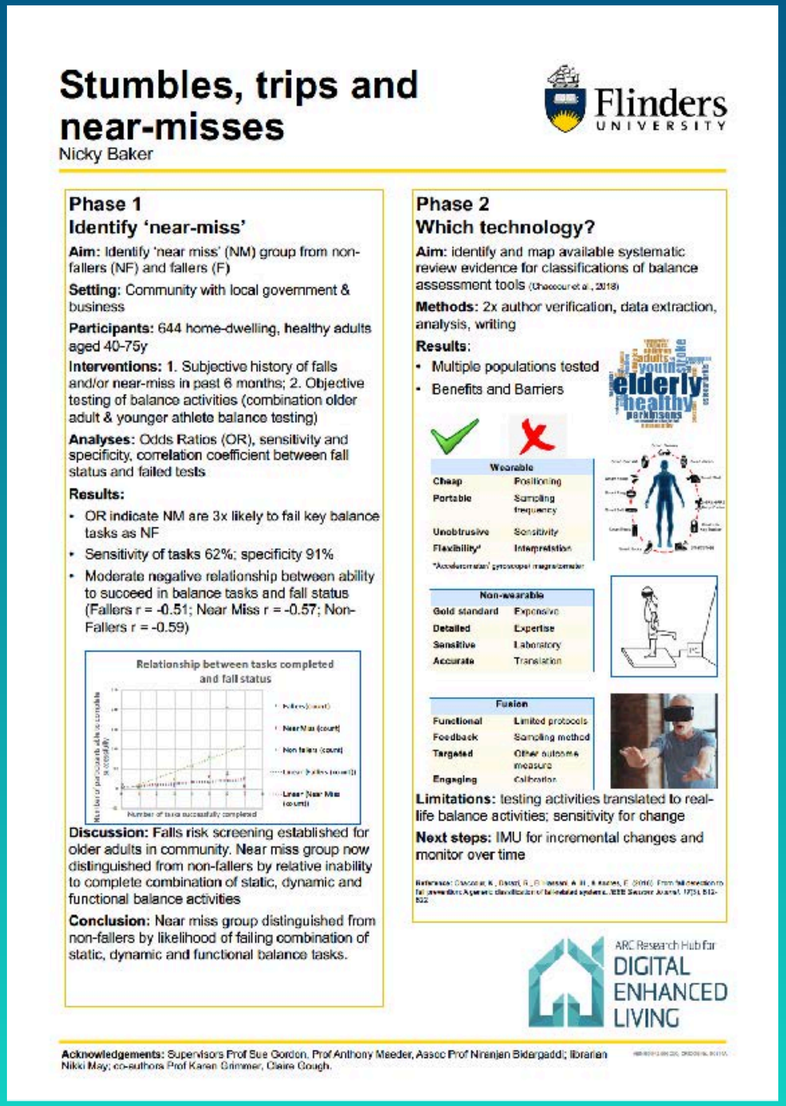


Judith Hocking - Flinders U

A conversational agent could provide extension to therapy in brain injury rehabilitation where client needs outweigh clinical resources.

Nicky Baker - Flinders U

Health interventions based on functional health deficits for older adults



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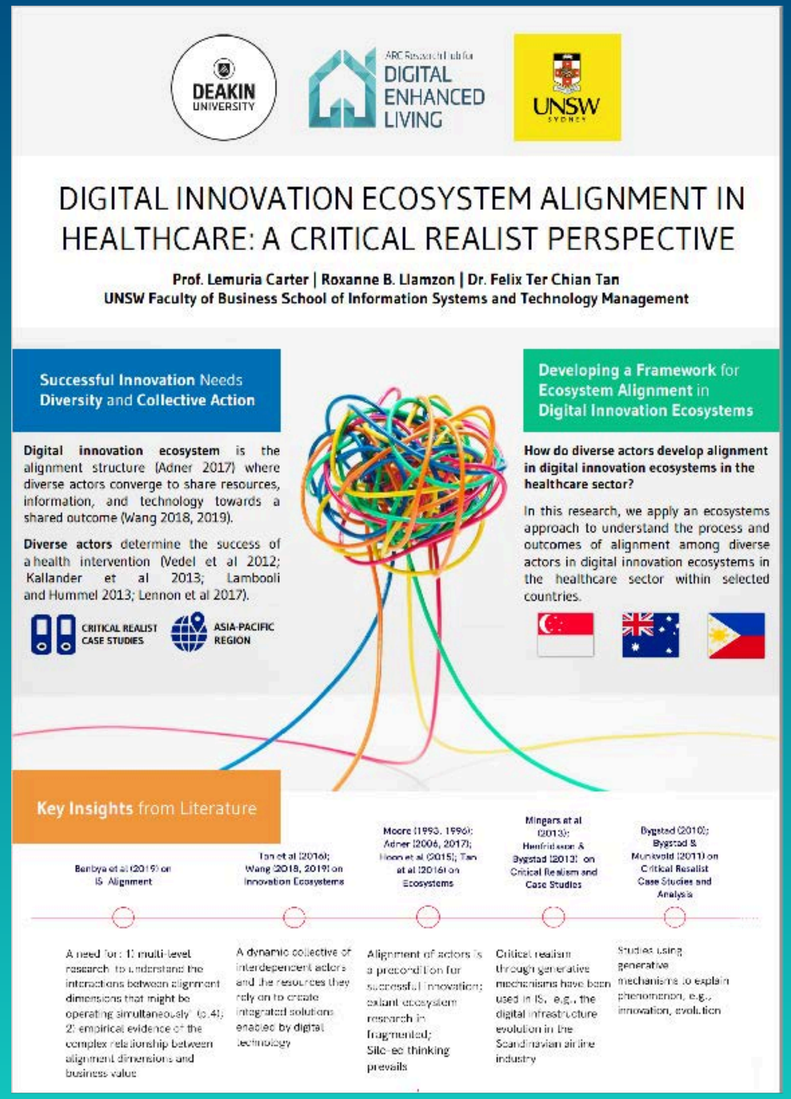

Roxanne Llamzon - UNSW

Interventions and generative mechanisms in Digital Enhanced Living

BK Lee - UNSW

Examining content and complementarity in Digital Ecosystems

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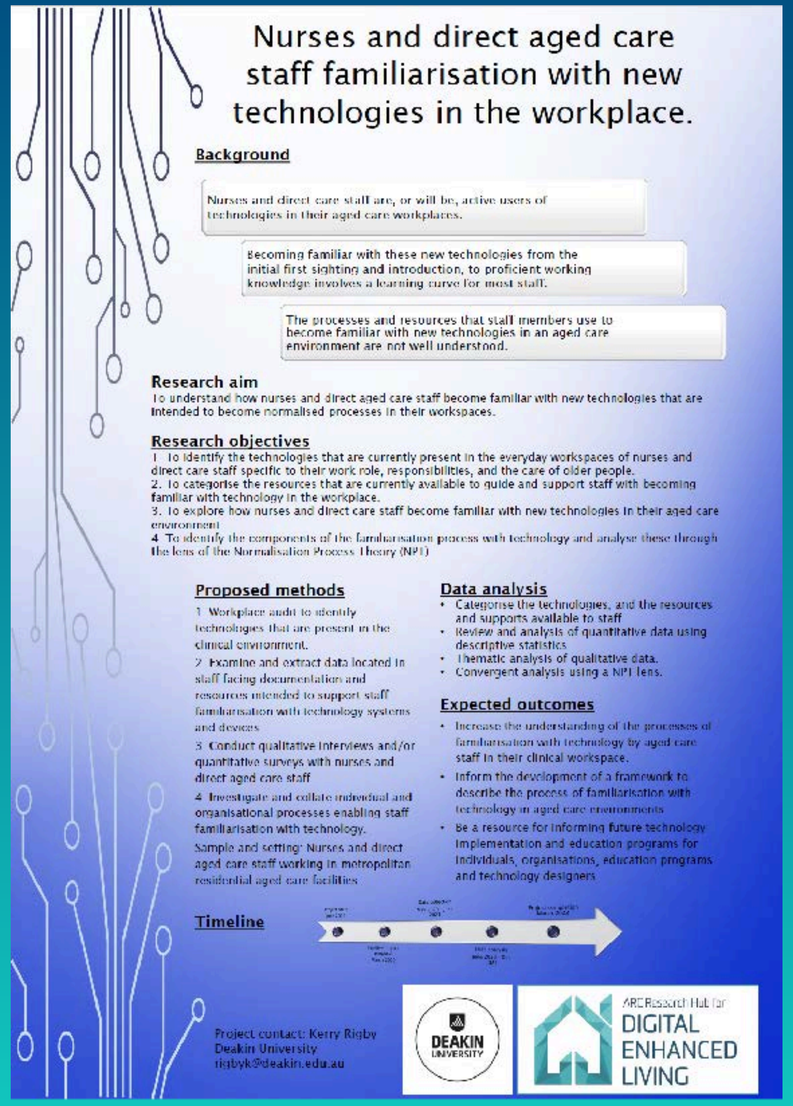
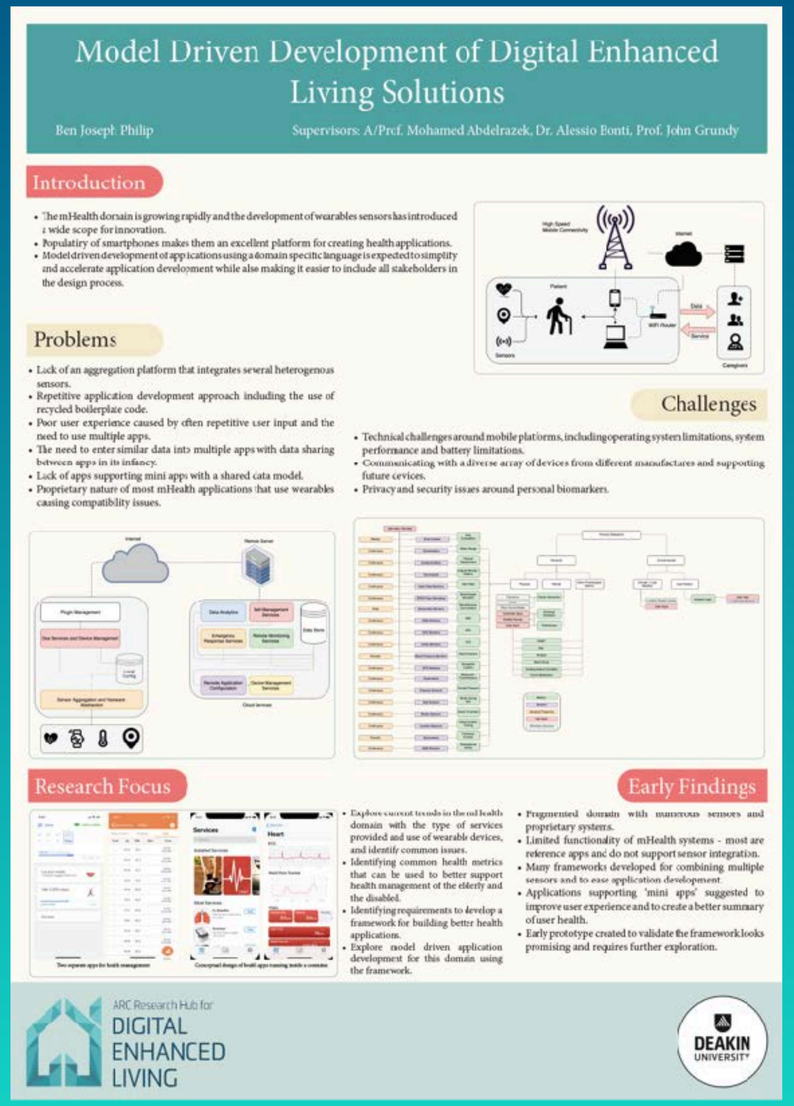


Kerry Rigby - Deakin U

Deploying Digital Enhanced Living technologies for residential aged care

Ben Joseph Philip - Deakin U

Model-driven engineering of digital enhanced living solutions



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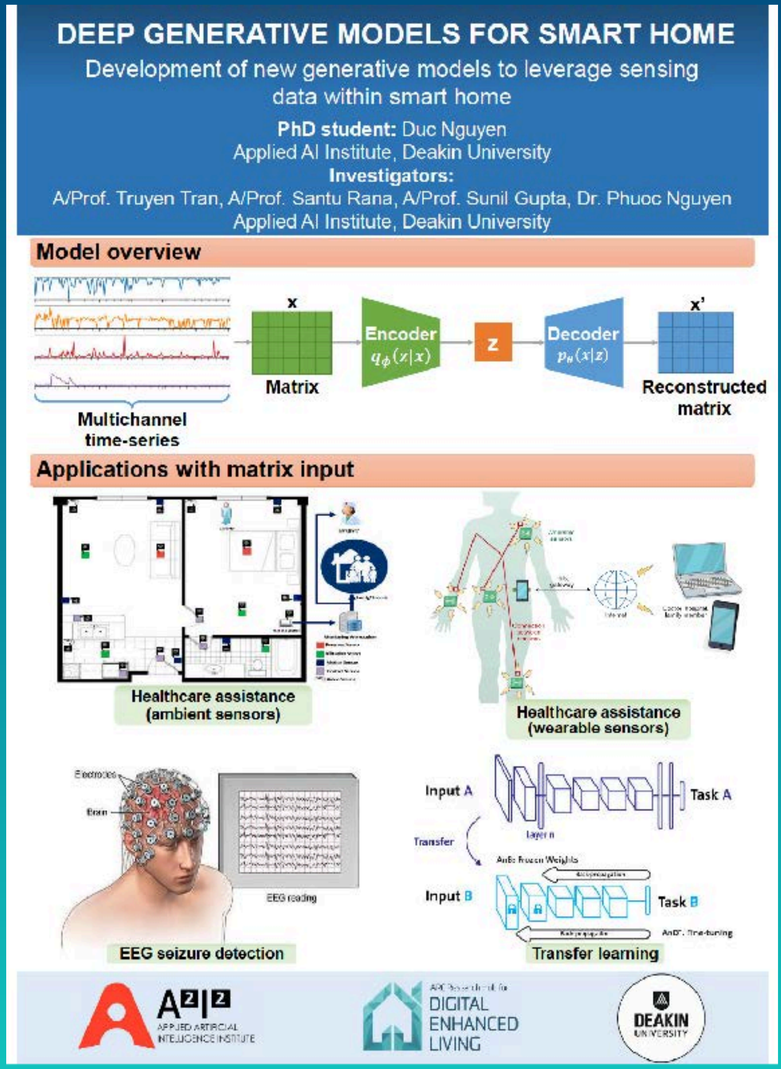
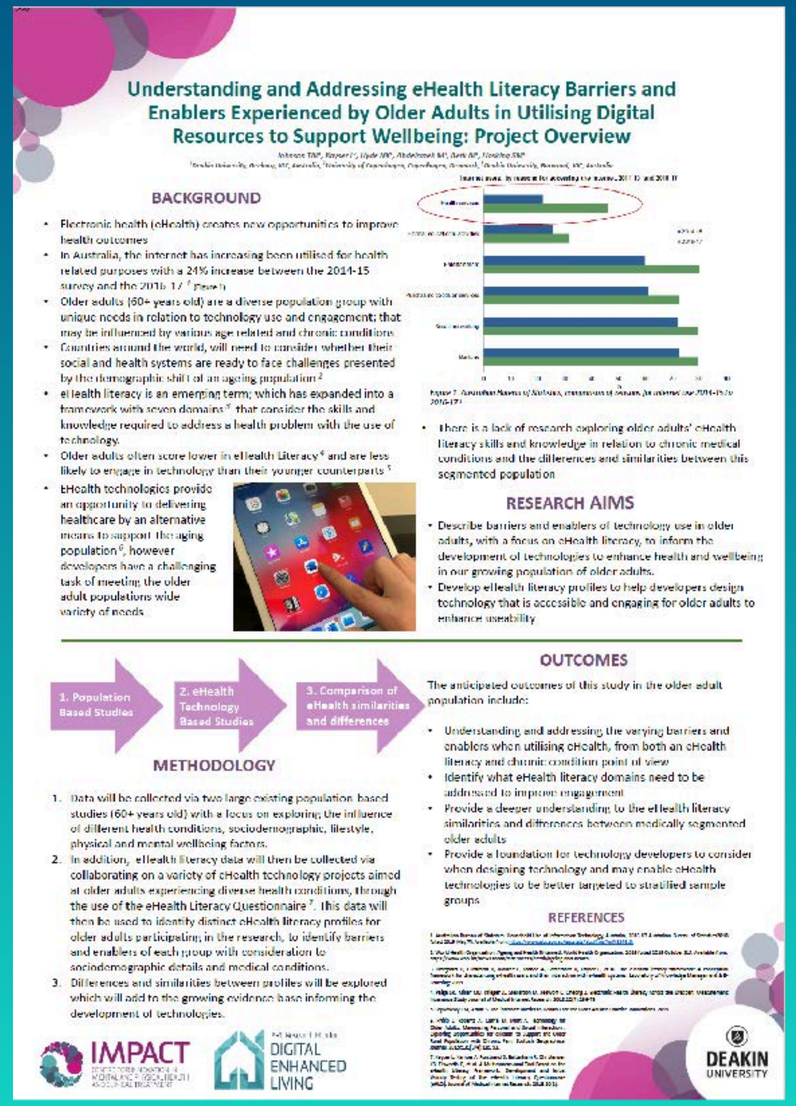


Duc Xuan Nguyen - Deakin U

Recognising multi-resolution activities in multi-modal, noisy sensory data



Tara Johnson - Deakin U

Understanding and addressing eHealth literacy barriers and enablers

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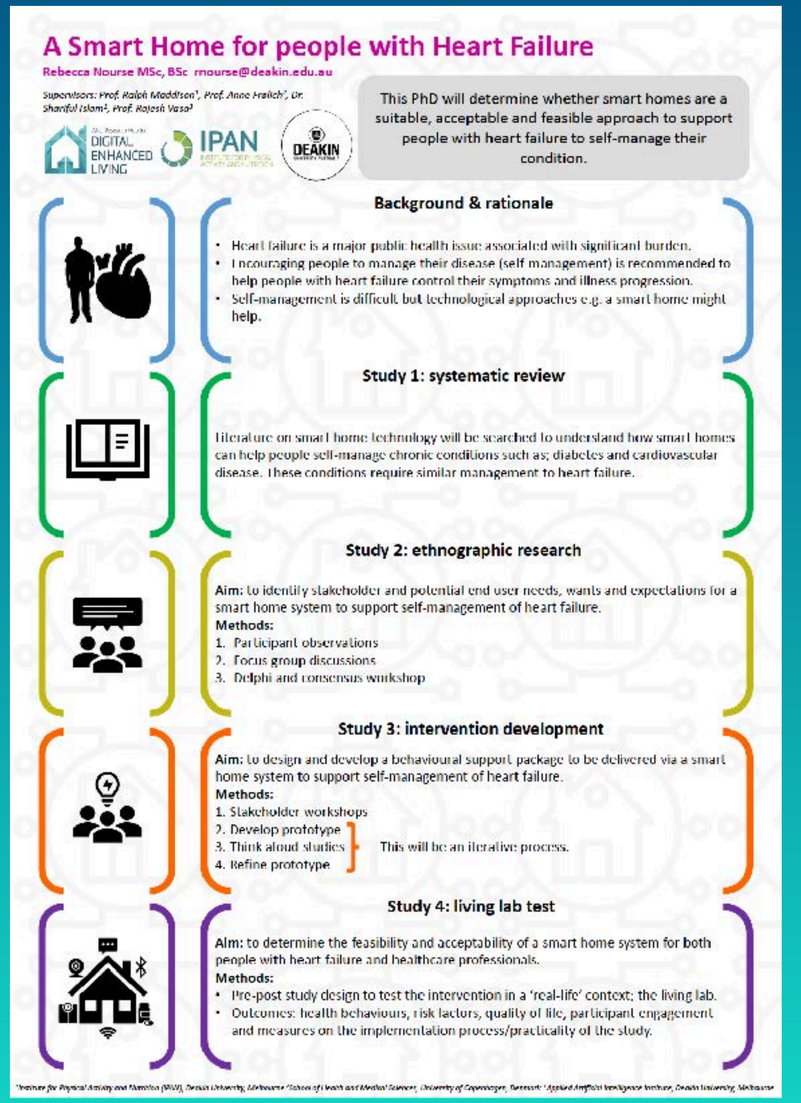
Shangeetha Sivasothy - Deakin U

Sensor fusion for personalised models of a resident



Rebecca Nourse - Deakin U

Smart home system for patients with cardiovascular disease

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Industry Projects

Industry Partner	Project
Black Dog Institute	Digital Phenotyping & Intervention Platform
Dementia Australia	Avatar - A digital education tool for carers of people living with dementia
Uniting AgeWell	Digital Living Assistant
ACH Group + goAct	Smartphone based system for early recognition of frailty risk in community dwelling for older adults
Interrelate	Assistive technology to provide a greater insight into understanding and influencing online behaviour of children and child development.
Health Metrics	• Falls Prevention • Workforce eCoSystem
Uniting NSW.ACT	• Sensors, machine learning and detection/prevention of adverse events • Person-centred care and complex needs • Wearables and falls

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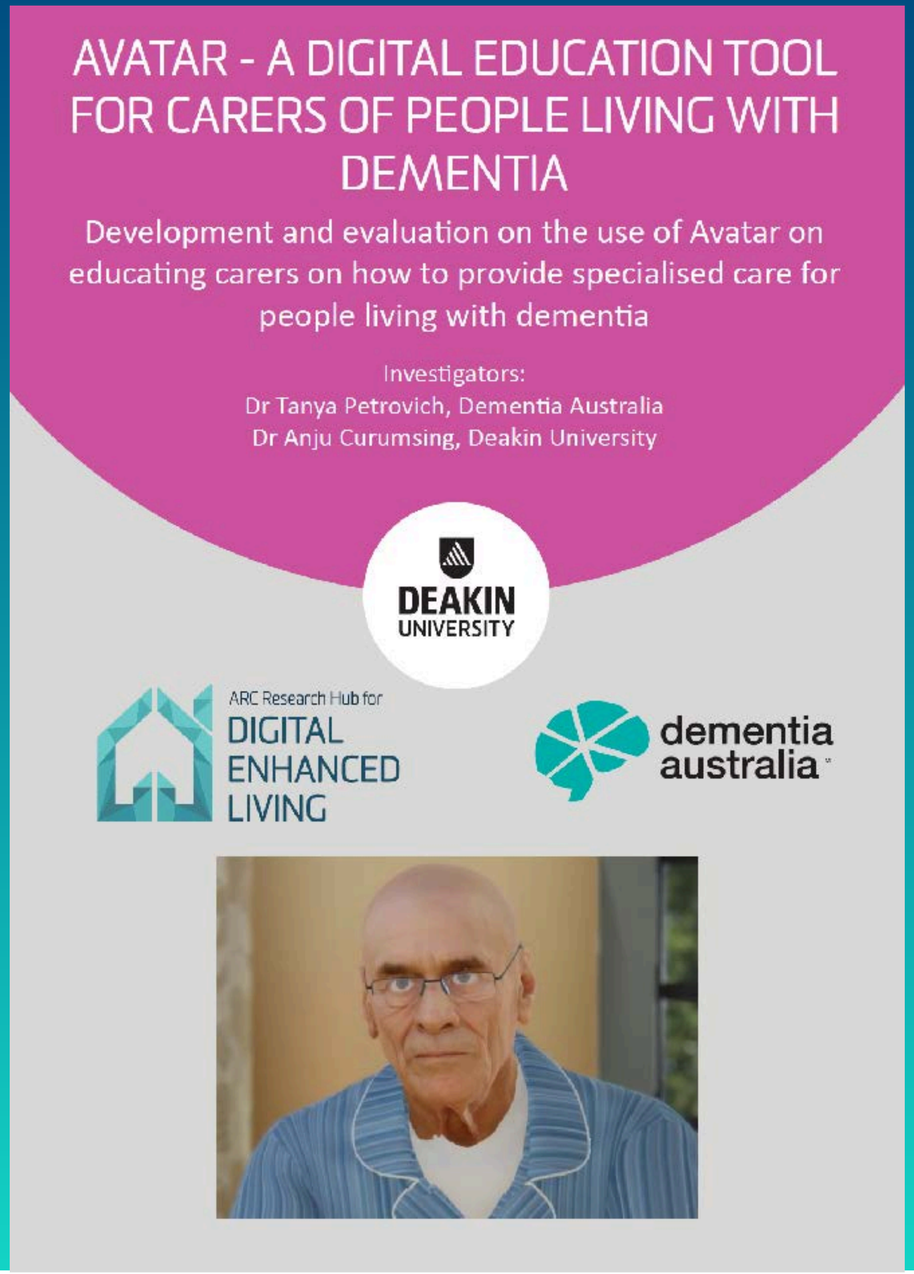

Dementia Australia

Trial findings - a digital avatar can help carers (1) understand the behaviour of people living with dementia, (2) understand how poor communication can trigger changed behaviour, and (3) manage work stress.

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DIGITAL PHENOTYPING AND INTERVENTION PLATFORM

Development and evaluation of an early intervention application for those suffering from anxiety and early stages of depression

Investigators:
Ms Nicole Cockayne, Black Dog Institute
Dr Kit Huckvale, University of New South Wales
Professor Rajesh Vasa, Deakin University

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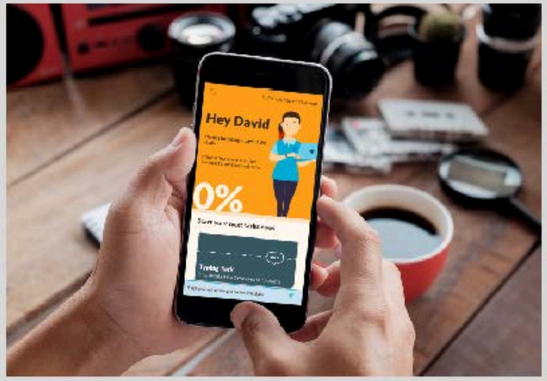
Black Dog Institute



Black Dog Institute

InSTIL - **In**telligent **S**ensing **T**o **I**nform and **L**earn

Scalable platform for coordinating research studies that involve ‘digital phenotyping’ and/or the evaluation of digital interventions delivered using consumer devices such as smartphones.

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Uniting AgeWell

Investigation if the features of an off the shelf smart device system (in this case a smart home hub) can be used for a variety of purposes including but not limited to, supporting older person in their everyday activities.

Trial recently completed and data currently being analysed.

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ACH Group & goAct

Development and evaluation of a personalised smartphone-based frailty risk monitor for early recognition of frailty risk in community dwelling for older adults.

It integrates various data sources captured from the community-dwelling population.

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Thank You