COVER
FabPod II
Architecture and Habitat
(Image: Chen Canhui)

WRITER/EDITOR
Ryan Malcolm

DESIGN
Benjamin Chaves, Jayden Ryles-Smith
CENTRE FOR DESIGN INNOVATION
INDUSTRY ADVISORY COMMITTEE

Alistair Cumming (Chair)
Jeremy Yuille
Mark Bray
Martin Schlegel
Voytek Gutowski

Kurt Seemann (Founding Director)
Fatma Mohammed (Research Coordinator)
# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>4</td>
</tr>
<tr>
<td>Director’s Comment</td>
<td>6</td>
</tr>
<tr>
<td>CDI Overview</td>
<td>8</td>
</tr>
<tr>
<td>DATTArc</td>
<td>10</td>
</tr>
<tr>
<td>Core Programs</td>
<td>12</td>
</tr>
<tr>
<td>Architecture &amp; Habitat</td>
<td>14</td>
</tr>
<tr>
<td>User Experience Design</td>
<td>18</td>
</tr>
<tr>
<td>for Services</td>
<td></td>
</tr>
<tr>
<td>- Project Geldom</td>
<td>22</td>
</tr>
<tr>
<td>Future Self &amp; Design</td>
<td>24</td>
</tr>
<tr>
<td>Living Lab</td>
<td></td>
</tr>
<tr>
<td>Smart Equipment Engineering &amp; Wearable Technology Design</td>
<td>28</td>
</tr>
<tr>
<td>Advanced Product Design</td>
<td>32</td>
</tr>
<tr>
<td>and Development</td>
<td></td>
</tr>
<tr>
<td>Global Engagement</td>
<td>36</td>
</tr>
<tr>
<td>Research Projects</td>
<td>42</td>
</tr>
<tr>
<td>Outputs</td>
<td>76</td>
</tr>
</tbody>
</table>
Swinburne was recognised as having one of the best design schools in the world by the 2018 QS World Rankings of Universities by Subject. The university was listed in the top 40 for the Art and Design subject area.

This performance is supported by the establishment of our Centre for Design Innovation (CDI) in 2014. The Centre provides industry, community and research partners a focused world-class team specialising in design innovation.
Governments and universities globally focus increasingly on impact: on the way that research changes our world for the better in areas as diverse as health, manufacturing, use of data, the functioning of cities and social and civic society. In this context, Design Innovation finds itself central to research in many domains. Design research leads to better, higher quality, more sustainable solutions for products, spaces, systems, and services. But it is also key to mapping the passage of fundamental research to applications in the field, hence at the very core of defining and implementing innovation.

2017-18 has been a landmark year, with the opening of the flagship building for the Swinburne Innovation Precinct in the former fire station. Swinburne once more finds itself in the top 40 in the world for Art and Design in the QS World Rankings. We have consolidated existing research partnerships and engaged with further leaders in many industries and NGOs. This year we also welcome a stellar line up of new advisors, representing Australian leadership in science, financial services, sustainable construction, Health insurance, advanced polymers, housing and service design. This advisory team will support the Swinburne Centre for Design Innovation to take the next exciting, upscaling steps in its research journey.
 While our industry applications are focussed on five core sectors, the centre shares across its operations a disciplined focus on research on how people use the world we design and create, and how the world we create in turn, influences our behaviours, markets and sense of community, mobility, and space. To this end, all centre investigators share a strong common ethic towards growing insights and applications in and through design research.

**RESEARCH FOR DESIGN**

- Any discipline, including engineering, health, ethnographic and cognitive and social sciences, necessary for a design to work, in order to achieve impact or uptake by the target users.

**RESEARCH WITH DESIGN**

- Collaborative cross-discipline research that is led by a design objective.

**RESEARCH THROUGH DESIGN**

- Iterative action research cycles often using participatory processes until an optimized design is achieved, at least to proof of concept, Minimum Viable Product level, or enough to take to investors.

**RESEARCH ABOUT DESIGN**

- Research that seeks to achieve understanding and discovery of our made world and habitat such as history, theory, philosophy, and/or educational research in technology, innovation, and design.
It is with great pleasure I invite you to browse through the second biennial edition of the Centre for Design Innovation’s research report, 2018. The Centre was founded in late 2014 and from a standing start has achieved rapid growth in income, scholarly outputs, international reach, and industry and community engagement. The Centre has in four short years attracted over $5.5 million in research investments, and matured its operations to a lean core team of highly accomplished and inspiring design and technology investigators, adjuncts, higher degree research students, and technical staff. This success in growth follows a deliberate effort to act on its maturity plan to maintain its focus on its strategic research programs aligned with the key industry sectors of Allied Health, Retail and Manufacturing, Services including Tourism, and also to grow its journey into Architecture and Habitat.

In late 2017, the Centre undertook a strategic review and leadership development program focussed on charting a revised path to secure its future opportunities. Two key outcomes of this planning process resolved to grow its reach into the Tourism sector, and the Built Environment to better strengthen the centre’s alignment to the Swinburne University of Technology’s new research Institutes with a focus on the Smart Cities and Iverson Health Innovation Institutes, and a key complementary role that is aligned with the Research Institutes of Social Innovation and Manufacturing Futures.

To assure a deep research effort is sustained, the Centre has matured its core research programs.

Architecture and Habitat
Led by Prof. Marcus White, this core program seeks to understand the science, systems, sustainability, and human experience of our built environment, and associated mobility and spaces. The program supports the Smart Cities Research Institute Director, Prof. Mark Burry, who is affiliated with the Centre for Design Innovation.

User Experience Design for Services: Tourism, Health and Retail
Led by A/Prof. Jeni Paay, this program represents a team of highly skilled investigators focussing on user experience design research for services including tourism.

Future-Self and Design Living Lab (Registered ENoLL in Ageing)
Led by A/Prof. Sonja Pedell, this program investigates and develops design solutions and technologies that seek to enable our older future selves. Registered with the European Network of Living Labs, a worldwide research community, the program has very quickly established itself as a leader in Australia and overseas in this field of design innovation for healthy ageing.

Smart Equipment Engineering and Wearables Technology Design
Led by Prof. Franz Fuss. This program represents advanced expertise in sensor driven research to design a variety of smart engineering and wearable devices.

Advanced Product Design and Development
Led by Prof. Blair Kuys, this program cuts across the above and stands in its own right as one of Australia’s most accomplished research teams for industry engagement through product design.
CDI is a client-focused research centre that looks at strategic and transformative design.

// OUR APPROACH
User-centric, community and industry engagement

// OUR VALUES
Collaborative, contributive and meaningful research

// OUR OUTPUTS
Products, services, habitats and visual symbols

// OUR VALIDATION
Evidence-based, conceptually robust, peer reviewed, useful

// OUR RESEARCH
aesthetics • allied health • architecture • assistive devices • branding and branded environments • co-design principles and methods • complex adaptive system • community engagement • cross cultural design • cultural identity • design anthropology • design activism • design history • design pedagogy • design-led materials development • design reception • engineering systems • indigenous studies • new product development • placemaking • product design engineering • service and system design • social innovation design • socially responsible design • sustainable design and low-carbon living • wayfinding
After joining the Centre for Design Innovation in early 2018, Fatma has utilized her wealth of experience and extensive knowledge around finance and data management to create an efficient and fluent workplace that is constantly pushing the envelope in regards to innovation. A dependable leader, Fatma cultivates a strong sense of organization, confidently managing individual workloads while encouraging a collaborative approach in order to reach team goals.

Ryan’s role within the CDI has been centred around managing the CDI’s multiple communication platforms, in both print and web-based formats. A journalism student by trade, Ryan has a passion for writing in a variety of different styles, a skill that he has honed as part of the CDI, gaining experience working with a range of media formats. Ryan is responsible for the writing and editing of this report.

// FATMA MOHAMMED
RESEARCH CENTRE COORDINATOR

// RYAN MALCOLM
DESIGN RESEARCH COMMUNICATION OFFICER

FOUNDING DIRECTOR
ASSOCIATE PROFESSOR KURT SEEMANN

CENTRE LEADERSHIP TEAM
PROFESSOR MARCUS WHITE
Core Program Director: Architecture & Habitat

ASSOCIATE PROFESSOR JENI PAAY
Core Program Director: User Experience Design for Services

ASSOCIATE PROFESSOR SONJA PEDELL
Core Program Director: Future Self and Design Living Lab

PROFESSOR FRANZ FUSS
Core Program Director: Smart Equipment Engineering & Wearable Technology Design

PROFESSOR BLAIRE KUYS
Core Capability Director: Advanced Product Design

SPECIAL THANKS TO
MR NATHAN LOUTIT
DR NICOLE AIMERS
DR ALEN KEIRNAN
DR YENNY RAHMAYATI
DR MICHAEL LO BIANCO
DATTArc Conference
5-8 December, 2018
Swinburne University of Technology
Melbourne, Australia
Cdiengage.com.au/events

DATTArc (Biennial International Design and Technology Teacher’s Association Research Conference).

The CDI, in partnership with DATTA Australia and Swinburne Senior Secondary College are excited to announce that the DATTArc event will this year be hosted by Swinburne University of Technology. The coming together of a range of world design innovation and technology educators has consistently cultivated the positive spread of skills and knowledge, garnering a worldwide reputation throughout its field.

Previously known as the Technology Education Research Conference (TERC), this conference possesses an innate focus on attracting researchers to discuss approaches to the teaching and learning of design, innovation and technology internationally. Encouraging the development of a strong community approach, the DATTArc has ascended to become the premier conference for the advancement of knowledge in the realms of design innovation and technology education.

The four-day conference (5th- 8th of December 2018) will focus around refining the vision for design and technology, ensuring its future as a necessary and highly invested field of learning, while also addressing ways that design and technology can continue to assert itself as the leaders of applied design led innovation capability.

The 2016 conference centred around engaging the researcher, the practitioner & industry partners in the concept of technologies education, experiencing widespread success. A number of workshops were conducted in conjunction with the conference, stressing advanced manufacturing as a context for business and industry partnerships. This successful model looks to be replicated at the 2018 conference, with wide variety of interactive workshops planned for the December event.

A/Prof Kurt Seemann has extended a call for papers focused around the design and technology vision until September of 2018. Keynote speakers are yet to be confirmed, with updates and more information available on our website:

Both Swinburne Factory of the Future.
CORE PROGRAMS
The burgeoning new Architecture and Habitat focus of the CDI looks to combine research into Building Information Technologies and sustainable human settlements in order to innovate in a manner that creates desirable user outcomes that are affordable and practical, optimizing our surrounding environments.

The Architectural spotlight, led by Dr Marcus White, award winning architect and urban designer, incorporates a range of esteemed historians, expert architects and experienced urban designers that harbour a desire to unpack a range of modern architectural design techniques, while also redefining the way materials are used to create lightweight structures, tackling these issues in a global context.

Research goals such as these closely intertwine with the work of A/Prof Kurt Seemann, whose efforts leading a wide range of investigators in understanding our constructed human habitat and the ways in which we curate our environment have led to improvements in the human experience in regions susceptible to natural disaster. The new focus of the CDI moves away from purely disaster-relief, to an overarching desire to understand how and why we create habitats and implementing ideas to maximize their efficiency and accessibility for a wider population.

With a predominant focus on creating real-world outcomes through understanding designed habitats, this new sector promises to create a cohesive approach to refining our constructed habitat in a way that improves the user-experience in a meaningful and quantifiable manner.

ARCHITECTURE & HABITAT

> DESIGNING LIVABILITY
> HUMAN EXPERIENCE

PARTNERS
Aurecon
City of Medellin
Haworth Inc.
Ngalangangpun School
RMIT University
WasteAid
Students exploring Mungo National Park as part of the Marngo Designing Futures program.

Side panelling of the Fabpod II, utilising an irregular cone shape to optimize aural distribution.

Swinburne’s Dr Matthew Parnell spent time in Medellín, Colombia assessing existing waste management practices.
Joining Swinburne University at the beginning of 2018, following several years as the Master of Urban Design program coordinator at the University of Melbourne, Professor Marcus White has a wealth of experience in architecture and urban design, excelling in the field and lecturing in the discipline since 2001, while garnering a range of awards including the RAIA Haddon Travelling Scholarship, AIA National Emerging Architect Award and a National Citation for Outstanding Contributions to Student Learning. With a key interest in how digital design techniques can create sustainable urban design solutions, a concept upon which he completed his PhD, Professor White has contributed heavily to a number of urban design initiatives within the cities of Melbourne, Maribyrnong, Stonnington and Whitehorse, while juggling his involvement as co-director of Harrison and White Architecture and Urban Design. Marcus comes to the University as a Professor of Urban Design and a key leader of the CDI’s Architecture and Habitat sector.
While juggling her role as Dean of Swinburne’s School of Design, Jane’s knowledge and experience as a leading architect has been greatly influential in the continued development of the CDI’s Architecture and Habitat sector. Working primarily in understanding the role of sound and acoustics as well as the creation of sustainable human settlements, Jane’s experience collaborating on the continued construction of the famed Sagrada Familia in Barcelona lends a valuable level of expertise to the upstart core program of the CDI.

With a background in Mathematical design, Jane’s work has been integral in fine-tuning acoustic, thermal and air-flow characteristics to optimise environments for human interaction. She is also a respected author, as the lead-author of The New Mathematics of Architecture (2010), and the co-author of Prototyping for Architects (2016), further contributing to her reputation as a supremely accomplished architectural luminary.

The lead Habitat researcher for the evolving Architecture and Habitat sector of the CDI, A/Prof Kurt Seemann has a passion for analyzing the relationship between people, technology and the environment, deciphering how these three interweave and influence each other.

Involved in a number of projects both locally and internationally, A/Prof Seemann’s research targets both the holistic human elements of innovation as well as the wider societal scale that this innovation is driven by, with previous projects encompassing the evolution of disaster relief and a wider interest in waste management and its impact on the health of those living in remote Australia. A/Prof Seemann is also the director of the Centre for Design Innovation.

As a community-based design researcher with a wealth of expertise in communication design and a background in Aboriginal prehistory, Dr Edwards-Vandenhoek’s work focusses heavily on the role of design-led place-making in societal well-being. Her current research involves working with remote Aboriginal communities on sustainable development projects that prioritise participatory design processes, a shining example of her desire to create meaningful real-world impact.

Through the Marngo Designing Futures program, Samantha collaborates with Indigenous designers and cultural educators to cultivate the application of Aboriginal design principles and cultures-based innovation in a young generation.
The brand-new User Experience Design for Services sector of the CDI promises to seek ways of revolutionizing exactly how a variety of services can begin to engage consumers while providing a positive user experience. These services encompass a large amount of economic responsibility; a responsibility that the design for services team looks to refine, in order to increase value for the consumer and improve efficiency of industry, by utilising a range of design methodologies and technologies which are optimized by our expert researchers.

Led by Associate Professor Jeni Paay, the User Experience Design for Services sector focusses on redesigning the user experience for what is currently Australia’s leading contributor to the economy, through both economic output and employment. Tackling industries such as health and tourism, areas that strongly reflect Australia’s growth as a global powerhouse, the design for services team looks to establish innovative design of services that can continue to compete in a global market.

With a research team that places considerable value on learning from history, the design for services team looks to innovate through influence, masterminding new experiences for an engaged user-base by researching and adapting past ideas for a modern audience. The User Experience Design for Services team applies a human-centred innovation approach that remains adaptable, ensuring it can approach a variety of project areas in an effective manner.
A view of the central tower of the Italian Pavilion at the 1937 Paris World’s fair, recreated in virtual reality.

Modern Asian Design presents a comprehensive overview of the impact of both contemporary and modern Asian design.

Professor Mark Taylor’s FLOW: Interior, Landscape and Architecture in the Era of Liquid Modernity is the product of 8 years of research and planning.
A/Prof Jeni Paay has a rich history of success in the field of Human-Computer Interaction design, a skill set she has quickly implemented as core program leader of the upstart User Experience Design for Services subset of the CDI. With a 15-year research career within the realms of user experience and interaction design, A/Prof Paay has aspirations to collaborate with important Australian services such as tourism, health and retail in order to optimize a relatively unexplored and underappreciated research niche that contributes heavily to Australia’s economic standing.

In addition to her leadership role within the CDI, A/Prof Paay teaches Interaction Design as part of Swinburne’s School of Design, a role she entered following seven years exploring socio-interactive computing at Aalborg University in Denmark.
Professor Mark Taylor has quickly become an integral member of the CDI, after joining Swinburne University in November 2017. A part of the CDI’s expansion into User Experience and Design, Professor Taylor’s wealth of knowledge around the intricacies of interior design and the effect it can have on culture have been a valuable addition to the team, involving himself in a number of projects that have benefited from his innate grasp of the history and theory of architecture and design. Professor Taylor’s continued involvement will be focused around understanding and manipulating design in a way that ultimately improves the user experience. Mark is also an editorial board member for ‘Designing Interiors’, as part of Lund Humphries Ltd, who recently had his work published as part of Architectures of Display (Bloomsbury 2017).

As an Associate Professor of Swinburne University’s School of Design, Dr Huppatz has proved adept at training the next generation of architects and designers, through the use of a number of concepts, including design history and theory. Dr Huppatz is a design history aficionado, orchestrating a number of publications on the topic, including Modern Asian Design (2018) and a collection entitled Design – Critical and Primary Sources (2016), which were well-received by peers within the design industry. Dr Huppatz is also heavily involved with the Journal of Design History, where he is part of the editorial board working to develop a repository of design information for a myriad of uses.

Possessing a passion for architectural history, Associate Professor Marcello is dedicated to understanding how architecture interacts with its audience, in order to harness the user experience and translate this phenomenon onto other platforms. A/Prof Marcello’s approach uses virtual reality technology to recreate important moments in the history of innovative structures with the goal of conveying an accurate embodiment of a construction’s intended experience. It looks to benefit her students, designers and the wider community, providing engrossing context with an experience that goes beyond what can be conveyed through a books, articles or websites. Flavia has a keen focus in further developing the user experience of Galleries, Libraries, Archives and Museums (GLAM).
The work of a team of researchers at Swinburne University aims to revolutionise sexual health and wellbeing with the design of a new condom that challenges the existing paradigms of barrier protection.

The research was initiated by the Bill & Melinda Gates Foundation’s (B&MGF) Grand Challenges to improve condom uptake, as part of the Foundation’s strategic focus on the impact of HIV/AIDS on global populations and a goal to improve sexual health globally.

In 2015, as a result of close collaboration between the University of Wollongong and Swinburne University of Technology, Project Geldom presented as a design-led innovation response following extensive research into new materials and the social stigma of condom use.

Utilising a new material known as a tough hydrogel, developed at the University of Wollongong’s Australian Centre of Excellence for Material Science, Project Geldom is redefining the way condoms are developed by combining human-centred design principles with the material’s unique material properties. The hydrogel’s skin-like feel offers kinaesthetic advantages that can be combined with innovation in manufacturing, packaging and distribution of condoms to address diverse global needs. In line with the B&MGF Global Challenges goals to increase condom usage, the hydrogel condom offers the possibility of improving pleasure while retaining the protection and safety standards of current latex and polyisoprene condoms.

The materials science pioneering the new hydrogel is led by Associate Professor Robert Gorkin and his team at the University of Wollongong. Swinburne researchers were brought on board to drive the design-led innovation process.

With the establishment of the Iverson Institute – named after the late Professor Don Iverson, Dean of FHAD and a pioneer in design for health initiatives that led the auspicious partnership between SUT and UoW – Project Geldom can integrate a full complement of health and medical researchers working in collaboration with the Centre for Design Innovation.

The team at the University of Wollongong refined the science behind this remarkable material, and Swinburne has been able to provide the expertise in design-led innovation and human centred design. The wider team collaborated on design and materials research requirements to secure the second-round funding from the Gates Foundation.

Project Geldom is one of two green-lit programs for Phase II funding, from a group of 22 other programs that were involved in the first-round. Project Geldom was originally chosen from a pool of over 2000 applicants.

Finding ways to successfully improve the public perception of condoms and maintaining good sexual health practices in developing countries is Geldom's current focus, culminating in user testing scheduled to be conducted in Kenya by the end of 2018.

"Swinburne prioritises human-centred design because we understand that just changing the material isn’t going to make people want to use a condom,” says project lead Dr Simon Cook.

"We’ve gone above and beyond the material science to understand the challenges people face when using a condom and what might make them an easier and more enjoyable way to have safe sex.”
The development of tough hydrogel material was imperative in revolutionising the modern condom.

Promotional material for Project Geldom, a collaboration between the University of Wollongong and Swinburne University of Technology.
The Future-Self program is at the forefront of technological advancement, making use of both Augmented and Virtual Reality, in conjunction with sensor technology developed alongside the Smart Equipment Engineering & Wearable Technology Design program of the CDI in order to lay the foundation for the creation of intuitive devices that encourage user-involvement and ultimately improve the quality of life.

Led by Dr Sonja Pedell, the Future-Self and Design Living Lab is continuously working towards sustainable methods of empowerment for the aged population, in order to benefit current and future generations in maintaining an ease of living that has often been hard to come by.

The Living Lab program was accepted into the European Network of Living Labs (ENoLL - https://enoll.org) in 2016, the only Australian Living Lab with a focus on ageing within this global network. It is also a founding member of the Australian Living Lab Innovation Network (ALLIN) with more information available at: openlivinglabs.net.au

> AGE WELL
> ENABLE CONFIDENCE

The Future-Self and Design Living Lab is hosted by the CDI and integrates a wide variety of research with a co-design approach that seeks to create real-world impact by addressing a range of community issues. The Living Lab program promotes co-design research, often encompassing civilians, industry professionals and a number of government stakeholders to develop a comprehensive research and design process.

Through a range of key focus areas, that directly influence the ideation of new projects, the Future-Self and Design Living Lab looks to positively impact the health and wellbeing of an ageing population. A human-centric premise, the development of projects encourages community input, often holding meetings at community centres or aged-care facilities to maximize participation and opportunities for co-creation. In a recent European study of policies to support service innovation, Living Labs were noted as one of the top three innovation policies and the only one to include end-users and real life contexts.

Through a range of key focus areas, that directly influence the ideation of new projects, the Future-Self and Design Living Lab looks to positively impact the health and wellbeing of an ageing population. A human-centric premise, the development of projects encourages community input, often holding meetings at community centres or aged-care facilities to maximize participation and opportunities for co-creation. In a recent European study of policies to support service innovation, Living Labs were noted as one of the top three innovation policies and the only one to include end-users and real life contexts.

The Future-Self program is at the forefront of technological advancement, making use of both Augmented and Virtual Reality, in conjunction with sensor technology developed alongside the Smart Equipment Engineering & Wearable Technology Design program of the CDI in order to lay the foundation for the creation of intuitive devices that encourage user-involvement and ultimately improve the quality of life.

Led by Dr Sonja Pedell, the Future-Self and Design Living Lab is continuously working towards sustainable methods of empowerment for the aged population, in order to benefit current and future generations in maintaining an ease of living that has often been hard to come by.

The Living Lab program was accepted into the European Network of Living Labs (ENoLL - https://enoll.org) in 2016, the only Australian Living Lab with a focus on ageing within this global network. It is also a founding member of the Australian Living Lab Innovation Network (ALLIN) with more information available at: openlivinglabs.net.au

PARTNERS
ACCESS Health and Community
City of Boroondara
Wyndham Council
Dementia Australia
An animation depicting the iconic Hawthorn post office that now houses ACCESS Health and Community.

Immersive colours were heavily favoured in a range of iPad games that engaged those living with dementia.

Individuals living with dementia were consulted in laying plans to develop a more supportive and accepting community in which they can thrive.
As an Associate Professor in the Department of Communication and Digital Media Design, Dr Sonja Pedell’s work leading the Future-Self and Design Living Lab as part of the CDI has epitomised the kind of community impact the CDI prides itself on. Sonja’s extensive knowledge of human-computer interaction, as well as her expertise in digital media and communication design have seen her successfully collaborate with a range of CDI staff members to positively impact the health and wellbeing of a variety of individuals.

Working primarily towards improving the living conditions of those with dementia, Sonja’s commitment to developing healthy interaction between humans and computers and exploring the benefits of these particular relationships has been integral in understanding the human experience when dealing with progressive, modern technology.
Professor Leon Sterling has enjoyed a long and storied career in academia, forging a reputation in software engineering and artificial intelligence following the completion of his PhD in Pure Mathematics, while also initiating leading research into socio-technical systems as part of his goal to facilitate further complexity in advanced computing systems. Throughout his career, Professor Sterling has contributed heavily to the growth of eHealth and the prevalence of smart devices in health science, which have been accentuated throughout his integral involvement in the CDI’s Living Lab. His continued work has drawn heavily on design methods in order to develop solutions for our future-self wellbeing.

Dr Lo Bianco is a post-doctoral researcher specializing in user experience and design within the Future-Self and design Living Lab as part of the Centre for Design Innovation. His research has focused on creating a variety of technologies and health services that can assist both patients and practitioners and developing valuable and efficient experiences that are person-centred. With a background in digital design and motion graphics, Dr Lo Bianco also has an acute grasp of immersive media, utilising augmented reality throughout his PhD where he investigated its efficacy in visually communicating fall preventative home modifications with older adults.

With expertise in health design and psychology, Dr Aimers is an integral part of the Future-Self and Design Living Lab sector of the CDI, working closely with people living with Dementia as part of a project that explores the role of augmented-reality technology in improving the ease with which those with dementia operate on a daily basis. With her previous work focused around sports concussion and the psychology behind the wearing of protective gear, Dr Aimers’ experience has been fundamental in the development of augmented reality technology tailored for people with Dementia. Dr Aimers is a PhD graduate through Swinburne’s Faculty of Health, Arts and Design, and also holds a BA (Hons – 1st Class) of Psychology.

Professor Leon Sterling has enjoyed a long and storied career in academia, forging a reputation in software engineering and artificial intelligence following the completion of his PhD in Pure Mathematics, while also initiating leading research into socio-technical systems as part of his goal to facilitate further complexity in advanced computing systems. Throughout his career, Professor Sterling has contributed heavily to the growth of eHealth and the prevalence of smart devices in health science, which have been accentuated throughout his integral involvement in the CDI’s Living Lab. His continued work has drawn heavily on design methods in order to develop solutions for our future-self wellbeing.
A core program specialising in developing sensor technology, sensor integration and advanced data analysis and visualisation, the Smart Equipment Engineering and Wearable Technology Design sector of the CDI maintains a distinct focus towards developing outcomes that improve health, safety and performance. The Smart Equipment & Wearables team seeks to innovate laterally, with emphasis on creating new intellectual property; reducing the cost and size of sensors and devices; improving accuracy, wearability and manufacturability; and on the discovery of hitherto unknown performance parameters.

In addition, the program pursues fundamental non-linear engineering, such as sensor viscosity, non-linear visco-elasticity of smart materials, fractal dimension analysis and movement analysis. In addressing these key areas, the Smart Equipment Engineering and Wearable Technology team has forged a reputation for developing effective and affordable products that have a consistently positive effect on health and performance.

Led by Professor Franz Konstantin ‘Tino’ Fuss, the Smart Equipment and Wearables team have developed a range of devices and wearables that promote comfort, ease of use and address existing barriers to user-uptake, including the incorporation of smartphones for data analysis purposes. Such advancements frame the methodology behind discreetly analysing a number of health indicators and performance guides to improve efficiency of movement, recovery, overall quality of life.
Smart cricket ball with superimposed spin axis vector diagram, and centre-of-pressure diagram.

Kwangyul Jeong’s PhD research has focused around developing smart equipment for use in Kendo competition.

Creating an unobtrusive insole that measures the pressure distribution of an individual’s gait was integral for the Smart Equipment Engineering team.
Professor Fuss has brought his passion for developing smart technology for sport and medicine to the Centre for Design Innovation, as the project leader for the Smart Equipment Engineering & Wearables Technology Design sector. With a background in Medicine and Bio-Engineering, ‘Tino’ has combined his expertise on the two for a number of projects within the CDI, working tirelessly to improve sporting and health analysis.

Tino is one of the most recognisable names in the innovation world, developing the bioengineering program at Nanyang Technological University in Singapore, while his work as Sports Engineering Professor and team leader of the SportzEdge program at RMIT was also well-received by his peers. Additionally, Tino is the first editor of Routledge Handbook of Sports Technology and Engineering, the first of its kind.
Following the completion of his PhD, ‘Udi’ transitioned his expertise in developing smart wearables for health and sport into the Centre for Design Innovation, as part of Professor Tino Fuss’ Smart Equipment Engineering & Wearable Technology Design sector. With previous experience creating a smart soccer boot which can gauge advanced measures of impact force and spin having been developed for practical implementation, Udi’s work with smart equipment has expanded to other projects, such as the development of “bio-feedback insoles,” analyzing the pressure centres of a user as they walk, which has proved especially important in the management and prevention of diabetic foot ulcers.

Adin is a valued member of the Smart Equipment Engineering & Wearable Technology Design team at the CDI, specializing in smart equipment, which has translated into a range of projects addressing health and wellbeing. His work includes sensor and electronics design, data acquisition, software design and data analysis, focusing heavily on sensor design for easy data acquisition. He has a BEng and MEng from Nanyang Technological University in Singapore and is currently in the process of completing his PhD in Swinburne. As an early career researcher, Adin’s interests lie in designing low-cost sensors for long-term activity monitoring as well as seeking ways to comprehensively and meaningfully convey the resulting data.
The Advanced Product Design and Development team has developed a cross-cutting approach to research that has fast-tracked its ascendance as one of the most accomplished and heralded design-focused research teams in Australia. Utilising a wealth of experience in industrial and product design, the team works with a range of industry and government clients in order to innovate new ideas that can improve and refine the way technology can be used in a range of environments.

Adeptly led by Professor Blair Kuys, the Advanced Product Design and Development sector has worked tirelessly to build a strong local and international reputation as one of the premier dynamic design teams in Australia, lending their hand to a number of high-profile projects that have reaped impressive outcomes both for their associated industry and the CDI.

Comprised of a team with a range of specialties that interweave perfectly, the Advanced Product Design sector has an impressive resume’ that has worked to develop partnerships between the CDI and outside enterprise. The Advanced Product Design lab is one of the most technologically innovative spaces in Australia, expertly managed by Mr Nathan Loutit, who works closely with other core program leaders within the CDI to create ingenious concepts that can be realized and marketed appropriately.

PARTNERS
LimeLite Sales & Marketing Pty Ltd
Atlite Skylights
Melbourne Korean War Memorial Committee
TOP
Colourful promotional renders for a range of track-mounted down lights to be produced by LimeLite Sales & Marketing Pty Ltd.

BOTTOM LEFT
This prototype memorial panel is perforated in a way that depicts Australian involvement in the Korean war.

BOTTOM RIGHT
The Atlite skylight’s strength and durability was tested extensively before it was taken to market.
As the Lead Industrial Designer for the Centre for Design Innovation, as well as the project manager for Advanced Product Design, Nathan’s drive, passion for design and business nous have led to continued success for the CDI. With over nine years of experience as part of the product and industrial design industry, Nathan has honed his craft, refined his knowledge, and imparted his skills upon an eager young team of researchers. Nathan can often be found working in conjunction with small market enterprises, in order to innovate and reinvent product design in exciting new ways.

Professor Blair Kuys’ leadership of the Advanced Product Design and Development sector represents the alternative side of the CDI. With a heavy focus on engaging with outside industries, Blair’s program represents a ‘cross-cutting’ approach to research that quantifies success through collaboration with a variety of industry and government clients. Constantly working to revolutionise product design, Blair’s team deals with an array of technology to improve how individuals and groups interact with technology, often in partnership with the other core programs of the CDI. Professor Kuys’ work both within Australia and internationally has been widely lauded, receiving six Vice-Chancellor’s Awards since 2008 to cement his role as an industry leader in research and design innovation.
Andrew Weeks’ strength lies in his ability to engineer intricate designs to take to market, building active and mutually beneficial partnerships with a range of clients. His experience in both Sustainability and industrial design along with a technical mindset has provided Andrew the precision and market awareness that have made him an incredibly valuable asset to the product design team, attributes that shone throughout his conception of the first fire-rated skylight for Atlite Skylights. Andrew’s vast set of acquired skills and technical nuances have made him an incredibly valuable member of the product design team, and have directly led to sustained, quantifiable success for the Advanced Product Design sector.

Mathieu Lewis joins with a wealth of experience in the industry, having spent almost 9 years running his own business after graduating from Swinburne in 2008 with a Bachelor of Industrial Design (Honours). A passion for automotive design sparked a desire to innovate within the product design world, working with a number of notable clients to create engaging and intuitive outcomes. Mat’s tireless work ethic and astute design nous have contributed heavily to the sustained success of product development within the CDI. He has most recently applied his skills leading the design and construction of the new Korean War Memorial being developed within the City of Maribyrnong.

Built on a passion for automotive design, Ali’s involvement with the Advanced Product Design team began in 2016 following the completion of his Bachelor of Industrial Design at Swinburne University, after which he was recruited by core program leader Blair Kuys. In the two years since, Ali has been heavily involved in multiple projects with the CDI, including as a project lead for two exceptionally successful designs for Melbourne-based LimeLite. Ali’s proficient use of burgeoning 3D printing technology has been instrumental in a number of positive real-world outcomes for a range of clients, indicating his intricate design knowledge and application skills, which have signaled him as a young leader within the Advanced Product Design team.
We highly regard our global partnerships which enable expert knowledge sharing and mutually beneficial relationships. By working collaboratively, we unite multiple worldviews to create world-class outcomes.
1. COLOMBIA

- After presenting at the United Nations Habitat III conference, A/Prof Kurt Seemann and Dr Matthew Parnell have begun the implementation of a progressive waste management initiative in Medellín, Colombia.

2. GREAT BRITAIN

- Dr Gavin Melles completed a research fellowship at Edinburgh University Institute for Advanced Studies in Humanities exploring sustainable development in UK postgraduate teaching and learning.

3. INDIA

- Dr Gavin Melles studied NGO and social enterprise impact assessment in New Delhi, where he also spoke on social impact at the presidential palace, funded by the National Innovation Festival. A/Prof Kurt Seemann conducted research into motorbike helmet substitutes in New Delhi in conjunction with the All Indian Institute of Medical Science.

4. CHINA

- Professor Blair Kuys initiated a joint PhD program with Beijing Institute of Technology, where he was also granted tenure as a guest professor, B.I.T’s highest honour. As featured in this report, Kuys and A/Prof Deirdre Barron have also been instrumental in developing a joint PhD partnership at Tongji University.

5. SOUTH KOREA

- Professor Blair Kuys devised a joint research project focusing on design-led innovation with Ulsan National Institute of Science & Technology, where he was appointed as a board member for the 14th period of the Korean Society of Design Science.

6. HONG KONG

- A number of final year students at Swinburne completed a sponsored program with King’s Flair, the world’s largest kitchenware manufacturer, to create modern, refined cooking utensils. Dr Blair Kuys’ relationship with Technological and Higher Education Institute of Hong Kong (THEI) has led to Kuys and Mr Nathan Loutit overseeing the designs of both Swinburne and THEI students presenting at the 2018 Business of Design Week.

7. MALAYSIA

- Professor Blair Kuys is overseeing the study of an offshore PhD student in Penang, through the University of Science, Malaysia, ensuring that research can be cultivated within the local community.

8. PAPUA NEW GUINEA

- A Swinburne PhD program focused around finding new uses for the properties of balsa wood, assisting in the protection of local incomes.

9. AUSTRALIA

- CDI Director Kurt Seemann’s continued research into waste management and its effects on health in rural and remote Australia led to the publication of A Gap to Close.
COLLABORATION WITH TONGJI UNIVERSITY
JOINT CHINESE-AUSTRALIAN CENTRE

Developed in 2015 through a joint desire to create a world-class design and innovation crossover, the coming together of Swinburne University and Shanghai’s Tongji University has significantly improved access to cross-cultural research and encouraged the interweaving of resources and academics.

A number of Swinburne design professors have become heavily involved with Tongji University, providing a variety of courses that look to target three main areas that the government’s “Made in China 2025” program has identified as key to China’s dominance in manufacturing and innovation.

- Design for Smart and Sustainable Transport
- Design for Health and Ageing
- Design for Advanced Manufacturing

Throughout 2017, the development of a joint PhD program between the two universities continued, with a number of Swinburne students partaking in an offshore one-off PhD with Tongji throughout the year. The Tongji PhD model shares many similarities to its Australian partner, prioritizing strong international connections and assisting their doctoral graduates following completion of their PhD, which Swinburne has found to be integral in attracting the attention of international grants and research funding.

Associate Professor Deirdre Barron has been an important piece of the Tongji puzzle, delivering multiple 6-week intensive courses focused around “design research skills”, and has seen the positive growth of this partnership first-hand.

“We’ve now got researchers working together on a joint grant application, led by Dr Jeni Paay, which is a big step forward”, said Associate Professor Barron.

“Researchers from Tongji and researchers from Swinburne actually developing together something to put forward as an application for a China-Australia grant is a huge step and is very positive for the partnership.”

Chinese universities are heavily influenced by a number of layers of government, and Associate Professor Barron has been impressed by how Swinburne and Tongji have been able to collaborate in an efficient manner in order to attract the attention of the Chinese Government.

“It’s a great process, but sometimes we don’t realise that even getting an application to the table is fantastic”
A/Prof Deirdre Barron has been integral in the development of the CDI’s international presence, headlining a vital partnership with Shanghai’s Tongji University. Holding a PhD in Education, A/Prof Barron has worked closely with students and key stakeholders at both Tongji and Swinburne Universities to develop a mutually beneficial program that addresses a range of learning disciplines and allows efficient transferral of research skills.

Her expertise in doctoral education was also recognised at an international education conference in Bangkok where she was the Keynote speaker on “Doctoral education as part of sustainable development”. In addition, A/Prof Barron’s role as CI in an ARC Linkage project entitled “The School: Designing a dynamic venue for the new knowledge environment”, has personified her commitment to the betterment of education systems in Australia and overseas.

ABOVE
A/Prof Deirdre Barron has delivered a number of intensive courses as part of a partnership with Tongji University.
ARCHITECTURE & HABITAT

DIRECTOR
Prof Marcus White

INVESTIGATORS
A/Prof Kurt Seemann
Mr Paul Fiocco
Prof Andrew Gunstone
Dr Sarah McLean
Dr Matthew Parnell
Prof Jane Burry
Prof Mark Burry
Mr Canhui Chen
Ms Pantea Alambeigi
Dr Samantha Edwards-Vandenhoek
Mr Daniel Prohasky
The FabPod II, currently under development by researchers in the Centre for Design Innovation’s Architecture and Habitat sector, looks to build on the success of the original FabPod I, constructed at RMIT University, which developed an intricate method of managing speech privacy in open work areas through the combination of architectural geometry and materials. The built (and used) prototypes are a vehicle for research into the vexed issue of speech privacy for meetings in open work areas, and part of a research project to investigate both privacy and speech intelligibility. A combination of absorption, reflection and scattering in the interior contributes to social vibrancy, an even sound distribution and extreme clarity on the interior. Similar moves cut sound transmission to the outside, despite the Pod’s semi open architecture (no ceiling or door). The intricacy, and custom variation of the geometry/material combination across the pod is achievable through novel approaches to cutting edge digital fabrication.

FabPod I provided an excellent enduring test bed for social and sound measurement experiments to build knowledge about its performance and to calibrate digital simulation techniques against physical measurement. PhD researcher and architect Pantea Alambeigi was able to extrapolate the simulation experiments to generate new fundamental knowledge about pod shape and sound behavior, which when applied to the design of FabPod II, has produced an even more acoustically tailored solution, that nevertheless also breaks new ground in digital fabrication and takes greater account of the constraints of manufacturability and cost.

The final product, an equally custom, non-standard space and object to FabPod I, will be finalized for application and testing in a commercial setting during 2018, promising to be a significantly innovative step in the realms of sound design and speech optimization.
ABORIGINAL HEALTH AND WASTE MANAGEMENT

A/PROF KURT SEEMANN
PROF ANDREW GUNSTONE
MR PAUL FIOCCO
DR SARAH McLEAN

Focusing around the idea that poor waste management practices in rural communities are leading to considerable health concerns, especially in indigenous communities, the CDI has concluded a project that looked to define a number of factors that can contribute to poor health in areas where waste management is infrequent or unreliable.

Beginning in 2016, researchers sought to understand a number of societal and communal contributors that could impact waste management habits, and the relationship this can ultimately have on overall health. Extensive research into both rural and non-rural communities found that an individual household’s approach to waste management was imperative in maintaining health quality, and that infrequent garbage collection by council services did not definitively impact negatively on the health of individuals.

“We found it really difficult to make an argument that we should provide a garbage bin to every household, when providing one isn’t necessarily going to improve (health),” says A/Prof Kurt Seemann.

“There’s a lot of work still to be done in order to define (confounding factors) and causal relationships in regards to waste management.”

A number of recommendations for future waste management approaches are included in A/Prof Seemann’s 2017 publication A Gap to Close, which hopes to incite an uptick in the overall health of ATSI communities.

WASTE-TO-OPPORTUNITY

A/PROF KURT SEEMANN
DR MATTHEW PARNELL

The Waste-to-Opportunity initiative implemented in Medellin, Colombia represents a collaboration between CDI researchers and local industry representatives to create a progressive waste management culture that utilizes economically-viable design principles, in an attempt to create widespread improvement in urban ecology in the region.

CDI researchers visited Medellin to gain an understanding of the City’s existing waste initiatives, masterminding a participatory design workshop to be held in June of 2018 which will encourage relevant stakeholders to engage in a redeveloped waste management approach, pressing social innovation and a subsequent redesign of the existing system. The workshop will be fueled by a variety of storytelling and visual methods in order to promote clarity of ideas, mapping the existing system in order to identify and address current system gaps.

The work of both A/Prof Kurt Seemann and Dr Matthew Parnell looks to place a considerable focus on technological advancement in their approach to waste management, which will ultimately incite a profound effect on the health and wellbeing of the citizens of Medellin. While this project remains in its infancy, its success has the potential to drastically improve Colombia’s commitment to modernizing their waste management initiatives.

A GAP TO CLOSE

A/PROF KURT SEEMANN
MR PAUL FIOCCO
DR SARAH McLEAN

“A Gap to Close” was published in May 2017, encompassing much of A/Prof Kurt Seemann’s catalogue of research into the interconnectedness of health and waste management and how this can influence Aboriginal and Torres Strait Islanders living in regional Australia. The publication aims to complement the 2017 “Closing the Gap” report developed by the Federal Government, by exploring the impact of existing waste management initiatives on the overall health of ATSI population groups, while also defining a range of contributing factors that have created a subpar waste management culture, including societal and socio-economic barriers.

“A Gap to Close” alludes to key points that can assist in future waste-centric policy making, presenting a comprehensive overview of its effect of life for those in rural and remote communities. The publication was a joint initiative between Swinburne University’s Centre for Design Innovation and WasteAid.
MARNGO DESIGNING FUTURES

DR SAMANTHA EDWARDS-VANDENHOEK

Marngo, meaning ‘over there, in the future’ in the Woiwurrung language of the Wurundjeri people of the Kulin Nation, is a place-based tertiary aspiration program that seeks to connect young Aboriginal and Torres Strait Islander secondary school students with University and the world of design.

Through a range of aspiration raising initiatives, workshop programs and cultural design camps delivered remotely and on Swinburne’s Hawthorn campus, Marngo Designing Futures seeks to promote and enable Indigenous design and innovation by nurturing youth creativity and entrepreneurship, which in turn increases the student’s cultural confidence and leadership capacity.

2017 proved a fruitful year for Marngo, with its curricula being incorporated into the Ngalangangpum School design & technology curriculum. In addition, a documentary about the program has been acquired by SBS’s NITV network and will be screened from December 2017, broadcasting the long-term goals and aspirations of the Marngo program to regional and remote Australia. In 2017, the project was also recognised at the Design and Technology Teacher’s Association (DATTA) annual conference, with Samantha Edwards-Vandenhoek presenting the keynote on Marngo as part of the conference’s focus on ‘60,000 years of Indigenous Australian Design & Technologies.’

Marngo Designing Futures continues to have a profound impact on the lives of its participants and facilitators. Ngalangangpum School reported a direct correlation between participation, attendance and engagement and noted that the students involved in the program displayed a more positive long-term outlook. Students also expressed their own feelings of pride, belonging, satisfaction and accomplishment. By adopting a place-based approach that prioritises Indigenous knowledges, perspectives and voices, Marngo has helped nurture the leadership aspirations of many Aboriginal and Torres Strait Islander youth, and provided a range of learning opportunities and education pathways that can assist them in shaping their own futures.

Marngo Designing Futures was recently awarded a Swinburne Research Impact Award, representing the Faculty of Health, Arts and Design.
USER EXPERIENCE DESIGN FOR SERVICES

DIRECTOR
A/Prof Jeni Paay

INVESTIGATORS
Prof Mark Taylor
Prof Penny Sparke (Kingston University)
Ms Patricia Brown (Kingston University)
Dr Patricia Lara-Betancourt (Kingston University)
Prof Gini Lee (University of Melbourne)
A/Prof Flavia Marcello
A/Prof Daniel Huppatz
A/PROF DANIEL HUPPATZ

The release of Modern Asian Design, authored by the CDI’s A/Prof Daniel Huppatz, has provided a comprehensive and fresh overview of the underlying intricacies of Asian design principles. A design historian by trade and working closely with the CDI’s User Experience and Services team, Huppatz’s publication was heavily influenced by his experience in Hong Kong, where he completed a PhD in Design, developing a passion for the local composition.

“There really is no general guide to design in an Asian context, so I wrote one. It offers a new perspective that challenges a lot of long-held assumptions,” says Dr Huppatz.

Noticing a considerable gap in research exposure, A/Prof Huppatz delves into the history of traditional Asian design and chronicles the evolution from the mid-nineteenth century through to the present time. He also addresses Chinese contemporary Shanzhai designers, who adapt existing designs to create hybrids, which have had a considerable impact on globalizing Asian design, increasing its exposure in the contemporary.

A/PROF FLAVIA MARCELLO
A/PROF JENI PAAY

The burgeoning User Experience Design sector of the CDI is focussing on recasting the way students, architects and the public experience historical architecture by using virtual reality technology to recreate true to life depictions of buildings that are no more. Modern technology allows users to experience architecture in a way that provides a much more comprehensive understanding of a building’s intended purpose, rather than visualizing it through photographs, drawings and text descriptions.

“I’m taking my research out of the books and publications and into creating an experience for people,” said project lead Dr Flavia Marcello.

“An individual’s experience of architecture is fundamental to their understanding of it.”

The initial stages of the project are shaped around understanding the ideas behind the Italian Pavilion at the 1937 Exposition Internationale des Arts et Techniques dans la Vie Moderne in Paris where Italian fascist architecture announced itself on the world stage. A/Prof Marcello’s team has worked to reproduce similar architectural history using VR in order to allow wider audiences to get the “feel” of 1930s design.

A/PROF MARK TAYLOR

The upcoming release of "FLOW: Interior, Landscape and Architecture in the Era of Liquid Modernity" represents the culmination of over 8 years of extensive planning and research, stemming from a symposium held in 2010 around the historical and theoretical understanding of spatial, material and environmental interdependence. The Bloomsbury publication is edited by five world-renowned design experts, including the CDI’s Mark Taylor, an aficionado in modern and historically influenced interior design.

FLOW provides a range of case studies and papers that explore the interconnectedness of the interior and exterior, on a literal and metaphorical level, as a permeable, continuous, fluid and smooth relationship. Thematic areas within the volume include “Engaging nature,” “Mobility,” “Continuity” and “Frames,” all of which are explored in innovative ways by a selection of the world’s most knowledgeable research and practice-based professionals. Collectively this volume repositions our understanding of the interior and exterior as a single environment that sits beyond the control of the buildings that once defined them.

FLOW looks to portray the close relationship between interior, landscape and architecture, providing a perspective on architecture as an enabling instrument that creates and describes relationships between phenomena. FLOW places real emphasis on ways in which these are interconnected, defining the ways movement between, whether real or imagined, takes place, resonating as an important literary item for informing the user experience.
TOP LEFT
Statue central to the Italian Pavilion, recreated in virtual reality.

BOTTOM RIGHT
Modern Asian Design provides an astute insight into traditional Asian design in a modern, global context.
FUTURE-SELF DESIGN LIVING LAB

DIRECTOR
A/Prof Sonja Pedell

Investigators
Dr Alen Keirnan
A/Prof Flavia Marcello
Mr Andrew Murphy
Dr Belinda Paulovich
Ms Jeanie Beh
Dr Stu Favilla
Mr Carl Looper
Mr Bill Trikojus
Dr Michael Lo Bianco
Dr Nicole Amers
Em. Prof Leon Sterling
A social undertaking by A/Prof Sonja Pedell and her team at Swinburne’s Future-Self and Design Living Lab has looked to refashion the common doctor’s waiting room, collaborating with ACCESS Health and Community in Hawthorn to address a range of concerns that patients have with the waiting area.

Comprehensive research undertaken by Pedell’s team has shown that exorbitant amounts of time spent in waiting rooms have become a social barrier to healthcare, an issue that the Living Lab looks to address through a number of design-influenced approaches.

Utilising a traditional Living Lab methodology, an approach that encompassed a variety of co-creative methods that were suitable to enable key stakeholders to communicate their emotions was initiated, focusing on connecting a number of spatial, social and technological factors in an effort to improve the user experience of the waiting room.

User-centred research heavily informed the design process, which looked to ideate a waiting room that catered to a wide range of potential users. In order to communicate the richness and complexity of the data and ideas, but also the variety of solutions to the client, three complementing outcomes were produced: A report, a prototype for health self-management and an animation displaying the main barriers for clients entitled “ACCESS ME NOT”.

It was this animation in particular that enabled important stakeholders to understand the emotions of the clients and be used as a tool to communicate some of the service barriers to staff and decision makers in a humorous way. In doing so, the Future-Self and Design Living Lab not only informed the modern waiting room, but also took the first step to innovating the local health care sector via health media.
A/PROF SONJA PEDELL
DR ALEN KEIRNAN
DR BELINDA PAULOVICH
MS JEANIE BEH

Utilising a co-creative design approach, Swinburne’s Future-Self Design Living Lab has initialized plans to pilot a program that facilitates the development of a dementia-friendly community, providing a vital support system for those living with dementia. The program looks to engage three key stakeholder groups: those living with dementia, their carers, and the wider City of Boroondara and its staff, who are integral in supporting and implementing the CDI’s innovative approach.

By addressing the interweaving relationships between the three, the FSDL aims to improve the quality of life of people living with dementia in the City of Boroondara, while better preparing council staff to deliver adaptive solutions to a range of situations.

Initial research has indicated that many individuals with dementia feel somewhat ostracized in their community, often excluded from activities due to their diagnosis, with some observing that the language and stigma around dementia is similar to that of a terminal illness, rather than a disability. The FSDL’s awareness program will look to cultivate an inclusive culture that provides those living with dementia with the support they require to live their fullest life.

The program is currently in its infancy, however it will prioritise a bottom up process that involves elderly individuals in the planning and implementation of Boroondara’s age friendly strategy, that is human-centric in its conception. The project will culminate in late-2018, with the FSDL conducting a dementia-Friendly event in Hawthorn that will lay the blueprint for future events by providing important guidance to a receptive and interactive community audience.
Focused around improving communication avenues for people living with advanced dementia, ‘a better visit’ was devised by A/Prof Sonja Pedell and her team at the CDI’s Future Self and Design Living Lab. The project, in collaboration with Dementia Australia and Lifeview Residential Care, developed a number of interactive iPad applications to enhance a dementia patient’s ability to share experiences and converse with any visitors they might have, but with a focus on partners and family members.

The co-design of four applications throughout 2017 has allowed improved, proactive interaction for those residing at Lifeview, where Sonja’s team have been visiting fortnightly over the last year.

“We have a strong emphasis on content creation, that the person with dementia has a feeling of impact and on the interaction - not just passive consumption,” says project lead Sonja Pedell.

The apps utilise a range of sensory stimulants, such as sound, music and imagery to facilitate engagement and conversation, creating a shared experience of the resident and visitor dyad. Some also provide a competitive aspect, allowing users to challenge each other in a comfortable environment.

“It’s very subtle, but people like it, and the visitors enjoy it.”

These apps will be launched by Dementia Australia in 2018.
In conjunction with Wyndham Council’s Ageing Well facility in Tarneit, Swinburne’s Future Self program developed a number of tablet-based music interactions, to involve those living with dementia. Tablet software control systems were developed to allow for expressive music to be played alongside a pre-recorded keyboard performance, as substitutes for keyboard touch and note duration. Participants were given access to a range of different musical genres to practice, with no prior musical experience required, before a number of participants performed a Bach double concerto at the Tarneit Ageing Well Centre’s Christmas concert. The development of these skills over a number of weeks suggested to researchers that those with dementia have the potential to develop and retain musical knowledge and performance skills over time, leading to the possibility of increased stimulation for those with this condition.
Smart Equipment Engineering & Wearable Technology Design

DIRECTOR
Prof Franz Konstantin ‘Tino’ Fuss

INVESTIGATORS
Mr Tobias Menzel
Mr Batdelger Doljin
Dr Edouard Ferdinands
Dr Yehuda Weizman
Mr Kwangyul Jeong
Mr Adin Tan
Mr Ardalan Katebi
Newly developed smart compression garments designed by the CDI’s Smart Equipment Engineering & Wearable Technology Design team rely on a range of sensors to gauge the amount of pressure being exerted by muscles. The garment, similar in design to those of popular Australian compression companies such as 2XU and SKINS, has quickly become popular among sports analysts, providing almost-instantaneous feedback on muscles exposed to high levels of pressure.

“The sensors are sandwiched in between the garment and the skin, so when the muscles begin to bulge, the sensors are triggered and from there we can calculate what the muscle force is,” says core program lead Tino Fuss.

Measuring contraction force and knee-ligament loads, the smart compression garment has shown proficiency in injury prevention, with a focus on the knee’s cruciate ligament. Overloading of the ligament can be assessed by the garment, allowing sports scientists to identify ways to reduce ligament stress.

The technology has also been used to analyse “19 different variations of the spin delivery,” many of which Prof Fuss says “would not be found in Bob Woolmer’s Art and Science of Cricket”.

By devising the “perfect” amount of forces imparted on a cricket ball, coaches can recognise when this optimum level is not achieved and promote a change in technique to better allow an athlete to reach their peak.

The ball itself works by housing 3 high-speed gyros that measure spin rate, before transferring data via a wireless transmitter within the ball. The Gyros are incredibly responsive and can pinpoint the difference between spin deliveries.

“By measuring spin rate, it allows coaches to classify young cricketers and work to develop spin rate,” says Professor Tino Fuss.

“If their spin rate is low, it is likely an issue with the technique that coaches are able to then fix.”

The ability to calculate a range of parameters, such as spin velocity and finger torque imparted on a cricket ball, has revolutionised the difficult art of spin bowling, allowing the development of advanced coaching techniques while also aiding intervention studies for elite cricketers.

The Garment is currently in its final testing phase with a number of elite sporting organizations, the details of which cannot be shared at this time.

A comprehensive research paper has also been published recently.
Developed using innovative smart sensor technology, the smart soccer boot enables coaches and athletes to better understand the “sweet spot” of the boot that should be used to achieve an optimal amount of curl on the ball. Testing was conducted with a number of players shooting towards a goal a third of the size of regulation, in a scenario where they were asked to curve kick a ball around a wall and into a goal.

By accumulating the amount of shots that hit this reduced target, the optimal centre of pressure for curling the ball could be ascertained, which then allowed researchers to pinpoint the sweet spot of the boot. Once this information is relayed to the players they are able to alter their kicking technique to further utilise this sweet spot in-game and in training situations, improving their ability to score and hence their contribution to a winning scenario.

“It’s about improving the performance of athletes and the success of a team,” says project lead Yehuda Weizman.

The research will also likely impact the design of soccer boots into the future, in order to maximise the now-discovered sweet spot that will ensure optimal performance in a game scenario.

“You can now not only classify the quality of the player, but also the quality of the shoe,” according to Smart Equipment Engineering & Wearable Technology Design program director Tino Fuss.
The continued focus of the CDI’s Smart Equipment Engineering & Wearable Technology Design team on developing innovative diagnostic tools for implementation in competitive Kendo has created significant progress in the amount of information available to the Kendoka, with a range of modern analytical devices now available for technique assessment and pressure analysis. Recent improvements have focused around the development of a smart “kote” (wrist) glove, which houses a number of sensors that are designed to inform the Kendoka of scoring and non-scoring shots, while also measuring the cut force exerted.

This new analysis tool promises to assist the comparison between the Dan and Kyu grades of Kendo mastery by providing instantaneous feedback on strike force and accuracy, providing information that can be adapted for the coaching and optimisation of technique in both classes of swordsmen. This wider understanding of elite Kendoka will be integral in maximising the technical proficiency of a wide variety of aspirational Kendoka, with the “kote” glove’s likely integration into the Australian Kendo Renmei where it will be used to assist the development of talented individuals in Australia’s Kendo ranks, before it is implemented internationally.
The research and development of a smart insole by the CDI’s Smart Equipment Engineering & Wearable Technology Design program has seen an exponential increase in the amount of data that can be extrapolated from an individual’s gait. The new insole utilises a series of sensors that detect the pressure centre of each step a user takes, creating a plethora of statistical benefits.

The insole aims to have a substantial effect on the quality of life of a wide range of people, by accumulating data and notifying users if a change to their walking pattern needs to be made.

Professor Tino Fuss sees the insole improving the quality of movement of a range of demographics, including “diabetics, the elderly, people with neurological disorders as well as of course, sportsmen.”

“We want the insole to have as many applications as possible.”
ADVANCED PRODUCT DESIGN

DIRECTOR
Prof Blair Kuys

INVESTIGATORS
Mr Nathan Loutit
Mr Ali Bahrman
Mr Andrew Weeks
Mr Mathieu Lewis
Ms Rachel Hook
Mr Matt Kempe
Mass-producing the first ever 3D-printed track-mounted downlights.

The future of commercial 3D printing looks to be in good hands after success between the CDI and Melbourne-based lights manufacturer LimeLite. The development of “Australia’s first low volume 3D Printing Production Facility” opened up a range of opportunities for LimeLite to create 3D lighting “made to order”, dramatically reducing production costs and effectively allowing a local lighting company to grow into a force among the Australian market.

Collaboration between LimeLite and the CDI’s Advanced Product Design team proved a resounding success, creating a range of 3D printed track-mounted downlights that were previously unseen on the luminaire market. These lights have dramatically increased the amount of choice available to users, creating an efficacious product that will have a lasting effect on the lighting industry, while remaining extremely cost-effective.

A new collaboration between LimeLite and the CDI is currently under works, the details of which are unable to be discussed at this time.

Papua New Guinea relies heavily on its balsa wood industry, exporting the soft wood globally, in a way that provides a myriad of jobs to its locals. However, PNG had struggled to retain its own balsa, until a Swinburne PhD student, Nathan Kotlarewski, innovated the idea of “Balsa-lation.” His research focused around repurposing balsa wood for interior wall or ceiling linings, in turn enhancing the thermal and acoustic insulation of civilian homes.

Overseen by Dr Blair Kuys, the project was extremely successful in reinvigorating the PNG balsa industry, providing locals with a steady income for the first time since the global financial crisis, while also rejuvenating the local construction industry. The project has received considerable praise from the design industry, as a sustainable and socially responsible undertaking that has masterfully impacted an important neighbouring industry.
Creating Australia’s first bushfire-resistant skylight.

Skylights have become commonplace in many modern homes over the last 15 years, however until recently there were none that could stand up to the harsh conditions experienced in Australia’s regional areas.

The Centre for Design Innovation teamed up with AtLite to create a revolutionary new skylight that was certified up to BAL40 Bush Fire Attack Level, the first of its kind designed and manufactured in Australia.

“Previously, the only fire-rated skylights were manufactured in China, so our client saw a real opportunity to have their skylight manufactured in Australia,” said project lead Nathan Loutit.

The CDI created a concept which utilised a clever aluminium extrusion system with a number of fire-resistant materials. A fireproof retractable hatch can be used to cover the skylight in the event of a fire, sealing the skylight off completely.

In doing so, the Centre for Design Innovation successfully created a market leader, accounting for 80% of AtLite’s orders since and improving efficiency of production by 75%.

This new design is sure to have a resounding, continued effect on how those in rural areas build their homes, adding an aesthetically pleasing feature while also improving their preparedness for the adverse conditions that often befall our rural communities.
In July 2017, the Centre for Design Innovation was commissioned to design and oversee development of a Korean War memorial to be erected in Footscray’s Quarry Park, overlooking the Melbourne skyline.

A range of designs were conceptualised, while extensive research on existing memorials in Korea was completed in order to shape what would become the centrepiece of Korean war history in Melbourne.

While three designs were developed for presentation, all of which centred around the coming together of the two nations, with traditional fauna and the famed mountains of Gapyeong depicted throughout, a curved bridge design was ultimately chosen. The design paid homage to the South Korean Taegeuk, while importantly symbolising a link between the two nations.

Featuring a metropolis design which doubles as the railing of the bridge, the memorial rises up with a view of Melbourne’s skyline from the west, with a pair of teardrop shaped gardens alongside the bridge to replicate the famed ‘Yin-Yang’ design native to Korea. In addition, paving along the bridge represents both Melbourne Blue stone and Korean Kapyong stone, meeting in the middle to represent the ‘coming together’ of two nations.

The memorial promises to be an ideal location for all people to come together and reflect, but also to enjoy a memorial that compliments the beautiful surrounding landscape.
ASSOCIATED PROJECTS
// DEVELOPING FUNCTIONAL MEASUREMENTS FOR THOSE WITH LOW VISION OR BLINDNESS

A/PROF DENNY MEYER
DR AMIRUL ISLAM
DR ABDULLAH AL MAHMUD
DR ANDREW PIPINGAS
DR JAHAR BHOWMIK
DR SUKU SUKUNESAN
DR CHRIS MCCARTHY
A/PROF BEE THENG LAU (SARAWAK)
DR PAN ZHENG
DR ALMON CHAI

A new study addressing the international shortage of orientation and mobility (O&M) specialists, while also developing a comprehensive long-term vision for comparative processes for people and assistive devices has been undertaken by Swinburne researchers from FBL, FSET and FHAD including the CDI’s Dr Abdullah Al Mahmud. In conjunction with a number of industry partners, including Guide Dogs Australia and the Sarawak Blind Society, the project began in 2016 as a collaboration between Swinburne’s Hawthorn and Sarawak campuses.

The ongoing project aims to align functional measures for O&M assessment, guide referrals and profiling of O&M clients, which will better allow for the provision of appropriate services. Two new functional assessment tools, VROOM and OMO have been developed, measuring vision-related outcomes in orientation and mobility (VROOM) and O&M Outcomes (OMO), which utilize a range of behaviourally anchored rating scales, which will work in tandem with observations from clients, assessors and other stakeholders to create comprehensive and precise mixed data that can then be transposed for the development of effective management approaches.

// FUTURE DECK

PROF STEFFEN P WALZ

The FutureDeck® is a new business innovation approach that encourages playful entrepreneurial ideation and facilitates the development of new service and product ideas for the digital age in a fun and engaging way. A card game that cultivates an openness towards unexpected market convergences and requires players to quickly adjust to change, the FutureDeck® presents participants with a range of entertaining objectives and scenarios through which “to tell stories from the future.” Thereby, it allows the construction and break-down of novel concepts, providing a promising tool and mindset for organizations to create and refine new ideas, in order to flesh-out the intended user experience prior to prototyping or going to market. Steffen P Walz’s FutureDeck has already been adopted by a number of reputable commercial and institutional organisations, including automaker Daimler (DE), pharma firm Fresenius (DE), think tank Deloitte Centre for the Edge (AU), the University of St Gallen’s Executive School (CH), the Victorian Department of Education and Training (AU), and the City of Melbourne’s CityLab (AU).
Addressing the rising levels of loneliness in adults, Swinburne has partnered with Relationships Australia Victoria (RAV), to develop a ‘sound comprehensive digital tool’ that will aim to provide a complete solution to those developing symptoms of, or who are already suffering from, loneliness. By gaining a comprehensive overview of a range of different determining factors of loneliness through widespread research, the project looks to implement an interdisciplinary approach that will prioritise psychology and human-computer interaction in order to encourage content engagement. The continued success of this project will look to subsequently create real life outcomes in establishing positive and meaningful relationships in the outside world and have a positive effect on the quality of life experienced by those involved.

A number of final-year Swinburne students have been involved in modernizing traditional kitchenware, in a sponsored program with Hong Kong-based cookware magnate King’s Flair International. The project, which enlists members of the “Y generation” focused around engaging an audience that has become enamored with the popularity of reality cooking shows, in order to redefine traditional outdoor cooking utensils.

“The tools of cooking, such as tongs, spatulas and others were all designed 50 years ago,” said Professor Blair Kuys, head of the Advanced Product Design sector of the CDI.

“We’re trying to have the products of cooking designed by the younger generation.”

The project hopes to incite the catalyst for positive change in the kitchenware industry, by creating modern utensils that significantly improve the user experience through sleek design and usability; appropriate for the next generation of cooks.

The success of the first collaboration between King’s Flair and the CDI has led to the development of a new project in 2018, the details of which are unpublishable at this time.
DR CHRISTOPHER WALLER  
A/PROF SIMONE TAFFE  
A/PROF KURT SEEMANN

“Visualising Community Experiences”, led by Swinburne’s Dr Christopher Waller, explored innovative methods of representing the community voice to Boroondara Council managers and staff. By visually depicting the 9 most common life events experienced by Boroondara residents, the project enabled Council staff to develop a deeper understanding of their community and the steps they take to navigate these events.

The CDI research team conducted two co-design workshops with managers and staff of Boroondara City Council, as the targeted end-users of “Voice of the Customer” (VOC) data. This approach allowed researchers to gauge how staff traditionally engage with existing VOC data and provided the necessary space for innovation in their mapping approach. As a result, the CDI initiated the design of 9 Customer Life Event Guides, that could accurately and concisely convey VOC data in an accessible way.

The final outcome, released early in 2018, resulted in 9 Customer Life Event Guides depicted in the form of two map templates. The first; a customer centric diagram that encompassed heat maps, pain/delight scales and the steps taken to navigate each individual life event, and the second; a reference table that assisted in comparing the functional and emotional goals of these events.

PROF STEFFEN P WALZ

Exergaming is a concept that promotes exercise through the use of video games and gamification, placing importance on game elements such as mechanics and UI design in order to attract users. Until this point, this approach has relied largely on home video game consoles and stationary exercise, due to its dependence on a television setup and additional console equipment such as a motion tracking camera. CDI’s Steffen P Walz and his team have developed a mobile smartphone platform for exergaming, through a project entitled Mission: Schweinehund, which provides players with a fitness-level adjusted, personalized exercise regime and which takes advantage of smartphone sensors and actuator capabilities, incentivizing a healthier lifestyle by way of interactive storytelling and by game mechanics. This way, the platforms sets out to tackle lifestyle diseases such as type-2 diabetes mellitus and Chronic obstructive pulmonary disease. It has been developed in close collaboration with the Swiss University of Basel’s Department of Sport, Exercise and Health, and had been sponsored by Novartis Pharma Germany.

Currently available on the German iOS and Android stores, Mission: Schweinehund has become a leading light of the new generation of exergaming, motivating at-risk demographics to increase physical activity levels through joyful progress that requires movement and which embeds into everyday life, thus encouraging the user to participate in the game at any opportune moment.

PROF BLAIR KUYS

The CDI has been proactive in developing a number of offshore PhD programs, in an effort to cultivate an innovative culture that can benefit a wider international community. Programs in Thailand, Malaysia and China have been instrumental in increasing the CDI’s overseas presence and providing invaluable skills for locals that can then be put into practice to improve the human experience in their local communities.

“Too often we’ve been taking international students into Swinburne, educating them for a PhD and then they stay in Australia while the knowledge is lost from their home country,” said the CDI’s Dr Blair Kuys.

“The intention is they get their qualification but then they stay in their country and give back their knowledge and grow their local economies.”

Development of a number of joint PhD programs with both Tongji University in Shanghai and the Beijing Institute of Technology are in advanced stages, to be further established throughout 2018.
The 9 significant life events that were depicted in Customer Life Event Guides developed by the CDI.

**TOP ROW**
German Language application Mission: Schweinehund personifies mobile exergaming.

**BOTTOM**
The 9 significant life events that were depicted in Customer Life Event Guides developed by the CDI.
Highlighted projects

CAT1
- Developing pedagogical solutions to linguistic and cultural barriers in design education supporting Asian architecture students
- The Sound of Space: Architecture for improved auditory performance in the age of digital manufacturing
- Place and Parametricism: Provocations for the Rethinking of Design
- The Analects of Antoni Gaudi
- Swarming: micro-flight data capture and analysis in architectural design
- High-Tech Modular Building Components with High Contents of Australian Hardwood

CAT2
- Tough hydrogel materials as drug delivery vehicles for prevention and treatment of HIV and other sexually transmitted infections
- The Digital health and wellbeing project: Training Package and Evaluation
- Marngo Designing Futures: Building pathways to higher education for Aboriginal and Torres Strait Islander secondary students through a place-based design education program
- Visualising Community Experiences: Boroondara Customer Journey Mapping Co-design Research Project
- Memory, Nostalgia, Empathy: What does Dementia Feel Like?
- Dementia-friendly communities: Living together watching out for each other

CAT2-3
- 3D printing of pharmaceutical formulations
- Compacting rubbish
- The Digital health and wellbeing project: User test
- Design and prototype a premium barbeque
- Design and development of a premium barbeque (Project 2)
- Memobottle: New iterations
- Virtual Digitalisation with RFID Technology for Steel Fabrication
- Telescope Stage 2: Parasite Image Recognition, Filter enhancement, Visualisation of Design
- A new food packaging dispensing solution (Stage 2)
- The Sports Injury Sitter (SIS)
- The 3D printing of luminaire light fixtures
- The 3D printing of luminaire light fixtures – (Stage 2)
- Design and development of a new boiler
- Australia’s first fire-rated skylight
CAT3
• Research and development for a new toy linked to Sam and Partners Doh-dough
• Research and development used to expand upon Star current industrial container
• Research and development into an innovative coat hanger design and new closet storage solutions
• Research and development into creative furniture designs/systems for nano-apartments
• Research and development into collaborative indoor/outdoor
• Augmented Reality Application to Assist People Living with Dementia
• Mercedes-Benz Coders Lounge Activation, Web Summit
• A digital prototype addressing loneliness in older adults
• Project Geldom - Building the Better Feeling Next-Gen Condom
• Media art as urban storytelling: Australian opportunities for data-driven content on large format screens
• Using animation for envisioning the Primary Care Centre Concept
• Graphene reinforced smart composites
• Early prototyping of automotive mobility apps and services around health, wellbeing, safety for human-computer interactions with autonomous cars
• The AccessHC family: a branded series of characters and animations for staff training, patient education and engagement
• Melbourne Korean War Memorial
• Investigating the influence on co-design on the role of designer (Fan Art)
• Designing the Waiting Room 2020: Exploration of supportive innovative health services for the community- Design Summer Studio 2017
• Project Geldom Phase II
• A better visit project: Creation of four social tablet-based game apps for enabling people living with dementia
• Shaping Change

CAT4
• Development of a smart insole for diabetic patients
• A sociological analysis of low carbon food waste practices

INTERNAL/OTHER
• Research sabbatical scheme - A/ Prof Sonja Pedell
• Marngo designing futures: connecting culture, demystifying university & building higher education aspirations in design of indigenous Australian secondary students
• Marngo designing futures: connecting culture, demystifying university and building higher education aspirations in design of indigenous secondary students across Victoria
• Developing pedagogical solutions to linguistic and cultural barriers in design education supporting Asian architecture students
Selected works

JOURNAL ARTICLES


Omar, M., Novoa, M., Al Mahmud, A. (2016) Towards the successful integration of design thinking in industrial design education. in Proceedings of the International Conferences on Internet Technologies & Society (ITC), Education Technologies (ICEduTECH), and Sustainability, Technology and Education (STE), Melbourne, Australia, 6-8 December 2016.


PhD students associated with CDI have made a significant contribution to design research. As at June 2018, CDI Investigators were supervising over 58 PhD students since CDI’s 2016 Inaugural Research Report. A sample of thesis topics are listed below.

**PHDs COMPLETED/UNDER EXAMINATION**

- Towards an alternative approach to policy design to empower Indigenous Australians in the upcoming green economy: a cross-cultural service design thinking framework by Paul Fiocco
- Enhancing creativity in engineering education to promote innovation: Action research in engineering design by Yasemin Tekmen Araci
- Interest in the Learning of Mobile Touch Screen Technologies by Older Adults by Hwee Boon Jeanie Beh
- What happens when the Design Process meets Community Engagement by Dylan Daviszq
- Engaging Multiculturalism through Participative Design in Brand Identity Design by Mun Wai Wong
- Designing Innovative and Engaging Mobile Health Technologies for Older Adults at Home by Michael Lo Bianco
- Explaining Aesthetics: The typicality-novelty interface by Shihani Tyagagi
- New Product Development for Papua New Guinea Balsa to Improve Smallholder Livelihoods by Nathan Kotlarewski
- Understanding the behaviour of design thinking in complex environments by Stefanie Di Russo
- Understanding the Web experience of elderly Taiwanese learners: An investigation using Structural Equation Modeling by Li Chen Izaz
- Fengshui as a Narrative of Localisation: Case Studies of Contemporary Architecture in Hong Kong and Shanghai by Kirsten Day
- DACADE: a systematic data collection and analysis tool for design students by Madhah Sheikh Abdul Aziz
- The Mere Exposure Effect: Application to Emotionally-Laden Stimuli by Nicole Aimers
- Understanding design thinking in practice: A qualitative study of design led professionals working with large organisations by Zaana Qaveh
- Unpacking the Complexity of Packaging Design Interaction: Developing a Packaging Knowledge tool for Design Practitioners by Emily Wright
- The Product Effect: Do the Characteristics of Products Transfer to Their Owners? by Marne Crook
- Predicting the Visual Aesthetic Performance of Designed Objects: A Test of the Categorical-Motivation Model by Joek Poen Chin
- The design of an Internal Brand Communication System by Siti Abdul Razak

**PHDs IN PROGRESS**

- Decision Support Tool for Managing Design Innovation by Robert Lawrence Wichtmann
- Constraints and limitations of manufacturing conventions and techniques on designers and product design outcomes. by Christoph Koch
- Psychology of the Prison Space by Friederika Helena Pedroira Brandao Hackler
- Smart Cities for Elderly by Zhi Zhang
- Research into, and development of, smart boxing gear for the measurement and analysis of boxing related biomechanical parameters by Tobias Menzel
- Centre-of-Pressure and Hotspot Based Smart Biofeedback Insole for Prevention and Management of Diabetic Ulcers as well as for gait training of diabetic patients by Ming Adin Tan
- Selection and Evaluation Methods for Innovation Projects by David Mesa Saldivar
- Identifying developmental milestones in applied design led innovation capability in the technology genre of Design-Led Systems Engineering, Victoria by Milonad Cerovac
- A development of a smart cricket ball for performance diagnostics and enhancement and for optimisation of training via real-time bio-feedback signals by Batdelger Doljin
- Humanitarian Design for Floods in Australia and Comparative Countries by Rebekka Fuge
- Identifying developmental milestones in applied design led innovation capability from emergent play to sophisticated pioneer in the technology genre of Product Design and Technology by Kathryn Deighton
- A Reconsideration of Place in the Context of Computer-Biosphere Interactions by Julian Rutten
- Shape the Sound in Space: Design to Refine Speech Privacy Perception by Pantea Alambeigi
- High-Tech Modular Building Components with High Contents of Australian Hardwoods by Matthew Gutowski
- Achieving Indoor Environmental Well-Being Through Sustainable Design by Nataley Alejandra Arevalo Garcia
- Psychological wellbeing response of building occupants to varying daylighting conditions and accompanying natural view. by Allen Lo
- Intelligent Evolution of the Manufacturing Sector: Integrated Design-Led Innovations as an Effective Approach for Small and Medium-Sized Manufacturers to Diversify Capabilities by Wenwen Zhang
- An investigation into the older user’s experience towards smart home products by Emmanuel Thursday
- From Pigment to Vectors: Examining the impact of innovative communication design technologies on the visual styles and livelihoods amongst practicing artists in remote desert Aboriginal communities by Nicola St. John
- Compost and fertiliser use in Australian horticulture: networks and practices by Katharine Thornton
- Mobile communication technology, between grandparents and grandchildren separated by distance: Mediating emotions and building a meaningful relationship by Angeline Mayasari