

# SCCAR 2017



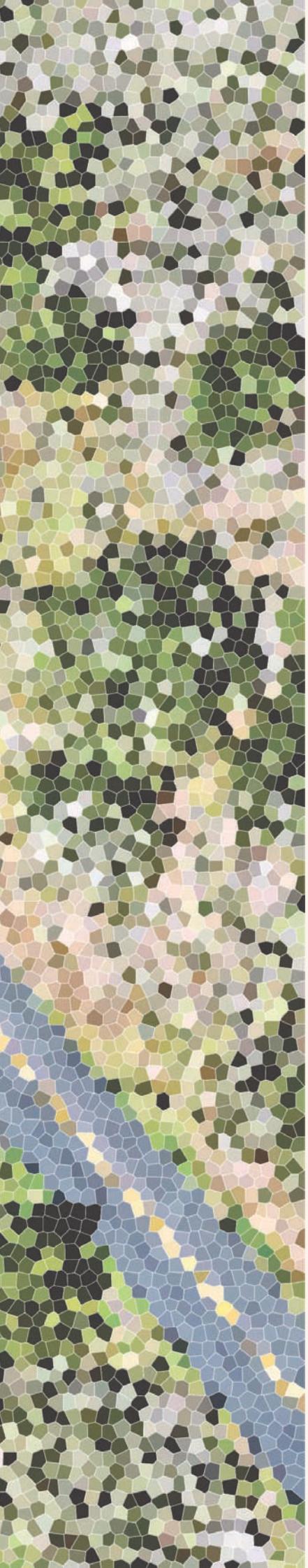
The  
Spatial  
Capability  
Cluster  
at RMIT.

“

Spatial is all about location and place. RMIT is home to a unique and world-leading range of research expertise in spatial.

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# Spatial Capability Cluster at RMIT

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2017 Annual Report



# Welcome

**S**patial is all about location and place. RMIT is home to a unique and world-leading range of research expertise in “spatial”, from Science to Social Studies, Architecture to Business, and the Environment to Artificial Intelligence.

The Spatial Capability Cluster at RMIT (SCCAR) was established to provide a sustainable and interdisciplinary community of practice in “spatial”. SCCAR brings together experts across all three RMIT Colleges (Design and Social Context, Business, and Science, Engineering and Health) and across four ECPs (Enabling Capability Platforms). SCCAR also connects and supports researchers at all career stages, from experienced Distinguished Professors to early career researchers and HDR students.

This inaugural SCCAR report provides but a snapshot of the enormous energy, talent, and diversity of researchers and research in spatial across RMIT today. I hope you find even this sample of the impactful spatial research and applications at RMIT as inspiring as I do.

Professor Matt Duckham



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# About SCCAR



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SCCAR aims is to foster a sustainable community of practice and to develop an interdisciplinary research cluster in “spatial”.

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**S**patial is everywhere. Space and place underpin our understanding of problems in a huge variety of applications, from smart cities to emergency response, education to the environment. This understanding increasingly informs our decisions across government, industry, and the wider society today.

RMIT University in 2017 is already home to a remarkable breadth and depth of world-leading spatial research and spatial researchers. The motivation behind the formation of the Spatial Capability Cluster at RMIT (SCCAR) is to focus and connect this existing research activity. Hence, the role of SCCAR is not to *conduct*

research. Instead, SCCAR aims to *connect* research and researchers, fostering a sustainable community of practice in spatial across the cluster.

This annual report reviews some of the major activities and outcomes of SCCAR’s first six months of existence, since July 2017. These include workshops, new communication channels, and a selection of impact case studies in the spatial research already being conducted by cluster members at RMIT University. Through this, you may judge for yourself whether SCCAR has been successful in its aim of establishing new and strengthening existing connections. We hope you agree it has.

SCCAR was established with seed funding from RMIT's Enabling Capability Platform (ECP) Capability Development Fund (CDF). The cluster has established particularly strong ties with four key "spatial" ECPs: Information and Systems (Engineering), Urban Futures, Social Change, and Design and Creative Practice.

# The Enabling Capability Platforms (ECPs)



**P**rofessor Mark Sanderson is the director of the *Information Systems (Engineering)* ECP, which brings together capabilities in data analytics, cyber-physical systems, mobile and pervasive computing, automation, and user-centric systems.

**T**he *Urban Futures* ECP is directed by **Distinguished Professor Billie Giles-Corti**. It addresses the urgent need for research to inform how cities can be more equitable, sustainable, and accountable.



**D**istinguished Professor Larissa Hjorth is the director of the *Design and Creative Practice* ECP, committed to advancing social and digital innovation and alternative pathways for impact through collaboration.

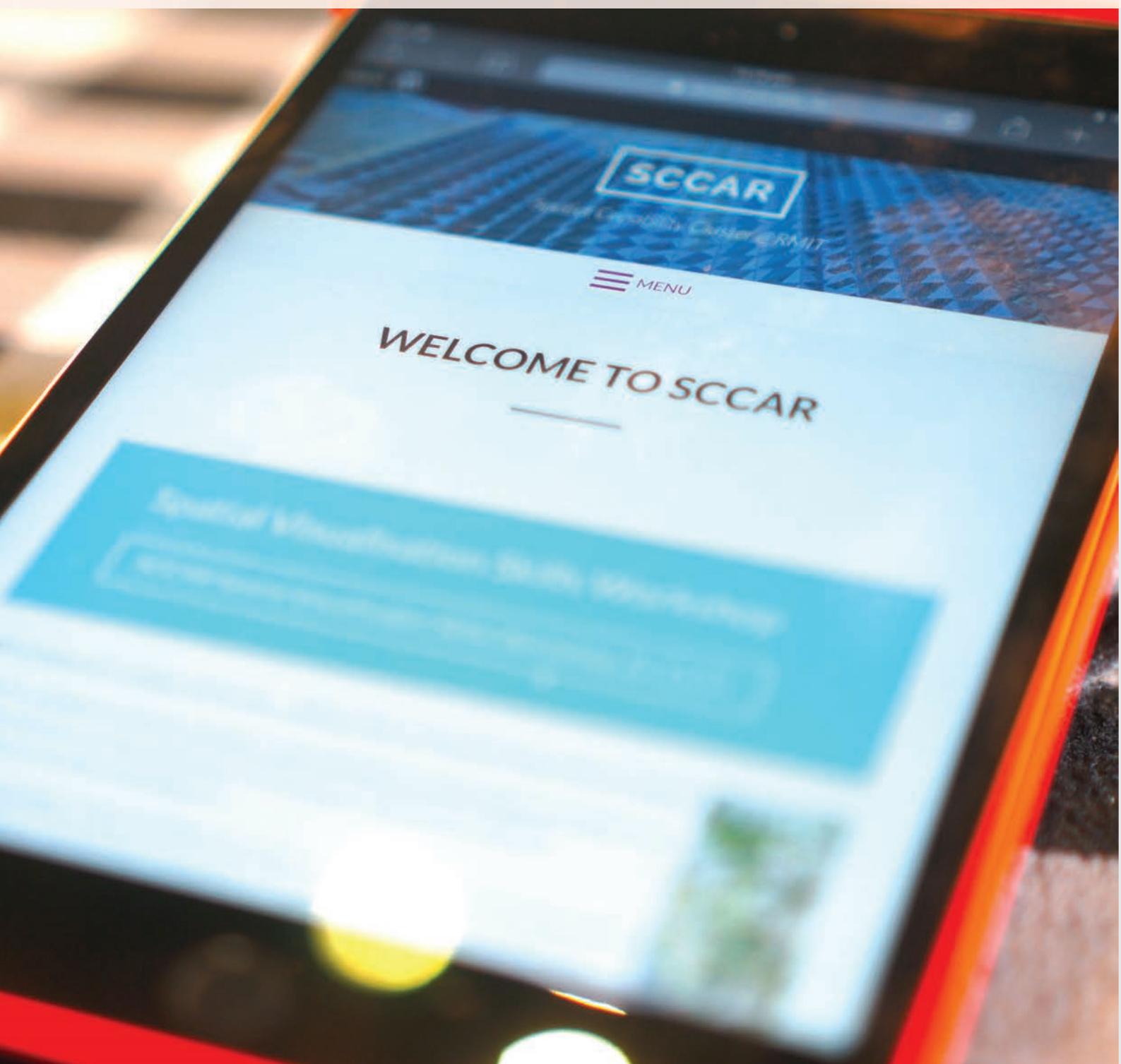


**U**nderstanding social change associated with human progress, from the global to the local scale, is the focus of the *Social Change* ECP, led by **Professor Julian Thomas**.



# The SCCAR Website

The SCCAR website is the communication platform for connecting spatial researchers at RMIT University and showcasing RMIT's spatial research to the wider community. You can find the latest information about SCCAR members and their research, as well as join the network yourself, at [sccar.rmit.edu.au](http://sccar.rmit.edu.au).



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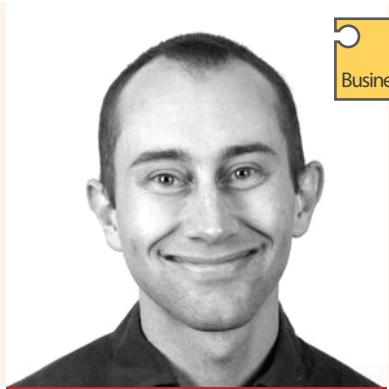


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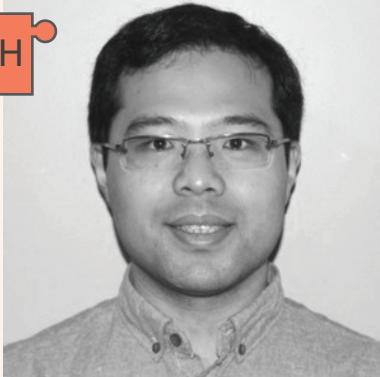
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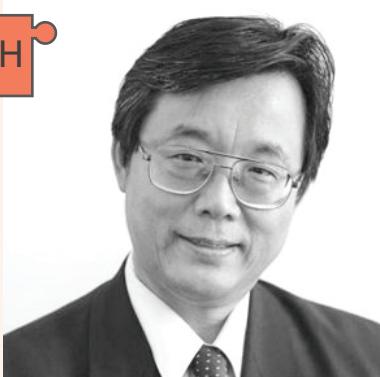
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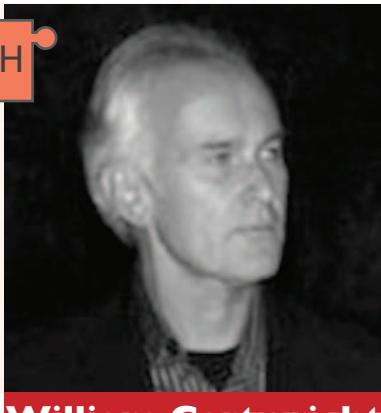


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The SCCAR team thanks all of its network members for their support and engagement over 2017.

If you would like to join SCCAR, you can do so by visiting the SCCAR website at:

<http://sccar.rmit.edu.au/get-connected/>



# SCCAR Network Launch and Workshop

The Design Hub, RMIT University, 18th October, 2017



# Coming Together...

Spatial research happens across an impressive breadth of RMIT's Schools and Colleges. This launch event provided an early opportunity for spatial researchers to come together as a community, identify shared research agendas, and to forge new ones.

Welcome and introductions to the network and the day were provided by ECP Directors Billie Giles-Corti, Mark Sanderson and Julian Thomas.

Participants then also introduced themselves and their work in a series of two-minute "lightning" talks. These talks showcased the breadth of spatial research and expertise across RMIT, with participants presenting on topics that ranged from Bohemian clusters in the housing market through monitoring of forest canopy to spatially inclusive cities and communities.

The workshop then explored the different ways that interdisciplinary researchers use spatial terminology and concepts. Participants nominated five "tag" words that described their skills, research appli-

cations, and the concepts that underpin their research (creating a total of fifteen words). Participants discussed their tags within groups, which were structured to include a mix of disciplines and researches at different stages of their careers.

This exercise helped identify where research links exist but are obscured by different vocabularies and analytical frameworks. The "tags" identified at the workshop are being used as a framework to aid communication across disciplines and to external organisations and agencies.

The afternoon was devoted to a case studies and project development exercises. The case studies exercise was led by Xavier Goldie, helping to develop the library of case studies in this annual report (pp 14-23).

Having been exposed to others' projects and the spatial "tags" identified across the group, participants broke into groups to discuss the ways that existing research agendas would benefit from others' research capabilities. These conversations identified complementary projects and provide a platform for future collaboration.

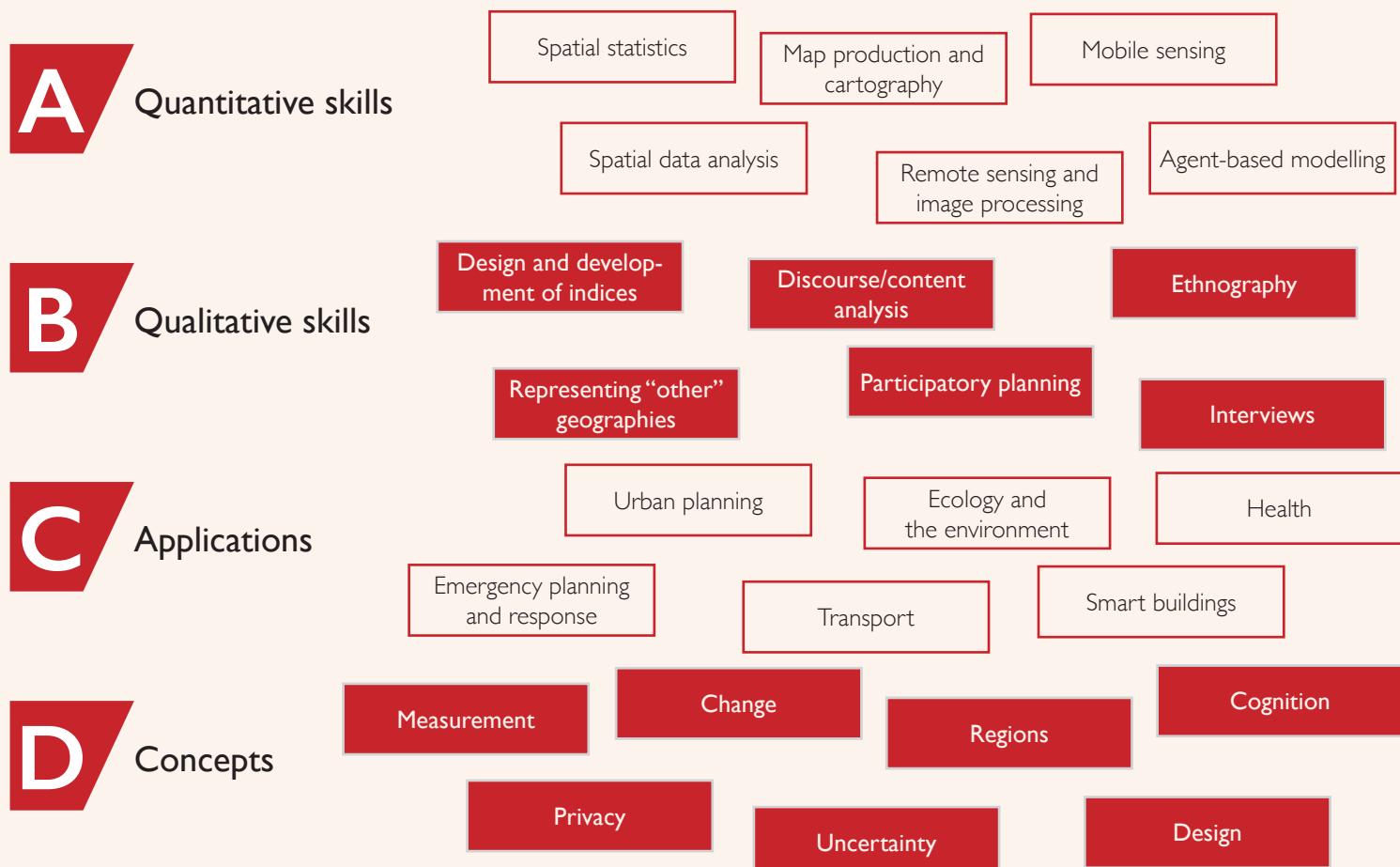
The workshop furthered SCCAR's longer term objective of making spatial research visible, accessible, and collaborative. For example, since the workshop the full breadth of participants' "tags" have been drawn together and synthesised into a concise list of terms (p16). The outcomes are being used to enable researchers and industry more easily to engage with each other.



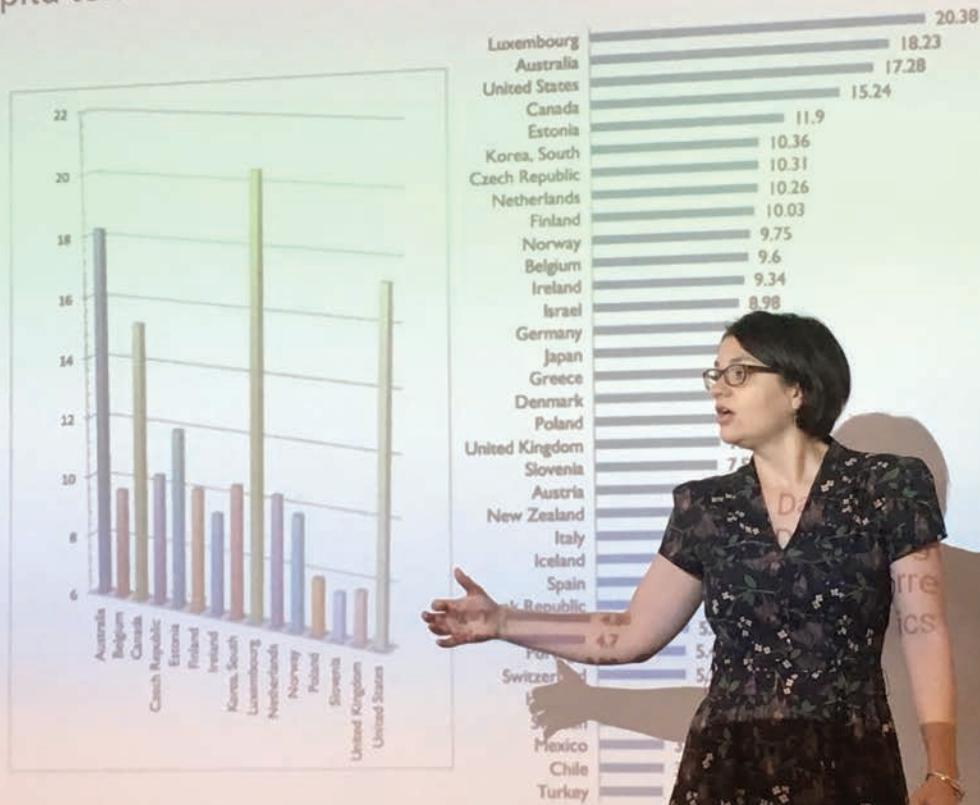
# Summary Spatial “Tags”



Spatial tags are helping researchers communicate, whether they are looking for a particular technical skill, application of spatial research, or overarching research concept.



## Per capita tonnes of CO<sub>2</sub> emissions for selected OECD countries



# Spatial Visualisation Skills Workshop

At the SCCAR Launch and Workshop, participants were asked to nominate topics for technical workshops. On 21st November 2017 SCCAR hosted its first Spatial Skills Workshop, on the topic of Spatial Visualisation and led by Dr. Sarah Goodwin.



# SCCAR Researcher Showcase



SCCAR Contact: Dr Suelynn Choy (p9)

## Satellite-Based Disaster Warning System

Resilient societies require rapid and effective communication and dissemination of safety information and warnings to the general public in case of an emergency. New media and mobile technologies are shaping people's growing expectations of individualised warnings to personal mobile devices. In particular, location-based emergency services and mobile alerts are becoming increasingly prevalent in the provision of emergency warnings. In Australia, the Australian National Emergency Alert (a telephone-based service) has been used widely. However, telephone-based warning services are vulnerable to network overload and ground-based disruptions in the extreme and unexpected circumstances surrounding an emergency.

This research was undertaken by an interdisciplinary RMIT team led by **Professor John**

**Handmer** and **Dr Suelynn Choy**, working alongside specialists in Japan from Keio University and two corporations (NTTData and PASCO). The team investigated the use of next generation global satellite navigation systems (GNSS), such as the Japanese Quasi-Zenith Satellite System (QZSS), in the provision of emergency warnings and alerts. The Japanese QZSS signals can be used to "piggyback" real-time location-based emergency warnings to people's mobile devices. The satellite's orbit provided a unique opportunity to provide warnings across the whole of Australia, without the constraints of ground-based communication technologies.

In the course of their investigations, researchers interviewed key personnel from both Victorian and national organisations providing emergency and disaster management services. By demonstrating the near-future possibilities in

emergency warnings, the immediate beneficiaries of this research include the various emergency management agencies in Australia. Further implementation will involve trials with more users and members of the community to see how they respond to receiving warning messages in this manner. Ultimately, the main beneficiaries of the research will be those people who receive accurate, relevant and timely warnings from the appropriate authorities when threatened by a natural disaster or major accident.

The research and initial trial indicated that use of navigational satellite systems can indeed overcome some of the limitations of the current emergency alert system. Satellite warnings using GNSS can be faster, independent of the terrestrial telephone and data system, and provide coverage of the whole country, including and marine areas close to the coast.

# Case Studies

SCCAR Contacts: Dr Tiebei Li (p8) and Prof Jago Dodson (p6)

## Spatial Impacts Of Fuel-Efficient Vehicles

Industrialised nations witnessed a substantial growth in private motor vehicles from the 1970s onwards. However, since the late 2000s, many of these countries have seen a plateau, and in some cases, a decline in car use. There are a number of reasons for this shift, including changes to urban form and structure, emphases on the environmental impacts on car use, rising fuel costs and the growth of public and active transport modes. Another dimension of this shift, in addition to overall decline in car use, is the adoption of much higher fuel efficiencies within the private motor vehicle fleet, which have accelerated in jurisdictions where declines in car travel are most prominent. Very few urban transport studies have explored the social and spatial outcomes of these changes, both on transport behaviours and on the vulnerability of urban communities to future shifts in oil prices, especially at a metropolitan scale.

**D**r. Tiebei Li and Professor Jago Dodson from the Centre for Urban Research at RMIT, together with Professor Neil Sipe from the University of Queensland investigated the changes in the urban private vehicle efficiency in Brisbane, using novel green vehicle datasets constructed for 2009 and 2014. Dr. Li and his colleagues examined the spatial changes to vehicle fuel efficiencies in Brisbane over this period, investigating how those changes intersected with oil price vulnerability. They also modelled, within an explicitly spatial context, how changes to vehicle fuel efficiencies would improve household travel budgets, and examined how a stronger fuel economy policy could influence future household vehicle ownership choices.

**T**he results of this study showed that vehicle fuel efficiency changes have been uneven over Brisbane. Inner urban areas experienced a larger change in

vehicle fuel efficiency, while outer suburbs showed a much lower tendency to shift to more efficient vehicles. However, the authors showed that although the shifts were smaller in the outer, more oil-vulnerable suburbs, the impacts on household budgets from these more modest changes are still likely to be significant, given the longer journeys and higher level of fuel consumption in those areas.

**O**verall, the outer suburbs of Brisbane experienced an average of fuel savings over a five year period that was 46% greater than the inner and middle suburbs, even though uptake of fuel-efficient vehicles was higher in those areas. The authors were also able to show that imposing a stronger national fuel economy target in the long term would accelerate evolution of vehicle fleets and oil vulnerability reduction in Brisbane, and likely in other Australian urban areas as well.

# SCCAR Researcher Showcase



SCCAR Contact: Dr Yan Wang (p8)

Image: David Cook

## Developing New Species Distribution Models

**S**pecies Distribution Models (SDMs) are an important tool for ecologists and environmental scientists. SDMs allow researchers to use a species' observed spatial distribution, together with other important factors like temperature, rainfall and elevation, to predict the location of species over a wider range. SDMs are becoming especially important as climate change alters the spatial distribution of rainfall and temperature, which impacts where species may be threatened in the future.

**S**DMs usually rely on one of two fundamentally different types of data as the background information about the species in question: site-occupancy (SO) data or presence-background (PB) data. SO data are high quality, but also high cost and cover small areas. By contrast, PB datasets are large and cover large geographic extents, but may be affected by biased sampling. RMIT researchers **Dr Vira Koshkina**,

**Dr Yan Wang**, and **Prof Lewi Stone** from the School of Science, and **Dr Ascelin Gordon** from School of Global, Urban and Social Studies, together with their colleagues Robert Dorazio (DELWP), and Matt White (Tel Aviv University), developed a new SDM which for the first time incorporates both SO and PB data types.

**U**sing simulated data, the researchers evaluated the performance of their integrated model against standard models. They found that their integrated model improved the predictions around the distribution of species. The authors also tested their approach using real world data about the distribution of the yellow-bellied glider (*Petaurus australis*), a native gliding marsupial. PB data from the Victorian Department for Environment, Land Water and Planning (DELWP) biodiversity atlas, was combined with SO data collected as part of DELWP

biodiversity surveys. Each of these datasets was used to fit their respective models, and then used together in an integrated model, in combination with environmental variables such as elevation, temperature, rainfall, evaporation, distance to streams, wetness, and visible sky.

**T**he integrated model produced noticeably different estimates of species density across Victoria, compared to the PB mode. The authors also showed that the integrated model performed better compared with both the PB and SO models. This RMIT-led spatial research shows that these novel integrated models, combining data from the two main data sources, are better at predicting species abundance than using them alone. These methods could have a substantial impact on the way that rare and threatened species are modelled both in Australia and in other sensitive ecosystems around the world.

# Case Studies



SCCAR Contact: A/Prof Richard Tay (p9)

## Understanding Pedestrian-Vehicle Crashes

Traffic accidents involving pedestrians and vehicles are a significant concern for cities, because of the large disparity in the respective vulnerabilities of pedestrians versus car-drivers. Pedestrians are four times more likely to be injured in a traffic accident than other users, and 23 times more likely to be killed. In Melbourne, there are over 1000 vehicle-pedestrian crashes every year, many of which lead to serious injury, or loss of life. Consequently, understanding the spatial and temporal patterns of pedestrian crashes is central to being able to prevent these events, and increase the safety of the most vulnerable road users. **Alireza Toran, Dr. Sarah Moridpour, and Associate Professor Richard Tay** from RMIT University, and Professor Abbas Rajabifard from the University of Melbourne used a range of spatial analytical and computational techniques, to examine the spatial and temporal characteristics of

pedestrian-vehicle crashes in Melbourne. They also investigated the influence of the location of potential pedestrian destinations on patterns of vehicle-pedestrian crashes, in order to identify priority areas for interventions to prevent these kinds of events. This is one of the first instances of explicit incorporation of the influence of destinations on the modelling of pedestrian-vehicle crashes.

The researchers were able to show that a range of parameters were important in determining the severity of pedestrian crashes in the Melbourne metropolitan region. These factors included time of crash, pedestrian age, and the location of points of interest/pedestrian attractors. The most important variable was determined to be the time of the crash: 25% of crashes occurred between 7pm and 6am, but 60% of these crashes were fatal, or involved

a serious injury. The likely reason for this increase in severity at night was determined by the researchers to be related to increased speeds. By contrast, for day-time crashes, the most important factor was pedestrian age, with increased severity for over 65s during the day. For this group of pedestrians, the type of locations around the crash (pedestrian attractors) also had a substantial impact on the severity of crashes. The results suggest that road safety strategies such as reducing travel speed close to pedestrian attractors (e.g., government offices, playgrounds and health centres) could potentially improve road safety and decrease the severity of vehicle-pedestrian crashes.

The findings of this research could lead to considerable reductions in the mortality and morbidity associated with pedestrian-vehicle crashes, and may substantially reduce the strain on health resources.

# SCCAR Researcher Showcase



SCCAR Contacts: Jonathan Arundel, Melanie Davern (p8), Hannah Badland (p6), Claire Boulange (p12)

## Measuring Liveability in Australian Cities

The liveability of cities reflects the combined effects of a number of attributes of urban centres. These include safety, social cohesion, and environmentally sustainability. Additionally, liveability considers how affordable and diverse housing options, employment, education, shops, health, and community services are all connected to each other by active and public transport modes, as well as the accessibility of parks, open spaces, and leisure and cultural facilities. An important question for urban researchers, population health professionals, and government policy-makers is how to improve liveability and how to assess and measure liveability and liveability improvements.

Liveability is an important research focus because it effectively provides an alternative description to the social determinants of health. Consequently, being able to accurately assess liveability will help promote health in the community.

MIT's Healthy Liveable Cities Group (HLCG), led by **Dist Prof Billie Giles-Corti** in collaboration with researchers including **Dr Jonathan Arundel**, **A/Prof Hannah Badland**, **Dr Claire Boulange**, and **Dr Melanie Davern** has partnered with the Victorian Department of Health and Human Services and a number of local governments to assess the liveability within local government areas (LGAs); to assist with future planning interventions within LGAs; and

to identify future health service needs. The HLCG provided spatial assessment of small area indicators across social, economic and environmental topics to identify areas doing well, as well as areas that may require future planning intervention to promote the health and wellbeing of residents living in those neighbourhoods.

This research is being applied in community engagement and consultation to address public health, wellbeing and strategic planning priorities in local governments. The wider impacts of this research are considerable, informing how we build or modify our cities at multiple spatial scales in a way that promotes improved health outcomes.



SCCAR Contact: Prof John Hearne (p8)

Image: CSIRO

## Optimising Wildfire Responses

Incident management centres and teams (IMTs) work under enormous time pressure to solve complex problems during events such as wildfires, floods, and other natural disasters. The consequence of decisions can be substantial, resulting in either saving lives or property, or potentially exacerbating losses. For wildfires, vehicles deployed to protect assets, infrastructure, people or properties can be disrupted for a number of reasons, including changes in weather, fire conditions, road closures or breakdowns. Once a disruption occurs, IMTs must redeploy their vehicles and capabilities, which can have flow on effects for the rest of the response. The goal of IMTs in this instance is to optimise their response, deploying vehicles that minimises the disruption to their overall response, as well as maximises the assets, infrastructure and property that can be saved.

**M**artijn van der Merwe, Associate Professor Melih Ozlen, and Professor John Hearne from RMIT collaborated with James Minas from the State University of New York to develop a dynamic approach to rerouting wildfire response vehicles once a disruption has occurred. The authors extended a previous model (known as a mixed integer programming model) to integrate a range of deviation factors for their modelling of vehicle deployment. They then used the model in a real world situation, examining vehicle deployment for hypothetical wildfire south of Hobart, Tasmania. The authors used real world weather forecasts, as well as fire spread data, provided by the Tasmanian Fire Service. The researchers also investigated the impacts of rerouting on computational capacity. They found that small scenarios, with 30 or fewer assets to protect, were able to be

undertaken relatively quickly on a desktop computer. However, where the breadth of community assets that need protecting increases, the computational capacity required means that new ways of calculating redeployment need to be considered.

The researchers are extending their work with Pau Costa Foundation in Barcelona and the Catalonian Fire Service, and are focusing on obtaining solutions to the computational time problem which, at the moment, precludes the deployment of their methods more widely. This work could have a substantial impact on increasing the effectiveness of fire response teams to protect lives and property during wildfires, an issue that is likely to become more pressing as climate change affects fire regimes both in Australia and abroad.

# SCCAR Researcher Showcase



SCCAR Contact: Dr Luis Mata (p 12)

## Spatial Structure of Urban Ecosystems

Increasing levels of urbanisation is having a substantial impact on biodiversity. This impact can occur in a number of ways: the introduction of competitive nonnative species accustomed to urban environments; new predator species; increasing pollution levels (light, acoustic and particulate); and crucially, through the loss of the right kinds of habitats required to support native species. Nonetheless, urban environments are able to support healthy and diverse biological communities and ecosystems, which have been shown to have a positive effect on the health and well-being of urban populations. Understanding the characteristics of urban green space that promote and support diverse biological communities is central to developing and implementing management decisions designed to bring native spaces back in cities.

As part of RMIT's Clean Air and Urban Landscapes research program, **Dr. Luis Mata** and his colleagues investigated plant-insect interactions across a diverse range of green spaces across the City of Melbourne. In doing so, the research team set out to ask the question "Which spatial configuration of urban green spaces in Melbourne is most associated with increased insect biodiversity?" The research involved insect surveys of 132 individual survey plots, over 15 green spaces comprising 4 different habitat types (tree, mid-storey, grassland, and lawn).

A substantial number of native species were detected in the survey (97% of those surveyed), including four completely new species found in the heart of

Australia's second largest city. The largest green space in the survey (Royal Park) had the largest number of recorded species, while mid-storey habitat types had the highest insect species richness, with 60% of the insect species occurring in this habitat type, as well as the highest number of unique species. Lawn habitats had the lowest insect species richness, and the lowest number of unique species.

The potential impacts of this research are substantial. Recommendations arising from the research include increasing the amount of mid-storey habitat across Melbourne's green spaces. The outputs are likely to help shape management decisions and shape urban biodiversity and ecology policy, such as Melbourne's Nature in the City Strategy.

SCCAR Contact: Dr. Sveta Angelopolous (p6)

## Diversity and the Creative Occupations

One of the prevailing theories about urban economies (the “Florida hypothesis”) suggests that economic growth is fuelled by the immigration of people who work in creative occupations (also known as the “creative class”). It is suggested that the creative class are attracted to areas that are both diverse and tolerant of diversity. The Florida hypothesis has predominantly arisen in a North American urban context, with only a limited amount of analysis undertaken in Australia to see if the hypothesis holds more globally. Understanding why certain industries may be attracted to specific areas can provide valuable evidence to policy-makers and planners alike, as they seek to grow certain sectors in their urban or regional centres.

Using census data from 2001, 2006, and 2011, researchers from RMIT led by

**Dr. Sveta Angelopolous** undertook comprehensive econometric analyses to determine whether or not creative class employees were associated with four measures of diversity: ancestry, migrant, linguistic, and religious. They also included a measure of neighbourhood tolerance, represented by the proportion of residents in a same-sex relationship. The research team investigated whether changes in the creative class were associated with changes in these variables over a five- and ten-year period, taking into account the relatively high residential mobility of the Australian population. Under the Florida hypothesis, increases in all measures of diversity and tolerance should be associated with a concomitant increase in creative class employees, as the latter seek an environment conducive to and welcoming of the authentic and open expression of their work.

The research team found little consistency in the relationship between the change in creative class occupations and employment, and measures of tolerance and diversity. Over some time periods, some individual aspects of tolerance did show some association with changes to the creative class. However, in general the results showed that over both the five-year and ten-year periods, changes in the proportion of creative workers in any given area (in this research, a statistical local area, or SLA) cannot be explained by diversity. As a result, the researchers found no general support for the Florida hypothesis, although there was some consistency between changes in the proportions of the creative class and for tolerance. The results of this research suggest that policy makers and planners may need to find other means to develop creative areas in their cities and towns.

# SCCAR Researcher Showcase



SCCAR Contact: Xavier Goldie (p9)

## Geography of Same Sex Couples

Determining how traditionally marginalised communities interact with urban space is central to understanding the role of cities in fostering individual and collective identities. The relationship between LGBT people and the city has been the focus of a considerable body of research, predominantly in a North American context. Researchers have focussed not only on the role of cities in allowing the expression of fully realised and authentic “queer” identities, but also the potential role that these groups have on the social and economic evolution of urban environments. While there has been some research undertaken within Australia, much of this has focussed on Sydney, and without much consideration for the potential differences between men and women.

Using a wide range of data sources, **Xavier Goldie** from the Centre of Urban Research investigated whether or not male and female same sex couples were spatially segregated from each other in Melbourne and Sydney, and if so, whether or not factors could be identified which could potentially explain these patterns. A surface-based segregation measure was used to determine whether male and female same-sex couples tend to occupy different parts of the city, using census counts of same-sex couples. Multivariate spatial regression analyses helped to identify factors that might explain the patterns observed. These variables included metrics of ethnic and income diversity, housing diversity, property values, political values, and land use.

The research indicated that male and female same-sex couples are segregated from each other in both Melbourne and Sydney: identifiably “male” and “female” neighbourhood clusters can be found. The analyses were able to identify a number of factors to explain why male and female same sex couples aggregated together over larger spatial scales, but were not the causes of smaller scale gender segregation. Importantly, the research did not show any support for the “Creative Class” hypotheses which have emerged in the North American literature around these patterns (see p21). Future research aims to focus on the relationship between changes in these variables over time and shifts in the aggregation/segregation patterns.

SCCAR Contacts: Jonathan Arundel, Melanie Davern (p8), Hannah Badland (p6), Claire Boulange (p12)

## Achieving Urban Liveability Targets

Governments (federal, state, and local) across Australia have a range of policies in place to both promote and protect the liveability of their towns and cities. However, despite this wide adoption of liveability policies, their implementation has not been monitored or measured. As a result, urban practitioners do not have a clear idea about which policies, or cities, are performing the best in creating healthy, liveable cities. Being able to measure the impact of policies, planning practices, infrastructure development, and resource allocation is key to understanding which tools in the "liveability toolkit" are best at delivering the desired outcomes in health and wellbeing (physical and mental), environmental sustainability, and social connectedness and cohesion.

Researchers from RMIT's Healthy Liveable Cities Group, partnering with researchers from the Australian Catholic University and the University of Western Australia undertook a comprehensive analysis of the implementation of liveability targets across Australia. This involved assessing policy implementation across a range of domains, including walkability, public transport, public open space, housing affordability, employment, food environment, and alcohol environment. They then undertook a policy review for Victoria, Western Australia, Queensland, and New South Wales, looking at implementation in those states' capital cities for a within-city analysis. In addition, they used a range of national liveability indicators to undertake a between-city analysis for all Australian Capital Cities.

The researchers found that no capital city in Australia is doing well on all indicators. They found that policies are only being fully implemented, with targets met, in cities with less ambitious targets. Despite this, cities with more ambitious targets are achieving more in real terms for their residents, while not necessarily achieving the full outcomes of their policies.

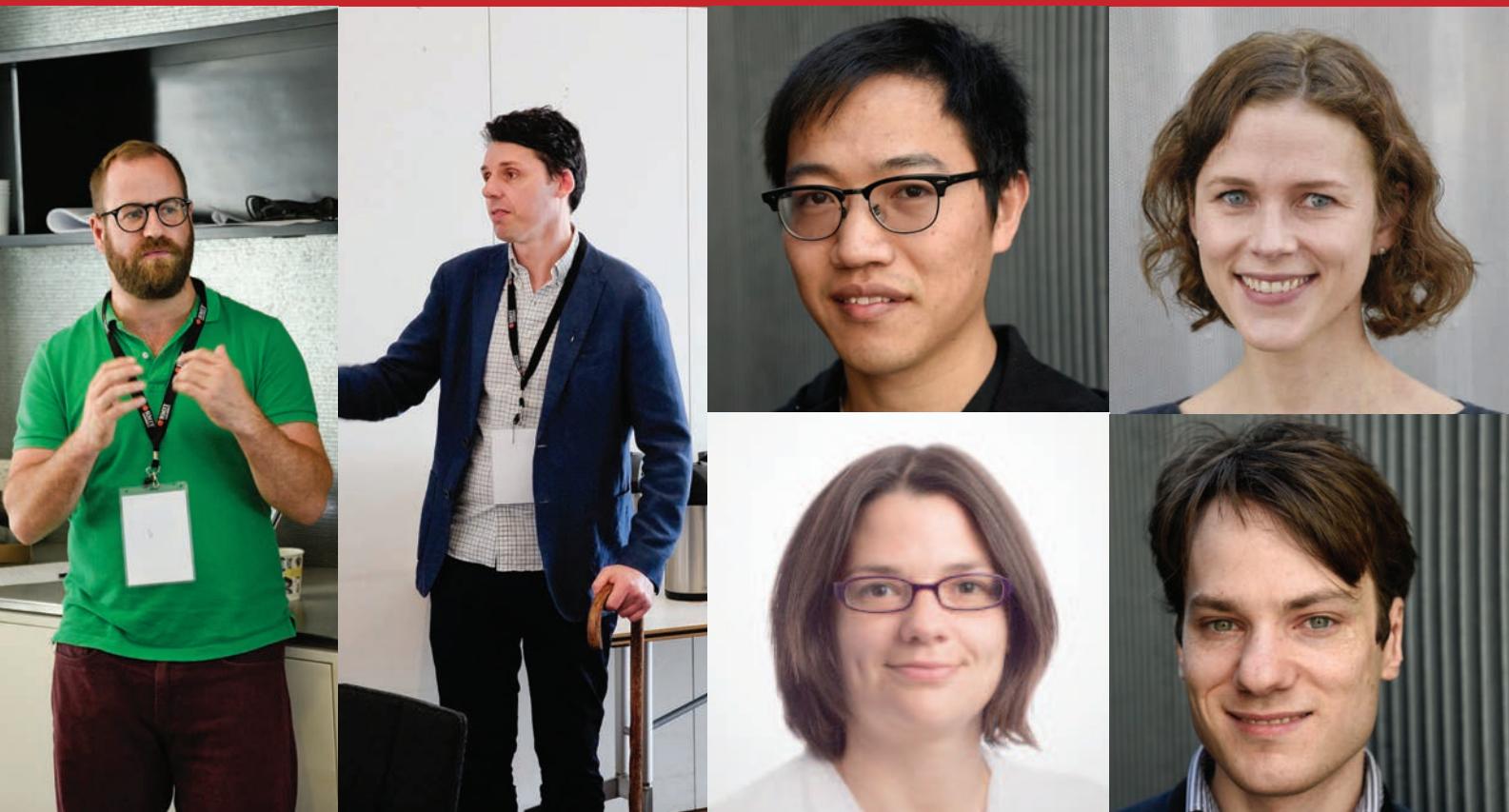
The researchers proposed seven recommendations, one of which is already being adopted (at least in-part) by the Department of Prime Ministers and Cabinet. In addition to achieving significant media coverage for their research, the project has also produced the first baseline set of national (spatial) data on liveability for Australia.

# Thank You!

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Matt Duckham







**SCCAR**  
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