City Futures Research Centre

Arts, Design
& Architecture

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Research Centre

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SYDNEY

Welcome from the Centre Director

There has never been a more critical time for City Futures to work with government, industry, and communities to address the social, economic, and environmental challenges confronting our cities and planet.

At City Futures, we deliver independent, evidence-based research to inform urban policy and shape more sustainable, equitable and resilient cities of tomorrow.

Scientia Professor Chris Pettit
Director, City Futures Research Centre

What we do

Our work advances the understanding of cities focusing on people, places, policies and technologies, and the impact they have on our environment and economy

Our team combines expertise in housing, planning, mobility, and analytics to generate actionable insights that inform policy and practice.

We form a key part of UNSW's Excellence in Research for Australia (ERA) '5' rated ('Well above world standard') research concentration in Urban and Regional Planning

We develop data-driven and urban technology solutions which provide societal impact through innovation pathways.

We partner with more than 100 businesses, government, and community organisations in Australia and internationally – translating our research into practice, innovation, and real-world solutions.

We train the next generation of urban thinkers, shapers, and analysts

We are committed to advancing the UN Sustainable Development Goals (SDGs)

Research strengths

We partner with more than 100 businesses, government, and community organisations in Australia and internationally, translating our research into practice and real-world innovations and solutions. We are making impacts that matter with the following four research programs:

City Futures Planning

The Planning Program provides cross-cutting, impactful research on key urban planning and policy issues facing Australian cities, regions and beyond. Underpinned by a firm grounding and understanding of urban social and economic process and geospatial analysis, the Planning team has particular expertise in:

- The design, dynamics and delivery of the Compact City, notably the drivers, implementation and lived outcomes of urban densification, suburban renewal and neighbourhood change.
- Strategic and metropolitan planning frameworks, including housing market analysis, land use, spatial disadvantage, and governance arrangements for progressive, fair and productive cities
- Integrating health considerations into urban planning and design, providing critical evidence to inform key policy, professional practice, and place making strategies
- Urban and regional policy debate across all spatial scales, including planning for regional/mid-sized cities, regional growth and contemporary population shifts

Competitive advantage

Researchers in the Planning Program draw upon a wide range of disciplinary backgrounds including geography, economics, law, housing and city and regional planning. We also draw upon extensive expertise and insight in policy and practice with many in the group also benefitting from state and local government as well as private sector experience. Our team acts as the key nexus between City Futures research and the City Planning Program in the UNSW School of Built Environment – a partnership recognised as a world-class research hub and receiving the highest rating in the last three Australian Research Council (ARC) ERA assessment exercises for Urban and Regional Planning (in 2012, 2015 and 2018).

Much of our research is supported by competitive (Category 1) grants through the ARC and AHURI and typically undertaken in partnership with policymakers across all levels of government and academic colleagues across Australia and internationally. This provides a unique platform for rigorous, evidence-based research that seeks to ask the critical issues facing our cities, regions and communities and helps drive action towards fair, productive, progressive, healthy and sustainable urban outcomes.

Impact

Our research seeks to address the critical challenges facing our cities through using evidence to not only provide policy-focused and directly relevant insight and toolkits to inform debate and practice, but also to give voice to the many stakeholders involved in shaping and stewarding our built environments.

Our planning research has been recognised in Planning Institute Australia's National Planning Awards, has informed and been cited in high level strategic and local planning reports, and our publications contribute to international academic debate on densification, urban renewal and healthy built environments. Government agencies seek our advice and expertise, and our team regularly make submissions to a range of Federal and State government Inquiries on planning and urban policy matters. Our research also provides a key resource in contemporary public debate through media engagement around key research insights.

Successful applications and research highlights

Over the past ten years, a suite of ARC projects focused on building the evidence base for the Compact City has unpacked a breadth of design, governance, development, lived experience and renewal considerations tied to urban intensification. Our key highlights include:

- Analysis of development feasibility models and processes underpinning high-density residential development
- In-depth case studies of the experiences of owners in upzoned precincts and collective sales and land assembly activity.
- Policy considerations on the future of Australian regional cities.
- Planning, designing, developing and managing cities, towns and infrastructure to promote and protect health for all people.

Forward research will continue to build critical insights into the drivers and impacts of processes of urban change at all spatial scales and how planning and policy impacts upon city outcomes and lived experience.

Capabilities and facilities

The Planning team has expertise across a breadth of research techniques in support of our research and typically adopt a multi-methods approach in our work. We also work collaboratively with research teams nationally and internationally to underpin grounded, evidenced, accessible insight. We have extensive expertise in policy analysis and evaluation, case study research, undertaking expert and stakeholder in-depth interviews, survey design and implementation, conducting focus groups, and research which directly engages local communities in urban and regional futures. Much of our work benefits from the urban big data and analytical capabilities enabled through the City Analytics Lab (CAL). The Housing Analytics Lab (HAL) based in South Eveleigh offers a state-of-the art facility for academics, policymakers, practitioners and the community to collaborate on, and co-design, research activities.

Our collaborators

- Australian Housing and Urban Research Institute
- Australian Research Council
- Greater Cities Commission
- Landcom
- Macquarie University
- NSW Department of Family and Community Services
- NSW Land and Housing Corporation
- Royal Melbourne Institute of Technology
- St George Community Housing
- Swinburne University of Technology
- University of South Australia
- University of Sydney

For more information, contact

Prof Simon Pinnegar and A/Prof Laura Crommelin

City Futures Housing

Housing research has been a key pillar of the Centre since its establishment. The Centre's housing research encompasses:

- Owner-occupied housing, private rental, and social and affordable housing;
- Multi-owned housing (strata title);
- Housing stress and affordability, housing conditions, and homelessness;
- Housing market performance, finance and relationship to the wider economy;
- Housing policy governance.

Competitive advantage

Researchers in the Housing program have a wide range of disciplinary backgrounds, including architecture, criminology, economics, geography, sociology, law and planning.

The Centre has an international reputation for research on apartment (strata-titled) housing, rental housing (private and social), and homelessness.

Our research is strongly policy-oriented, and we are experts in housing policy governance and policy development processes. We have strong working relationships with policymakers in Australian and international government agencies, housing industry associations, and community sector organisations, through funded research projects and regular liaison.

The Housing program has an excellent track record in research funded by the Australian Housing and Urban Research Institute (AHURI) and the Australian Research Council (ARC).

Impact

Our research findings inform housing policy discussions at local, state, national and international levels. Governments and key housing sector organisations seek our advice on housing policy development and our researchers are trusted voices in the media on housing issues.

Our researchers' books and reports on the need for a national housing strategy in Australia are key sources in contemporary policy debates. Our research debunking claims about rental disinvestment has helped remove stumbling blocks to tenancy law reform.

Our apartment housing research is cited in reports by the Australian Government's Productivity Commission, parliamentary inquiries and legal deliberations (including the Singapore Strata-Title Tribunal) and government inquiries (including the English Leasehold Reform Inquiry).

Our research is also used in multiple university courses in Australia and overseas.

Successful applications and research highlights

Our Housing program researchers have recently won highly competitive researching funding from the Australian Research Council (ARC) for research projects on rental vulnerability, evictions and land lease communities for older persons, as well as AHURI projects on lodging houses, public housing stock transfers, and collaborations between homelessness and health services.

Our current research on apartment housing includes projects on renewing and retrofitting ageing apartment buildings, and improving apartment living for families.

Recently completed projects include research on housing after prison, living on the social housing waiting list, housing sector contributions to economic productivity, first home buyer assistance schemes, and housing and homelessness policy innovations during the COVID-19 pandemic.

Housing program researchers are key participants in the ACOSS-UNSW Sydney Poverty and Inequality Partnership, which brings high-quality evidence to the policy reform agenda of Australia's peak non-government organisation for low-income households.

Capabilities and facilities

The Housing program is home to the team behind the Australian Homelessness Monitor, the leading source of analysis of data and perspectives from Australia's homelessness services. We also collaborate with tenant orgainsations and the University of Sydney on the Rental Vulnerability Index.

Our bi-annual Strata Insights Report provides the only national data resource on the scale and value of strata property in Australia. We have also developed resources for strata managers and residents, including:

- Navigating defects in strata
- How to implement sustainable retrofits in your strata scheme

Our collaborators

- ACT Government
- Allen Jack + Cottier
- Australian College of Strata Lawyers
- Australian Council of Social Service
- Australian Glass and Window Association
- Australian Government Department of Climate Change, Energy, the Environment and Water
- Australian Housing and Urban Research Institute
- Australian Red Cross Blood Service
- Australian Research Council
- AWA-AGGA Limited
- City of Melbourne
- City of Randwick
- City of Sydney
- Commonwealth Department of Climate Change, Energy, the Environment and Water
- Community Housing Industry Association
- Corrs Chambers Westgarth
- Council of Capital City Lord Mayors
- Cox
- Curtin University
- Government Architect NSW
- Griffith University
- Heriot-Watt University, Edinburgh
- Homelessness Australia
- Homes New South Wales
- Inner West Council
- James Martin Institute for Public Policy
- Landcom
- Lannock Strata Finance
- Lord Mayor's Charitable Foundation
- MaxBuild
- Melbourne City Council
- Mission Australia
- Monash University
- NABERS
- National Shelter
- NSW Department of Climate Change, Energy, the Environment and Water
- NSW Department of Planning and Environment
- Owners Corporation Network of Australia
- Owners Corporation Network of Australia Incorporated
- Professional Standards Council
- Queensland Council of Social Service
- Queensland Department of Housing and Public Works
- Queensland Shelter
- Randwick City Council
- Ross Taylor & Associates
- Royal Melbourne Institute of Technology
- Salvation Army
- SGS Economics and Planning
- Shelter NSW Incorporated
- Social Futures
- SOAR
- St Vincent De Paul Society
- Strata Advisory Services
- Strata Community Association Australia
- Strata Community Association NSW
- Strata Community Insurance
- Swinburne University of Technology
- Tenants Queensland
- Tenants Union of New South Wales
- The Environment, Planning and Sustainable Development Directorate, ACT
- The Haymarket Foundation
- Tinworth & C
- University of Adelaide
- University of Glasgow
- University of Queensland
- University of South Australia
- University of Sydney
- University of Technology, Sydney
- WA Department of Mines, Industry Regulation and Safety
- YWCA Australia

For more information, contact

Prof Hazel Easthope and
A/Prof Chris Martin

City Futures
Mobility

The Mobility Program explores how urban travel shapes our environment, economy, health, and wellbeing. Our vision is that walking, cycling, micromobility, and public transport are the easiest, most natural choices. Through rigorous research and real-world solutions, we shape policy, planning, design, and delivery models that make low-impact, people-focused mobility the default, helping cities meet ambitious environmental, economic, and social goals while enhancing everyday quality of life.

Competitive advantage

We are a multidisciplinary research team specialising in mobility systems innovation. Our expertise spans urban design, urban planning, landscape architecture, transport planning, economics, data analytics, and modelling, enabling integrated analysis and evidence-based solutions. We collaborate with stakeholders across public and private sectors, apply rigorous research to inform policy, optimise planning processes, and advance implementation strategies. Our projects drive measurable improvements in accessibility, environmental, economic, and enjoyment performance of urban transport networks and the places they interact with.

Our team is connected with local, state, national, and international networks at the forefront of mobility, ensuring we remain informed and engaged with emerging trends and innovations. Recent research projects include infrastructure scenario planning, using VR to test new technologies and street design concepts (national and state projects), analysing local government project delivery models and optimising them through consensus building (international, state and local projects), conducting surveys from national to local street scales (national and local projects), and undertaking project evaluations (international, state and local projects).

Impact

Our research portfolio encompasses a diverse array of impactful projects. Some notable initiatives include contributing to the development of NSW cycleway design guidelines (iMOVE CRC). A key objective of this project was to test the designs in the NSW Cycleway Design Toolbox with 'interested but concerned' cyclists and inform the first review and next iteration of the Toolbox. Our team has created an interactive tool for rapid assessment of cycling infrastructure scenarios, optimising the location, routing, and types of cycleways to increase investment return (ARC Linkage). We are collaborating with Transport for NSW, CWANZ, 12 NSW local governments, the Committee for Sydney, and Vivendi Consulting to examine and optimise cycleway project delivery practices (ARC Fellowship). Our efforts extend to establishing a national platform for cycling data and analytics (ARC LIEF) and we continue to collaborate on an Australian-Canadian initiative with our colleagues at Monash University on interventions for all ages and abilities in bicycle networks and speed management (NHMRC).

Successful applications and research highlights

Over the past five years the Mobility Program has been successful in securing several major grants including:

- a two-year grant from iMOVE CRC with Transport for NSW “Safer cycling and street design: A guide for policymakers”,
- a two-year ARC Linkage Infrastructure, Equipment and Facilities (LIEF) grant “The National Cycling Data and Analytics Platform”,
- a five-year National Health and Medical Research Council (NHMRC) grant: “Building CapaCITY/É for Sustainable Transportation”,
- a three-year ARC Fellowship “Project Delivery Harmonisation for Urban Micromobility Infrastructure”.

Capabilities and facilities

The Mobility team is supported through various state-of-the-art facilities. The City Analytics Lab (CAL), at the UNSW Kensington Campus is equipped with video walls and interactive touch screens to support both the co-design of new digital tools and end-user workshops to explore location-based insights into the form and function of the city. We collaborate with our colleagues at UNSW’s Research Centre for Integrated Transport Innovation (rCITI) using VR technology to test street design options and emerging technologies.

Our collaborators

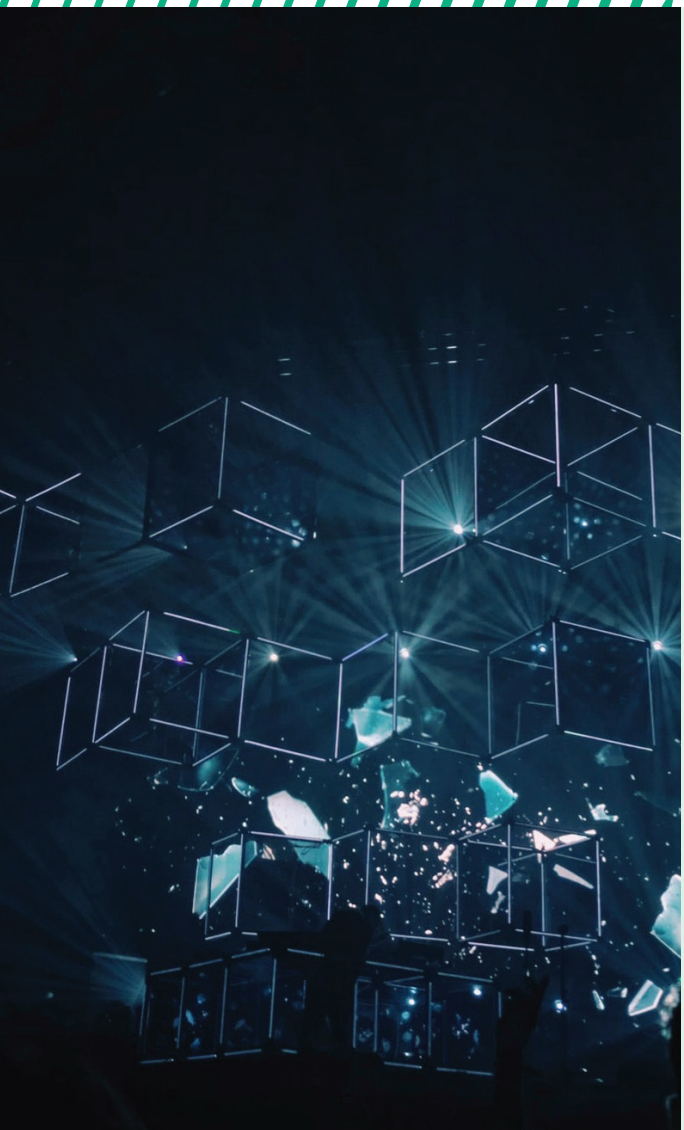
- Australian Cycling Environmental and Health Foundation Limited
- Australian Research Council
- Australian Urban Research Infrastructure Network
- Bayside Council
- Bicycle Industries Australia
- Bicycle Network
- Campbelltown City Council
- City of Parramatta
- City of Penrith
- City of Sydney
- City of Wollongong
- Curtin University
- Cycling and Walking Australia and New Zealand
- iMOVE Australia Cooperative Research Centre
- Inner West Council
- Lendlease
- Monash University
- National Health and Medical Research Council
- North Sydney Council
- NSW Office of Sport
- Randwick City Council
- Simon Fraser University
- Strathfield Council
- The Committee for Sydney
- Transport for NSW
- University of Queensland
- University of Western Australia
- Vivendi Consulting
- Waverley Council
- We Ride Australia
- Willoughby Council
- Wollongong 2022 Limited

For more information, contact

Dr Mike Harris

City Futures Analytics

The role of data, analytics to support the understanding of the city and making evidenced based decisions is essential in underpinning good urban governance and planning. The City Futures Analytics Program is focused on exploring new methodologies, building novel tools and critically evaluating the role of the latest technologies such as Trustworthy Artificial Intelligence (AI) for shaping future cities.



Competitive advantage

The Analytics Program comprises an interdisciplinary team of researchers with expertise in urban modelling, machine learning, large language models, generative-AI, dashboards and visualisation who co-design, build and test novel analytical solutions to help solve city problems.

The team has significant experience in digital planning tools which support policy-makers, planners, industry and community to co-design, to explore and evaluate what if? scenarios. For example, what is the urban feasibility of a precinct based on zoning changes made around a metro station?

The Analytics Program is leading a suite of projects which focus on building and critical evaluating Trustworthy AI solutions to housing and planning challenges facing our cities.

Impact

The Analytics team have developed several actionable insight products as part of the CityViz data visualisation platform. For example:

- A data-driven dashboard of the 30-minute concept across Greater Sydney using smart card data. Providing insights into the percentage of city centres with commute times undertaken within 30 minutes.
- An interactive Digital Transport Oriented Development (TOD) Atlas which has informed the development of new policies including the NSW Transport Oriented Development Program.
- The Analytics Program has incubated two new companies which are taking research to market.
- Value Australia – developed a second-generation AI enabled Automated Valuation Model (AVM) used by major banks including Commonwealth Bank and Westpac.
- MapAI – Trustworthy Geo-AI solution for unlocking location insights.

Successful applications and research highlights

Over the past decade the Analytics Program has been successful in securing 2 Cooperative Research Centre Project (CRC-P) grants. The first CRC-P: Value Australia – Sharpening our land and property decisions with Artificial Intelligence was a $8.7 million multi-year project (2019-2022) with key partners FrontierSI, Commonwealth Bank of Australia and the Valuer General of NSW.

Value Australia won several awards for innovation and commercialisation from the Cooperative Research Australia, Committee for Sydney, Planning Institute of Australia and Geospatial Council of Australia. In 2022 PEXA partnered with UNSW City Futures and FrontierSI to establish a new company as part of PEXA Insights to take the Intellectual Property (IP) to market.

City Futures is the lead research partner in Urban Copilot, a $6.5 million GenAI initiative funded through the CRC-P. Developed in collaboration with Archistar, PEXA Group, and City Futures startup company MapAI, Urban Copilot is a digital assistant for planners, developers, and government staff. It simplifies the regulatory maze of urban development by interpreting complex planning controls and automating development assessment workflows.

Both large-scale industry focused analytics projects are delivering innovative Trustworthy AI solutions to assist government and the private sector in making better decisions around property and planning.

Capabilities and facilities

The Analytics team is supported through two state-of-the-art facilities. The City Analytics Lab (CAL), at the UNSW Kensington Campus and the Housing Analytics Lab (HAL), hosted in the Commonwealth Bank of Australia's Axel building in South Everleigh. Both of these labs comprising video walls and interactive touch screens to support both the co-design of new digital tools and end-user workshops to explore location-based insights into the form and function of the city.

The Housing Analytics Lab is part of the UNSW Australian Urban Research Infrastructure Network (AURIN) node. HAL is both a digital space for data sharing and analysis and a physical space for events, cross-sector engagement, and showcasing data products and outcomes. The Housing Australian Data Analytics Platform (AHDAP) is the enabling digital infrastructure comprising an ecosystem of digital tools to support better housing outcomes for Australia.

Our collaborators

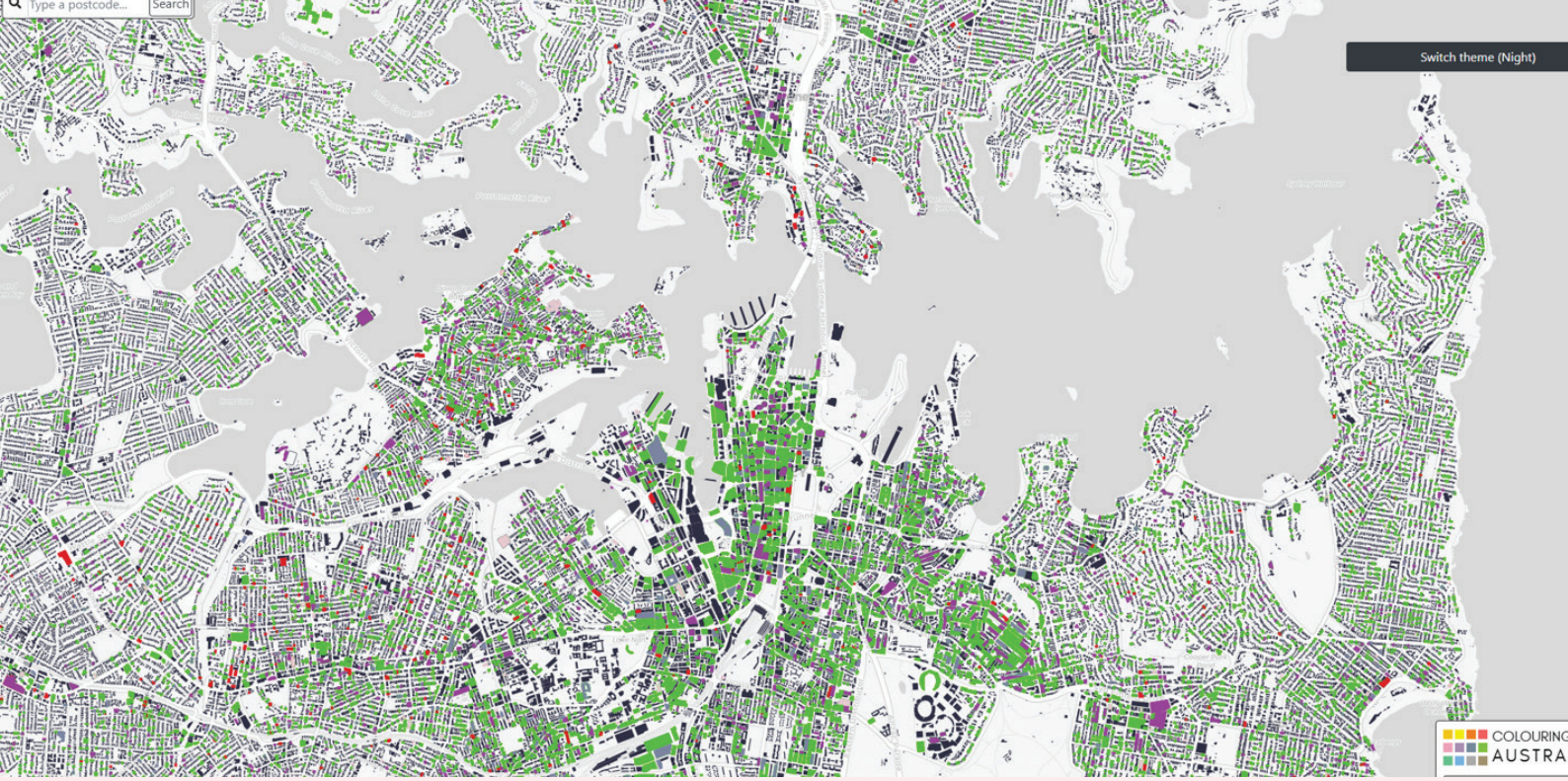
- Amazon Web Services (AWS)
- Archistar
- Australian Housing and Urban Research Institute
- Australian Property Institute
- Australian Property Research and Education Fund
- Australian Research Council
- Australian Research Data Commons
- Australian Urban Research Infrastructure Network
- City of Sydney
- Commonwealth Bank of Australia
- Community Housing Industry Association NSW
- CRC for Spatial Information
- CRC Future Food Systems
- CRC iMove
- Curtin University
- FrontierSI
- Greater Cities Commission
- Housing Australia
- Infrastructure Australia
- Knight Frank
- Lendlease (Victoria Cross)
- Mirvac
- Monash University
- National Heart Foundation of Australia
- National Shelter
- NSW Department of Enterprise, Investment and Trade
- NSW Department of Finance, Services and Innovation
- NSW Department of Planning and Environment
- PEXA
- SGS Economics and Planning
- Tenants' Union of New South Wales

For more information, contact

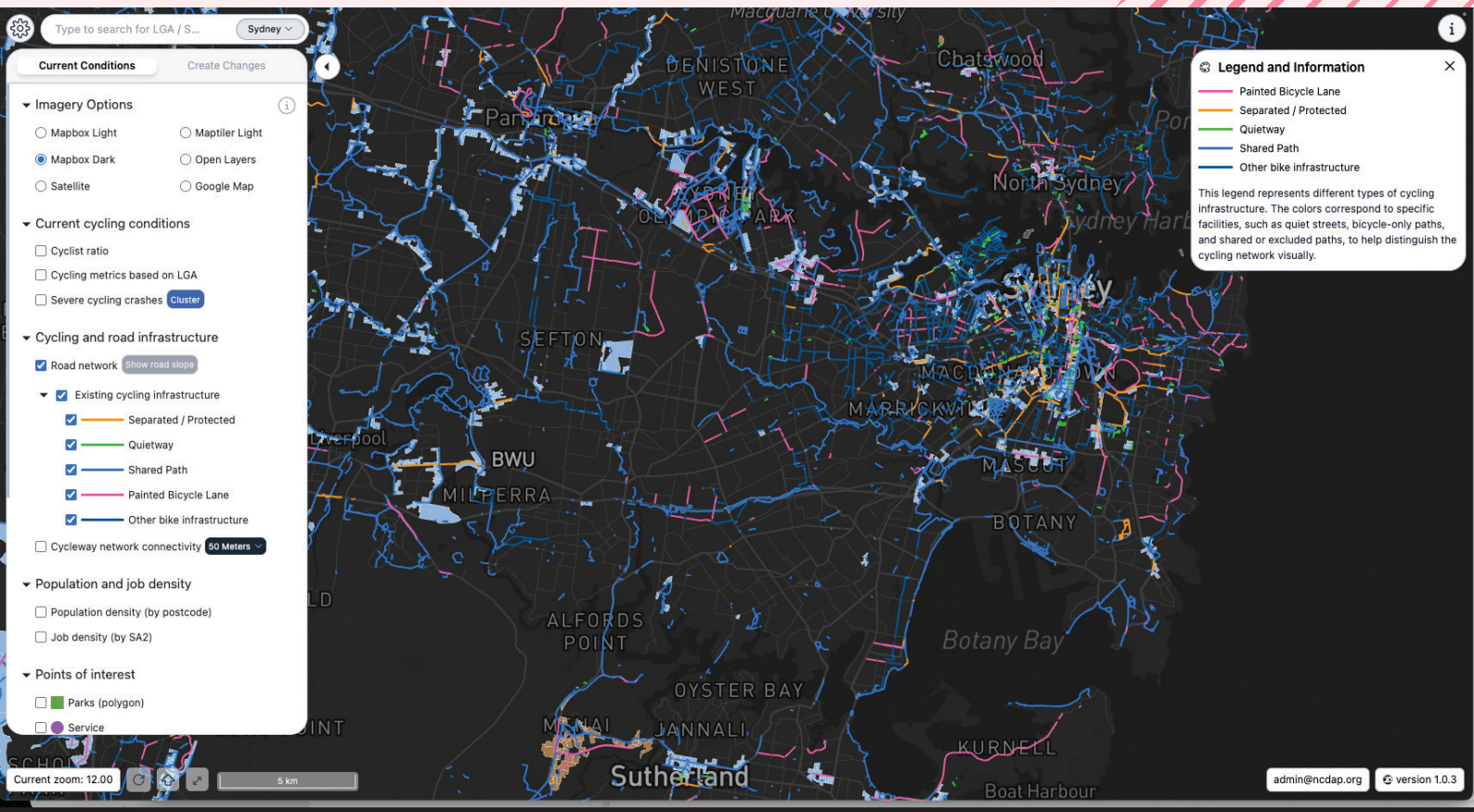
Prof Chris Pettit and Prof Hoon Han

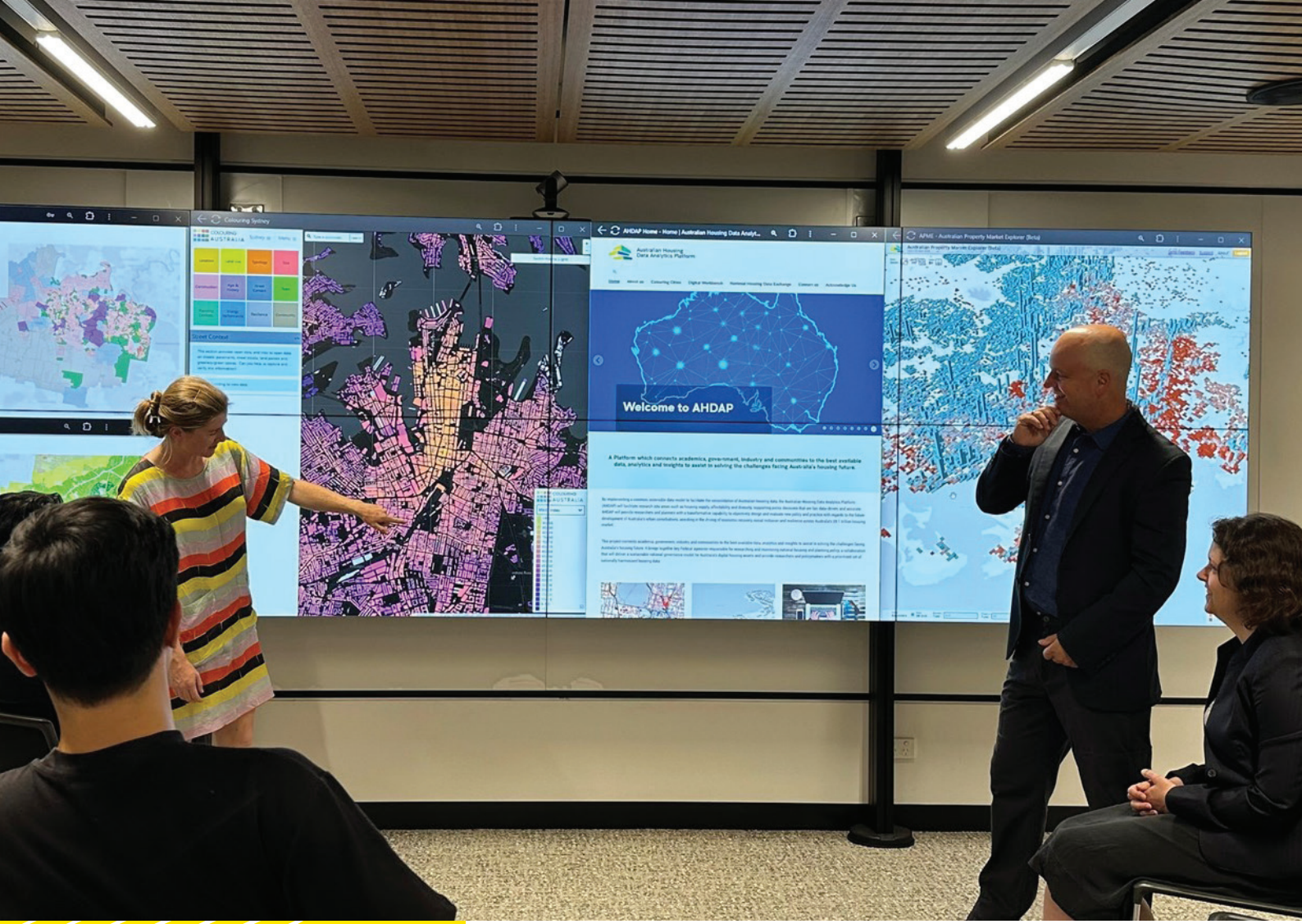
State-of-the-art facilities

City Futures' research is underpinned by advanced digital and physical infrastructure that enables co-design, experimentation and data-driven insight.



Our City Analytics Lab (CAL) and Housing Analytics Lab (HAL) provide immersive environments where researchers, government, industry and community partners collaborate to model, visualise and evaluate urban futures. Equipped with cutting-edge tools in VR/AR, geospatial analytics, AI and interactive visualisation, the labs bridge research and practice – translating data into actionable solutions that shape more sustainable, liveable and equitable cities.





City Analytics Lab (CAL)

The City Analytics Lab (CAL) was established in 2018 to support co-design and co-production methodologies for reimagining of equitable, sustainable, productive, liveable and resilient cities. The lab is also set up to provide a unique environment to study the decision-making processes associated with city planning and design. Since its inception it has hosted over 300 events, with about 4,000 attendees.

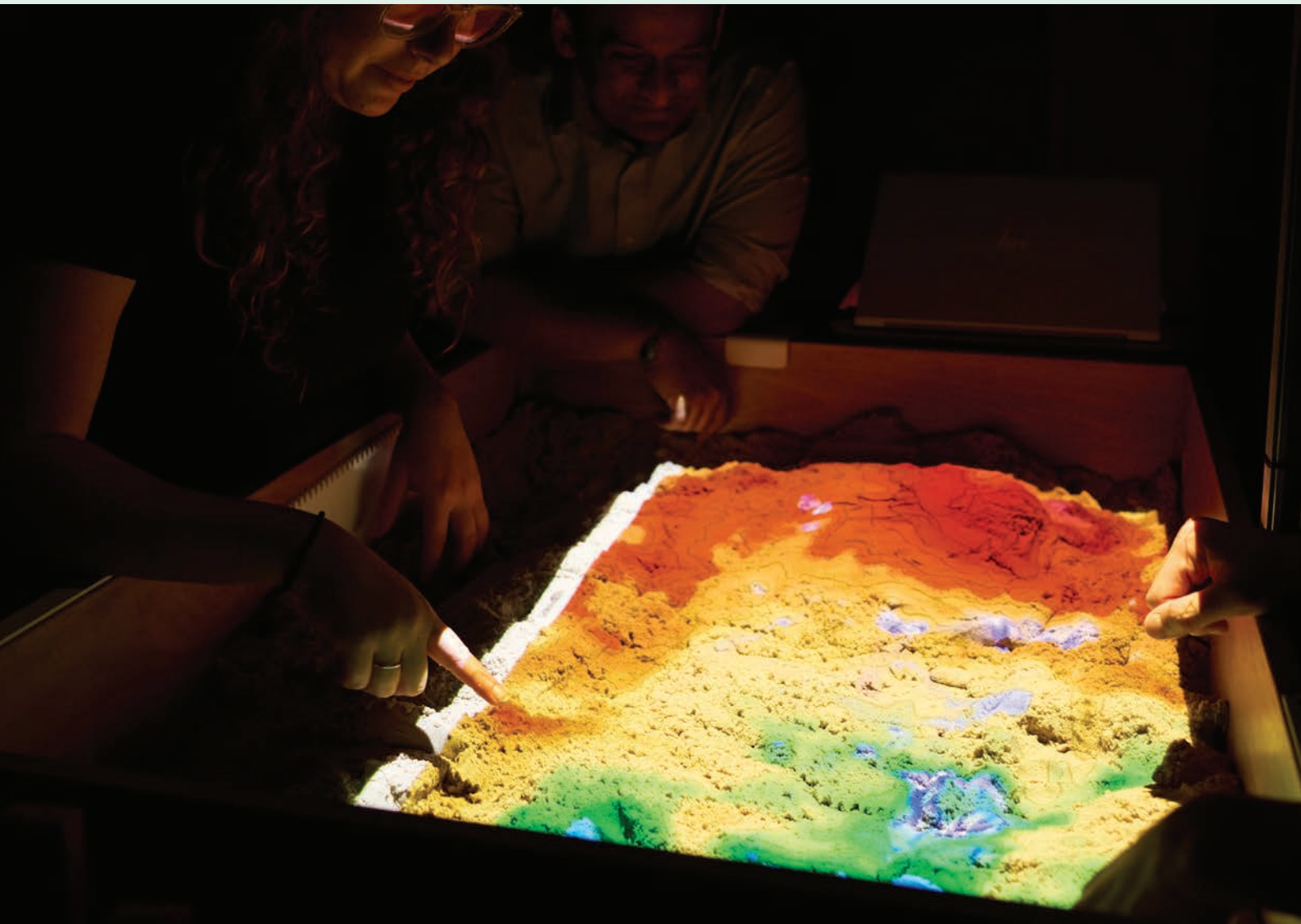
CAL is a hybrid space with smart equipment including:

- 8 panel Video Wall
- 6 Mobile multi-touch screen workstations
- Augmented Reality (AR) Sandbox
- Virtual Reality (VR) equipment
- Eye tracking and recording equipment
- Streaming and conference capabilities
- VR/AR Studio with observation rooms

The CAL is a recognised node of the ARC i-Hub network, a dedicated space designed to support collaborative city planning and user centred design. CAL supports both research (Urban Analytics) and teaching (Master of City Analytics). CAL compromises a large decision support theatre, and three dedicated Virtual Reality (VR) / Augmented (AR) Reality rooms, along with a Tangible Table sandbox and observation rooms for undertaking experiments. CAL has been established to support the envisioning of sustainable, productive, liveable and resilient cities and provides a unique opportunity to study the decision-making processes associated with city planning and design.

For more information, contact:

Mr Alireza Shamakhy



Housing Analytics Lab (HAL)

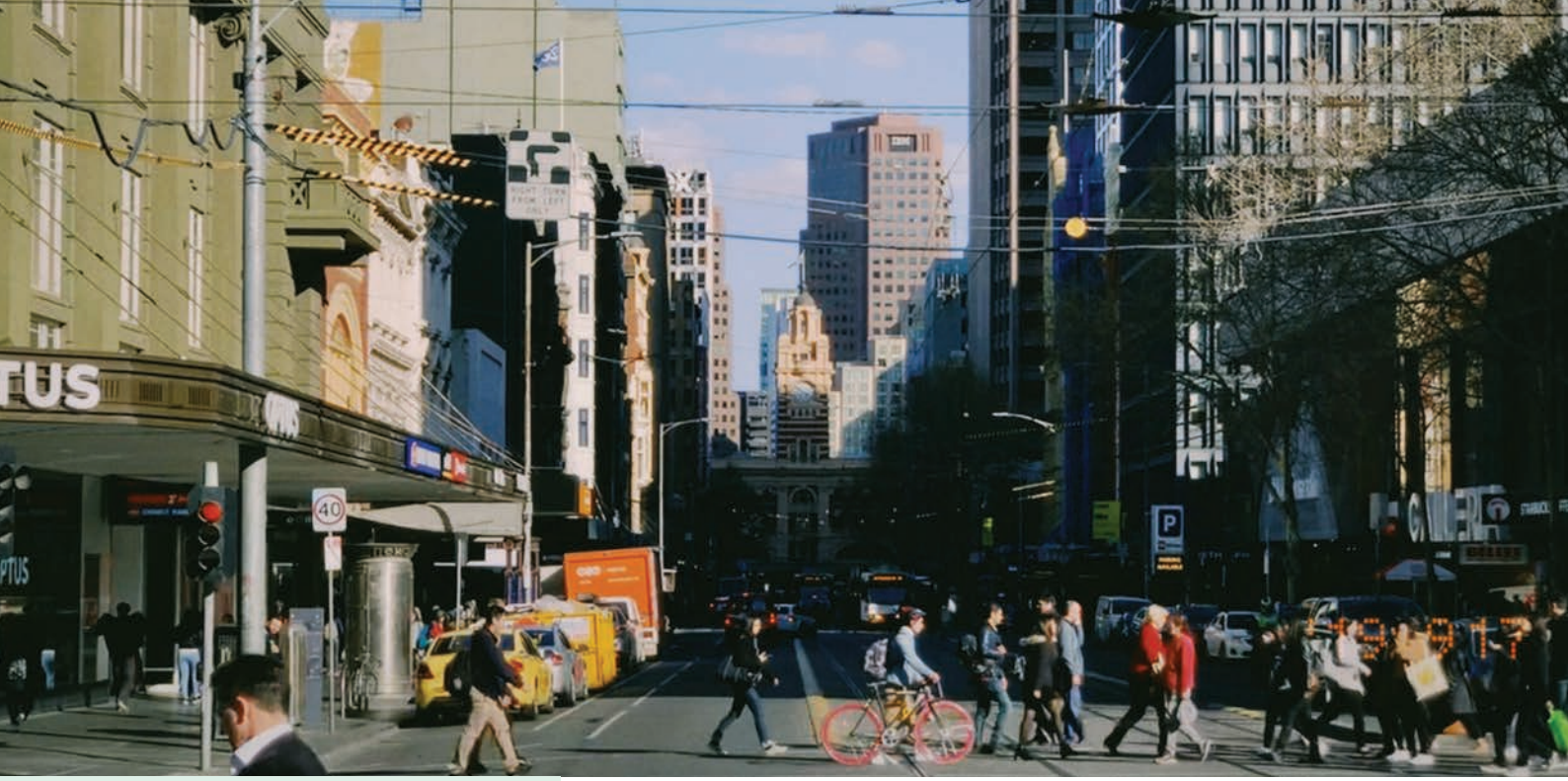
Complementing Australian Housing Data Analytics Platform, the Housing Analytics Lab (HAL) at UNSW Sydney is a state-of-the-art facility designed to further national capacity in housing analytics.

Established with a $1 million grant from the Office of the NSW Chief Scientist & Engineer, HAL brings together a coalition of partners including UNSW Sydney, the Australian Urban Research Infrastructure Network, Commonwealth Bank Australia, FrontierSI, Mirvac, SGS Economics and Planning, Australian Research Data Commons, PEXA, National Shelter, Housing Australia, Community Housing Industry Association NSW, Tenants' Union of NSW, and Amazon Web Service (AWS).

The Lab houses an array of digital tools, from an AI assistant to ingest and synthesise housing policy research, through to GeoAI enabled interactive mapping tools that reveal everything from housing density around train stations to the spatial turnover of rental properties, and modelling for precinct development. It is designed not just as a digital platform, but as a collaborative co-design space for cross-sector problem-solving.

For more information, contact:

Dr Edgar Liu



How to engage with us

City Futures works with a broad range of partners across 100 industry, government and community organisations to deliver research that drives real-world impact.

Whether you are seeking insights, collaborations, or opportunities to shape future cities, we welcome the chance to connect and create evidence-based solutions that improve policy, practice, and everyday lives.

Partnering with City Futures

- Collaborative and contract research, expert consultancy, and commissioned reports
- Joint competitive grants (e.g. ARC Linkage, CRC/CRC-P) and government-incentivised R&D projects
- Policy engagement and thought leadership — co-authoring policy briefs, and providing evidence for government inquiries and reforms
- Community-engaged and participatory research — co-designing projects with industry, government, and communities to maximise impact
- Joint data sharing and co-development of repositories, digital twins, and interactive dashboards
- Access to specialist facilities — including the City Analytics Lab, Housing Analytics Lab, and spatial, urban, and housing data platforms
- Workforce development and capacity building — placements, applied projects, and practitioner training in urban policy, planning, and housing
- Student engagement — internships, Honours/HDR scholarships, and joint PhD programs
- Short courses, executive education, professional development, and customised learning solutions
- Independent and expert reviews
- Licensing of tools, methods, and technologies
- Spin-off companies and equity investment
- Visiting scholar and fellowship opportunities

UNSW
City Futures
Research Centre

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