

CreaTech 2026 - Expression of Interest

Breathing Country - A Living, Sensing Cultural Public Space

Faculty of Design and Society

Collaborating Faculties: Faculty of Science, Faculty of Engineering and IT

Submission deadline: COB 15 May 2026 | Submit to: FDS.Research@uts.edu.au

Subject line: CreaTech EOI

DOCUMENT 1: Project Description

Core Concept

Jones Street has always been more than a street. For the Gadigal people, this Country holds ecological knowledge accumulated over thousands of years – of seasons, of species, and of the relationships between soil, plant, air and life. Sitting at the end of the Pymont sandstone ridge, the land here is rich and layered: a place where geology, fertile soils and water flows have long shaped what could grow, live and endure. The Jones Street transformation offers the opportunity not just to redesign a street, but to celebrate that deep knowledge and make it present again. The *Breathing Country* prototype reimagines Jones Street as a living system emerging from this ground - layered native planting selected for biodiversity and Gadigal seasonal meaning; environmental sensors that translate ecological health into public experience; and Gadigal knowledge that shapes what is planted, how it is cared for, and who holds the story sustained for millennia. Country is not the backdrop, but it's part of the design.

Research Innovation

Breathing Country makes four distinctive research contributions:

- **Biodiversity-first sensing** - the prototype demonstrates how living ecological systems can function as the primary sensor network; ecological health is the data and not just what the data monitors
- **Acoustic biodiversity monitoring** - bioacoustic detection of birdsong and bee activity as a real-time, public-facing biodiversity indicator is a novel application at urban precinct scale, bridging environmental science and creative public experience
- **Cultural data governance** - the co-design logic for how environmental data is held, interpreted and narrated by Country offers an original contribution to Indigenous data sovereignty within creative technology design
- **Pollinator-microbiome systems framing** - connecting bee ecology and soil microbial health to the plant-mycorrhizal network introduces an under explored scientific lens to urban biodiversity design, with strong publication potential

Creative Technology Approach

- Real-time environmental sensing (air quality, humidity, temperature, soil moisture, plant health) translated into public-facing spatial experiences, including soundscapes, light responses or projection overlays that make the vitality of the ecological community visible and felt
- Bioacoustic monitoring of birdsong and bee activity, functioning simultaneously as a live biodiversity indicator and an immersive public sensory experience
- Data visualisation connecting ambient environmental conditions to biodiversity indicators (e.g. pollinator activity, bird calls, soil carbon), grounding 'healthy air' in ecological rather than purely technical terms
- Gadigal Talking Stones - made of sandstone, in reference to Ultimo quarrying history, strategically placed within the native planting, carrying Gadigal language, place names, seasonal ecological knowledge and historical narratives drawn from archival research; a direct response to the precedent of the Kalapuya Talking Stones (Whilamut Natural Area, Alton Baker Park, Eugene, Oregon), which reintroduced the words and history of the Kalapuya people into a restored natural landscape

Alignment with Jones Street

The prototype is spatially and conceptually grounded in the Jones Street precinct and its connections to Alumni Green and Thomas Street. Specific site alignments include:

- Layered native planting (ground layer, mid-storey and canopy) designed to establish measurable micro-habitat and wildlife movement corridors across the Tech Central precinct
- Native plant–pollinator dynamics informing species selection to support native stingless bees, solitary bees and broader invertebrate pollinators as part of the living corridor
- Native plant–soil–mycorrhizal relationships modelled as a system, making visible the underground ecological networks that sustain plant and air quality outcomes
- Seasonal ecological storytelling with species chosen to mark Gadigal seasons, making ecological and cultural time legible to daily passers-by
- A camera trapping biodiversity assessment from Building 7 (currently unpublished) provides an immediate, site-specific empirical baseline, enabling robust pre/post ecological comparison
- Jones Street as a living thoroughfare where the precinct sits at the threshold between UTS and TAFE NSW, moving thousands of students, staff and community members daily. *Breathing Country* embraces this flow, designing the space as a passage for people, wind, and native species movement and where ecological and cultural stories are encountered in motion. It will draw on Tasha James' role as an Indigenous archivist at the ABC to connect the precinct's living cultural layer to broader storytelling platforms, extending the reach of Gadigal knowledge beyond the campus boundary.

Engagement with Country

Indigenous knowledge shapes the decisions in this project – including what is planted, where, how it is narrated, and who holds governance of the data and stories the space generates.

Allan Teale will lead the Country-centred design and ensures the environmental data is governed in ways consistent with Indigenous custodianship. Tasha James brings Gadigal historical, linguistic and ecological knowledge into the Talking Stones and the cultural framework of the site. Cultural planting narratives draw on both Tasha's archival research and ecological science (Fraser Torpy, Peter Irga and Nural Cokcetin), including the role of pollinators and food plants in Gadigal land stewardship. Deb Szapiro leads the artistic direction, working with and through Indigenous students to shape the design. The team also draws on Catherine McElhone's direct community connections to Gadigal/Redfern and La Perouse, developed through competitive *Jawun* placement working with Indigenous communities, to enable public engagement beyond the university campus.

Interdisciplinary Contribution

The team spans FDS (design, Indigenous knowledge, cultural archiving), Engineering and IT (environmental sensing, bioacoustics), and Science (plant systems, pollinator ecology, microbiology, science communication), with research impact and community engagement in the Research Office, including direct connections to local Gadigal community networks. This cross-Faculty composition directly reflects the call's priorities and ensures that cultural, technological and ecological dimensions are each held by genuine disciplinary expertise.

Feasibility

This is a paper prototype project. Deliverables are achievable within the June - November 2026 window and include: ecological systems diagrams; layered planting plans with pollinator species selections; Talking Stones placement and Gadigal language design concepts; bioacoustic and environmental sensing system design; data visualisation interface concepts; and a cultural data governance framework. No construction is required. The existing Building 7 biodiversity dataset and Tasha James' contributions will be delivered through the engagement of Gadigal knowledge holders and community members, ensuring their perspectives are meaningfully embedded in the project. This includes integrating Gadigal historical, linguistic, and ecological knowledge into the Talking Stones and the site's broader cultural framework. Cultural planting narratives will draw on both community-informed knowledge and interdisciplinary research including archival sources and ecological science to reflect the role of pollinators and food plants in Gadigal land stewardship.

Stage 2 Pathway

Breathing Country is explicitly designed for Stage 2 progression. Clear pathways exist toward:

- ARC Linkage - urban ecology, Indigenous knowledge systems and creative technology
- City of Sydney and Tech Central - a scalable, replicable model for the broader precinct and Sydney Metro West public domain
- Industry partnership - landscape architects, urban ecologists, acoustic technology companies, city planners and infrastructure bodies
- Jones Street Landscape Project - prototype outputs available to inform detailed design from 2027 onward
- Publication - the Building 7 biodiversity assessment combined with prototype data creates an immediate publication pathway in urban ecology and biodiversity design
- Knowledge translation case study - Exemplar crossdisciplinarity research translation case with clear public engagement opportunities with UTS research and innovation

DOCUMENT 2: Research Team Description

Lead Faculty: Faculty of Design and Society (FDS); **Collaborating Faculties:** Faculty of Science (SCI) | Faculty of Engineering and IT (FEIT)

Team Member	Affiliation	Role & Contribution	Profile Link
Allan Teale	FDS	Country-centred framing, co-design logic, cultural governance of data and ecological knowledge systems; Indigenous Knowledge Exchange lead	Allan Teale
Deborah Szapiro	FDS	Cultural artistic direction; design elements developed with Indigenous students; Talking Stones aesthetic and spatial design	Deborah Szapiro
Tasha James (HDR)	FDS	Indigenous Archivist - Gadigal historical, linguistic and ecological context woven into Talking Stones and the cultural framework of the site	Tasha James
Fraser Torpy	SCI	Native plant systems, layered planting strategy, ecological performance, mycorrhizal systems, habitat design and biodiversity targets	Fraser Torpy
Peter Irga	FEIT	Environmental sensing, air quality metrics, acoustic and bioacoustic monitoring, feasibility of data collection and visualisation systems	Peter Irga
Nural Cokcetin	SCI / Professional staff support (RO)	Pollinator science and bee ecology; co-development of cultural planting narratives; science communication for public-facing biodiversity content	Nural Cokcetin
Catherine McElhone	Professional staff support (RO)	Research impact strategy and community engagement; narrative development and writing for general audiences; community connections to Gadigal/Redfern and La Perouse through Jawun placement, supporting authentic engagement with local Indigenous communities	Catherine McElhone

HDR involvement: Tasha James (PhD candidate, FDS) is a core team member contributing archival and cultural research central to the project's Talking Stones and Country-centred design elements. The project will also engage Marcelle Tiller, an undergraduate Environmental Science student at UTS commencing an Honours project supervised by Peter Irga and Fraser Torpy, as the project RA. Her work will focus on biodiversity assessments and ecological data visualisation, providing meaningful research training at the intersection of urban ecology and creative technology.

External collaboration: The team have engaged Peter Cooley (First Hand Solutions Aboriginal Corporation; CEO of IndigiGrow) and Vanessa Taaffe (Project Manager, IndigiGrow) to contribute expertise in Sydney coastal native plant systems – including species selection, suitability, and long-

term care – ensuring the ecological foundations of the project are appropriate to place, viable in an urban setting, and able to inform future scaling.

[Excite Cyber](#) are engaged as an external industry partner to provide early-stage advice on digital architecture, data governance and cyber security considerations for environmental and cultural data generated through the prototype. At scale, the project would require secure, well-governed digital infrastructure to manage environmental sensing data and public-facing systems. Excite Cyber offer industry expertise in cyber security, system architecture and managed digital services that could support future deployment beyond the prototype phase.

The team are also currently engaging with Dr Jodi Rowley (Australian Museum), Lead Scientist of [FrogID](#), who will contribute expertise in acoustic biodiversity monitoring and citizen science approaches to inform how urban soundscapes (such as frog and amphibian activity) can function as indicators of ecological health within the precinct.

The team will additionally seek to engage external industry/community partners during the prototype development phase, with landscape architecture firms, urban ecology consultancies and acoustic technology companies identified as priority targets for Stage 2 co-development.