More-Than-Human Urban Design

THE UNIVERSITY OF MELBOURNE

msd

Melbourne School of Design

More-Than-Human Urban Design

Developing Digital Design and Fabrication Tools
for the Construction of More-than-human Habitats
at Fishermans Bend, Melbourne, Australia

Edited by Rochus Urban Hinkel

Acknowledgment of Country

We acknowledge the Traditional Owners of the unceded land on which we work, learn and live: the Wurundjeri Woi-wurrung and Bunurong peoples.

We recognise the unique place held by Aboriginal and Torres Strait Islander peoples as the original owners and custodians of the lands and waterways across the Australian continent, with histories of continuous connection dating back more than

60,000 years. We also acknowledge their enduring cultural practices of caring for Country.

We pay respect to Elders past, present and future, and acknowledge the importance of Indigenous knowledge in the Academy. As a community of researchers, teachers, professional staff and students we are privileged to work and learn every day with Indigenous colleagues and partners.

Research through Design – Designing and Fabricating More-Than-Human Habitats

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This publication brings together two design-make electives from the Melbourne School of Design, *Spatial Information Laboratory* (SI_Lab) and *Digital Fabrication Laboratory* (DF_Lab). We invite students in these subjects to think through technology, material, and ecology in new ways. Both subjects sit within a suite of electives at MSD that focus on design through making: a pedagogical approach that values experimentation, prototyping, and hands-on engagement with materials and tools. Across these electives, digital design and fabrication become more than techniques of production, they become methods for testing ideas, questioning assumptions, and opening up new creative possibilities.

At the core of *SI_Lab* and *DF_Lab* in semester 2, 2024, is a shared curiosity about how architecture might respond to the more-than-human world. How can data, machines, and fabrication technologies help us design spaces that support other forms of life? What relationships might emerge when designers use digital systems, natural materials, and ecological processes?

Si_Lab and *Df_Lab* approach these questions from different directions. One begins with data and environmental sensing, the other with matter and making, but they ultimately converge around a common ambition: to explore how design can contribute to a more interconnected, responsive, and imaginative understanding of our environment. Caring for more-than-humans and caring for a better world.

In *Si_Lab*, students ventured to Fishermans Bend in Melbourne, armed with small, digital devices that listen, record, and sense. These tools captured traces of the urban environment, from the movement of people to fluctuations in temperature, patterns of sound and vibration – revealing hidden layers of activity that often escape human perception. Students translated this data into visual and spatial models, developing new ways to understand and interpret a site's conditions, how it behaves and how it might be able to accommodate more-than-human habitats best. What does it mean for architecture and design if it has to respond to the rhythms of other species, to the pulse of a street tree or the hum of an insect population. Through this process, digital technologies became instruments for empathy and imagination, helping students reimagine urban space as something alive, dynamic, and shared with others.

Where *Si_Lab* was outward-looking and analytical, *Df_Lab* turned inward, into the workshop. Here, students engaged with the tactile realities of fabrication, using robotic milling and computational design to create a full-

scale structure composed of irregular timber branches. The studio asked how natural, non-standard materials might be integrated into digital workflows without erasing their uniqueness. Using material, tree branches, which would normally be considered unusable for any construction. Each branch presented a challenge, a deviation, negotiating between the precision of the machine and the unpredictability of the material. Through a complex and delicate process, students began to see fabrication not as a process of control, but as a collaboration with matter. The resulting prototype was less a finished object than a record of an encounter between technology, material, and design intent.

Together, these two electives illustrate the power of digital tools, expanding how we learn, think, and make. By combining data collection, computation, and fabrication, students developed a rich understanding of how design operates across scales – from the invisible systems of an urban ecology to the grain of a single piece of timber. The Melbourne School of Design has built a strong reputation in this space, developing expertise in more-than-human design and in the integration of digital technologies into creative and ecological inquiries. These electives are part of this trajectory, showing how architectural education can cultivate sensitivity to both technological innovation and environmental care.

Michael Park and *Tony Yu* were the studio leaders teaching *DF_Lab* and *SI_Lab*. Their expertise,

commitment, guidance and insights enabled students to engage and supported them through the challenges of experimentation, uncertainty, and full-scale making. William Ward supported both electives as an embedded researcher, putting together a repository of information about the location, the Melbourne Pollinator Corridor, as well as exemplary precedents of design and more-than-human habitats.

This exemplary teaching and research initiative was only made possible through *FB Ideas* and the *Faculty of Architecture, Building and Planning Creative Futures Fund*, without their financial and logistical support neither project would have been possible. The faculty's *Maker Spaces* staff were crucial in the execution of the design, their technical expertise, patience, and willingness to problem-solve alongside students are the foundation upon which these electives and their impressive outcomes stand.

Ultimately, the projects in *Si_Lab* and *Df_Lab* demonstrate how design education can contribute to future practice and to innovative ways of teaching and learning. Making, building, and testing prototypes are not simply academic exercises; they are acts of discovery that connect thinking and doing. Academia remains one of the few places where such explorations can be undertaking, a place where students can take risks, work experimentally, and imagine futures that extend beyond the human and the habitual. Within this space of curiosity and craft, architecture becomes a way of asking questions and of learning not just how to design, but why, and for whom.

Fig. 1 Point cloud of 3D scan - Robotic milling of timber connection

Designing with More-Than-Humans

Rochus Urban Hinkel

Human-centric design, long dominant in architecture and urban development, has reached its limits. Its focus on human comfort, efficiency, and economic growth has prioritised short-term gain over long-term ecological balance. The built environment has too often been shaped without considering its broader impact on non-human species, leading to environmental degradation, loss of biodiversity, and the fragmentation of ecosystems. Conventional design methods struggle to address the needs of other living beings. Without mechanisms for feedback or understanding, these approaches cannot respond to the complexity of ecological interdependence.

A shift is therefore required—one that recognises that human survival and well-being are inseparable from the health of the environments we share. An eco-centric approach to design repositions architecture within the continuum of natural systems. It values the relationships between people, species, and matter, and considers buildings and cities as participants in, rather than dominators of, the living world. This perspective demands new tools, data, and imagination to understand and design for the sensory worlds of other species, whether that means accounting for light pollution that disorients birds or creating continuous habitats that allow wildlife to move through urban landscapes.

Considering the more-than-human is not simply about adding greenery or compensating for ecological damage. It involves reframing design as a process of coexistence and mutual benefit, where human and non-human needs are integrated and balanced. Cities can become complex habitats that sustain a diversity of life, rather than sterile human enclaves. Recognising the limits of our perception, our inability to see ultraviolet light, sense magnetic fields, or fully grasp the experiences of other beings, underscores the importance of humility and collaboration in design.

Eco-centric design invites architects and urban designers to act as mediators between data, buildings, and ecology. It asks them to create conditions for life to thrive across species boundaries and to build resilience into urban systems. This approach transforms design from an act of control into one of care; linking technology, science, and creativity to repair and sustain the living networks that make our world habitable. Through this lens, architecture becomes not just human shelter, but a framework for coexistence within the more-than-human environment.

Si_Lab - Semester 2, 2024

Si_Lab Studio Leader and Lead Researcher:

Tony Yu

Students:

Cuihu Deng, Douglas Thinwa, Hengjia Hu and Taoyuan Zhu

SI_Lab is a Master of Architecture elective offered at the Melbourne School of Design, Faculty of Architecture, Building and Planning at the University of Melbourne. Taught in the second semester of 2024, this iteration of *SI_ Lab* explored how emerging technologies can be applied to urban design contexts through the lens of *more-than-human* design. As one of five design-make electives at the school that integrate research and prototyping, *SI_ Lab* focuses on applied technology in spatial design—introducing students to 3D scanning, environmental and human data collection, computational analysis, and mixed reality visualisation as tools for rethinking the relationship between people, technology, and ecology in cities.

The elective analysed and designed for a site at Fishermans Bend, Australia's largest urban renewal project. Our 30 × 50 metre test site, situated between industrial warehouses and emerging residential developments, offered a rich context to explore the intersection of urban regeneration, ecology, and data-driven design. The brief challenged students to develop speculative frameworks and proof-of-concept design tools to develop a more-than-human urban design approach that recognises non-human species as active participants and stakeholders within the built environment.

The semester was structured around a research-led, student-driven process that unfolded in two main phases. In the first phase, students were introduced to theoretical frameworks of more-than-human and posthuman design, drawing on authors such as Maller (2018), Forlano (2016), and Roudavski (2022). These readings established the conceptual basis for understanding biodiversity as a key factor in healthy urban systems, and for positioning design as a practice of ecological care rather than human-centred control.

Alongside theory, students gained practical experience in spatial and environmental data collection**,** using terrestrial laser scanning (LiDAR). Working with the Leica BLK360 scanner, we created detailed 3D point cloud models of the site and collected real-world data of light and noise levels. Such factors are known to influence the behaviour and define suitable locations for more-than-human habitats, depending on specific species requirements. This combination of spatial and environmental data formed the foundation for constructing a site-scale *digital twin*—a virtual model linking digital data to its physical environment.

In the second phase, students translated their research into speculative digital toolkits, using

Fig. 2 Bird Vision Visualisation

the digital twin as a testing environment. These proof-of-concept tools analysed site conditions against species-specific parameters, such as those of the *Superb Fairy Wren*, a native bird identified as part of the precinct's Urban Ecology Strategy. Students developed workflows for mapping and visualising suitable habitat zones, experimenting with how data-driven models might guide design interventions that support non-human life.

Through this process, students not only learned technical skills in scanning, sensing, and computational design, but also developed a deeper understanding of how technology can mediate relationships between humans and the more-than-human world. The outcomes of *SI_Lab* semester 2, 2024 created both, a speculative framework as well as digital tools that help to illustrate how spatial information technologies can enable new ways of designing for biodiversity, empathy, and coexistence in any urban context.

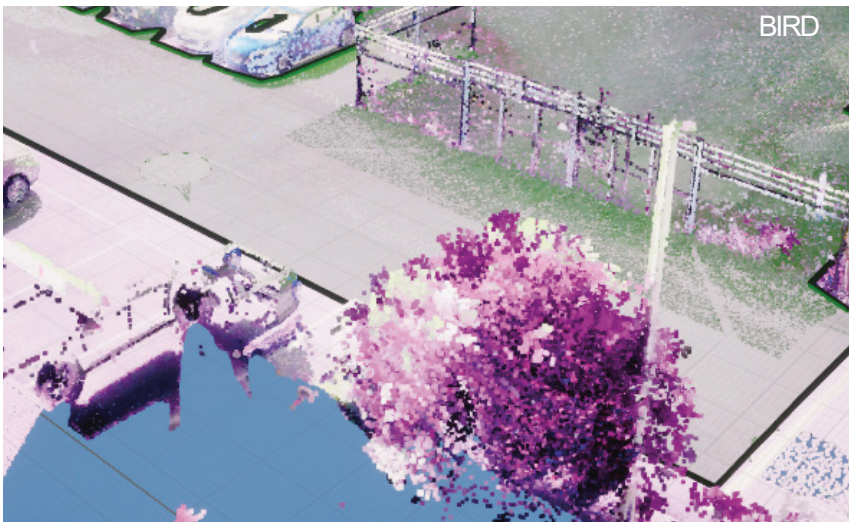


Fig. 3 Bird Vision Visualisation

Fig. 4 Bird Vision Visualisation

DATA COLLECTION TOOLS

HOBO Pendant
light/temp
data logger

HOBO Pendant
light/temp
data logger

AudioMoth
full-spectrum
acoustic logger

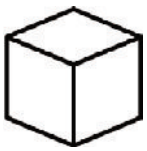
Sound Level
Data Logger

TYPESOF DATA COLLECTED

Sound Intensity
Data

Scan Data

sound source location



3D Brep model

Night Light Intensity
Data

Scan Data

Research data on
specific animal

Night Light Intensity
Data

Light source location

DATA VISUALISATION TOOLS

unreal engine
immersive viz

grasshopper
data viz

blender
viz

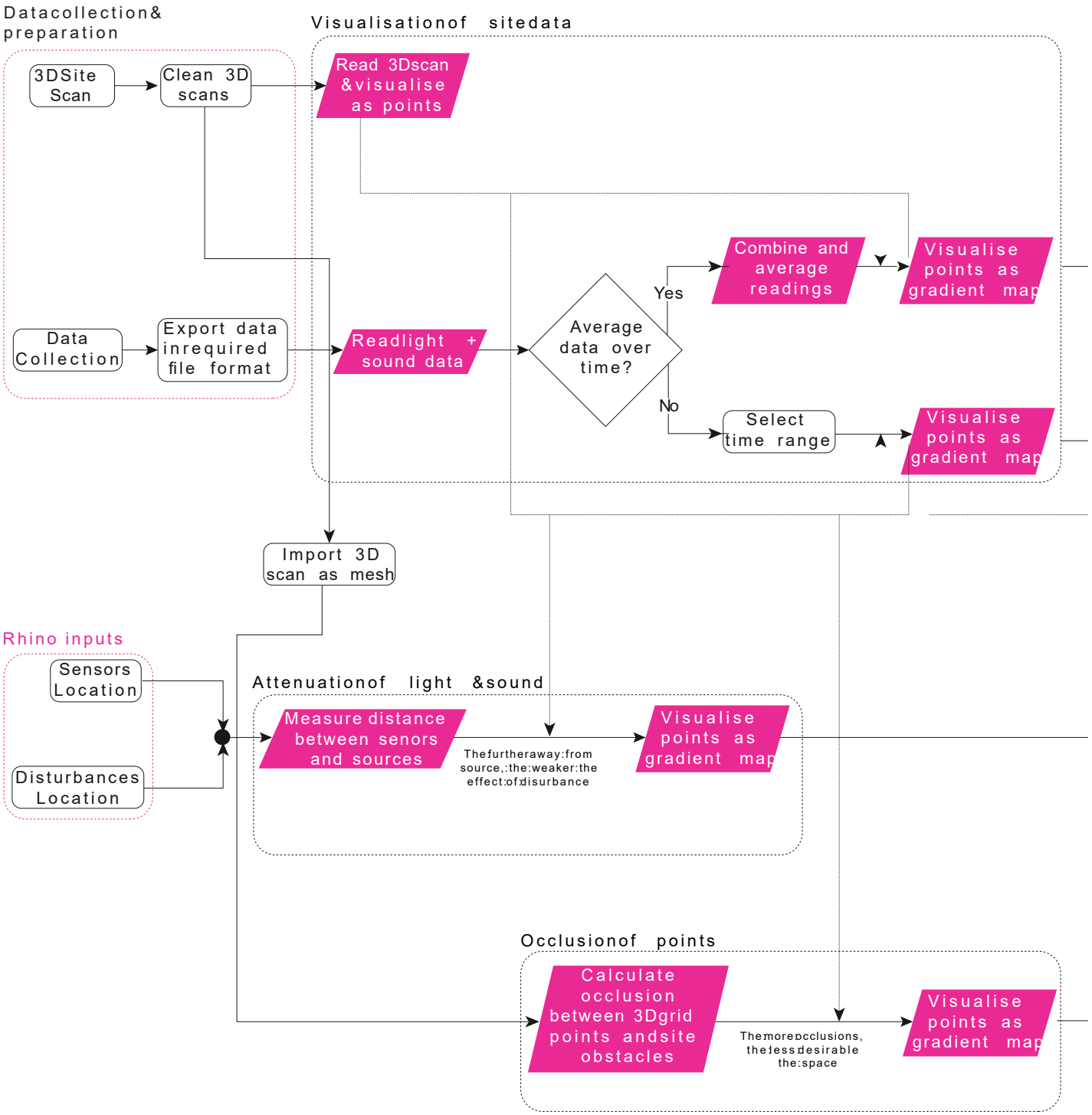
SITE 3D SCANNED

Fig. 5 Location of sensors on site

Fig. 6 Aerial Photo marked with Location of sensors on site

Fig. 7 Point Cloud of site 3D scanned

PROCESS OVERVIEW



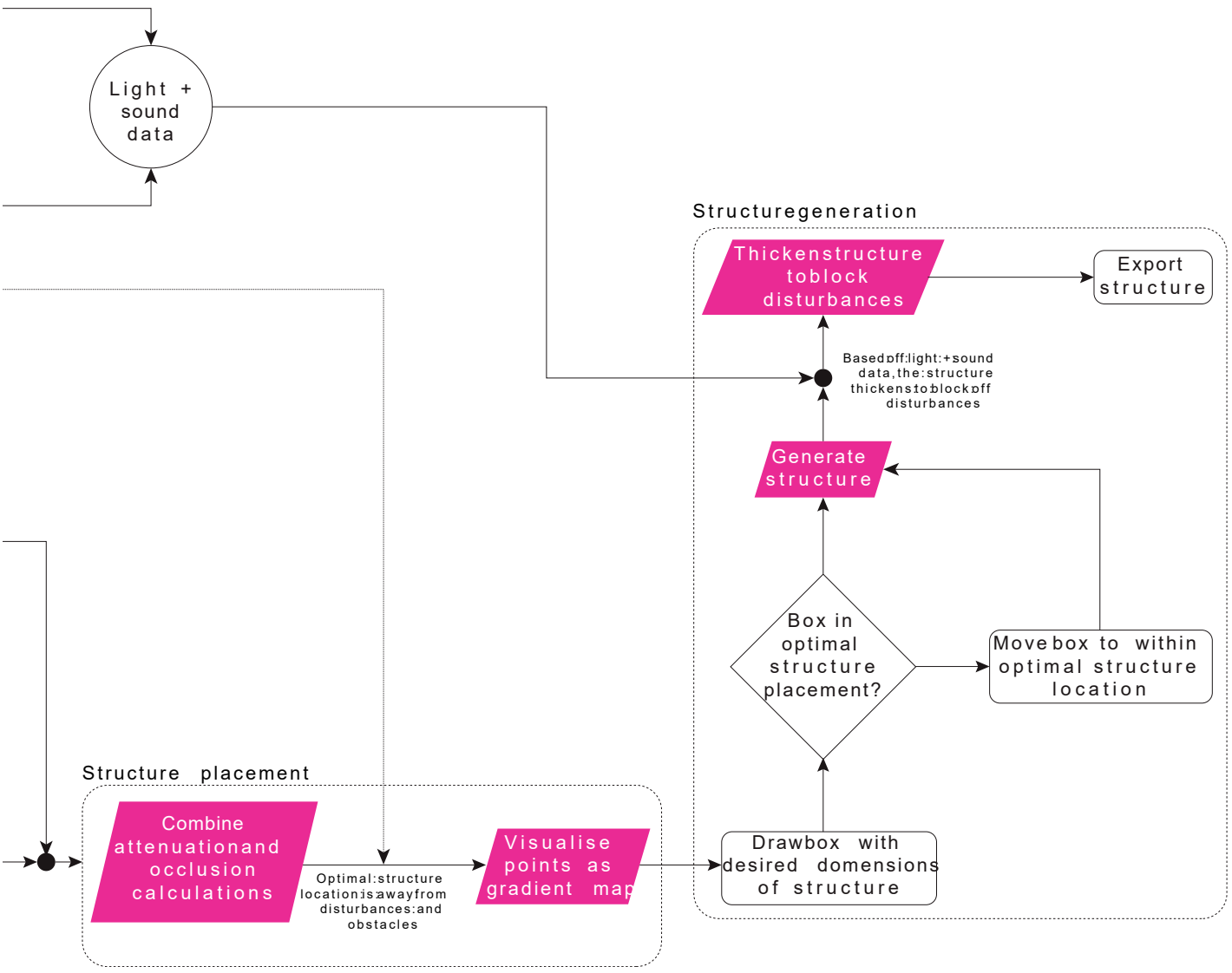

Light + sound data
Structuregeneration
Thickenstructure toblock disturbances
Export structure
Basedoff:light:+sound data,the:structure thickenstoːblockoff disturbances
Generate structure
Box in optimal structure placement?
Move box to within optimal structure location
Drawbox with desired domensions of structure
Structure placement
Combine attenuationand occlusion calculations
Optimal:structure locationisːawayfrom disturbances:and obstacles
Visualise points as gradient map

Fig. 8 Location of sensors on site

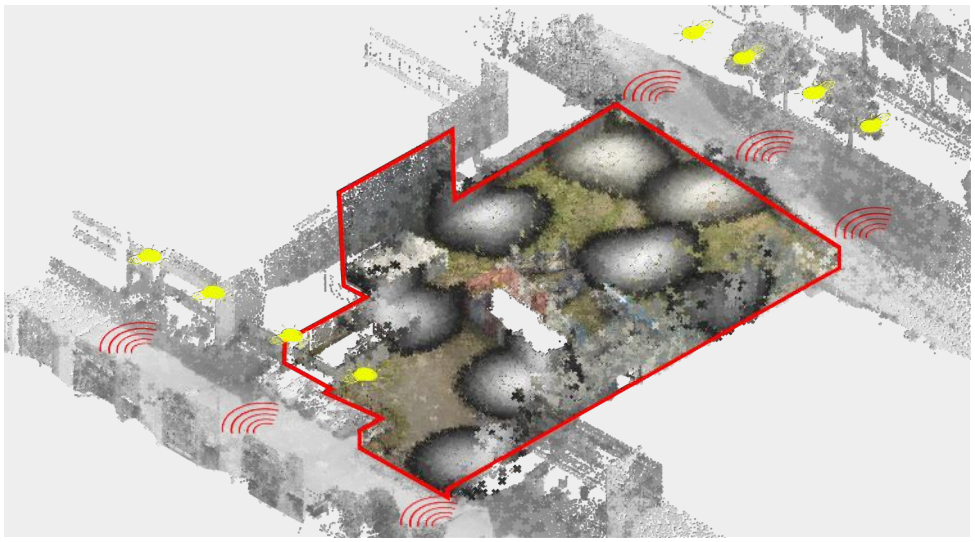


Fig. 9 Light and Noise disturbance

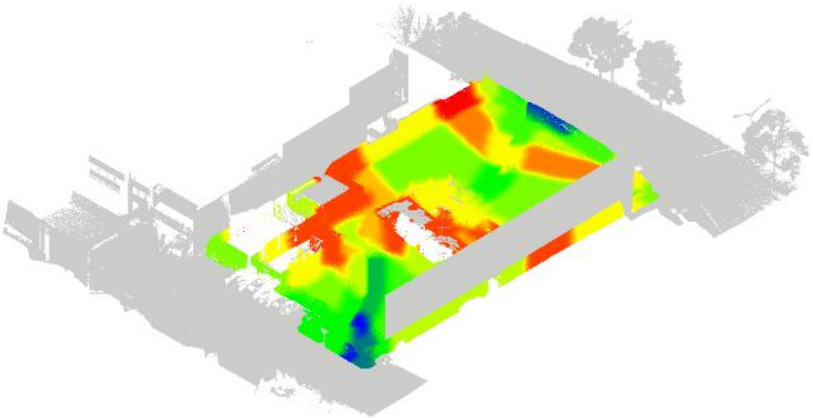


Fig. 10 Cloud Compare Visualisation

Fig. 11 Unreal Engine Visualisation

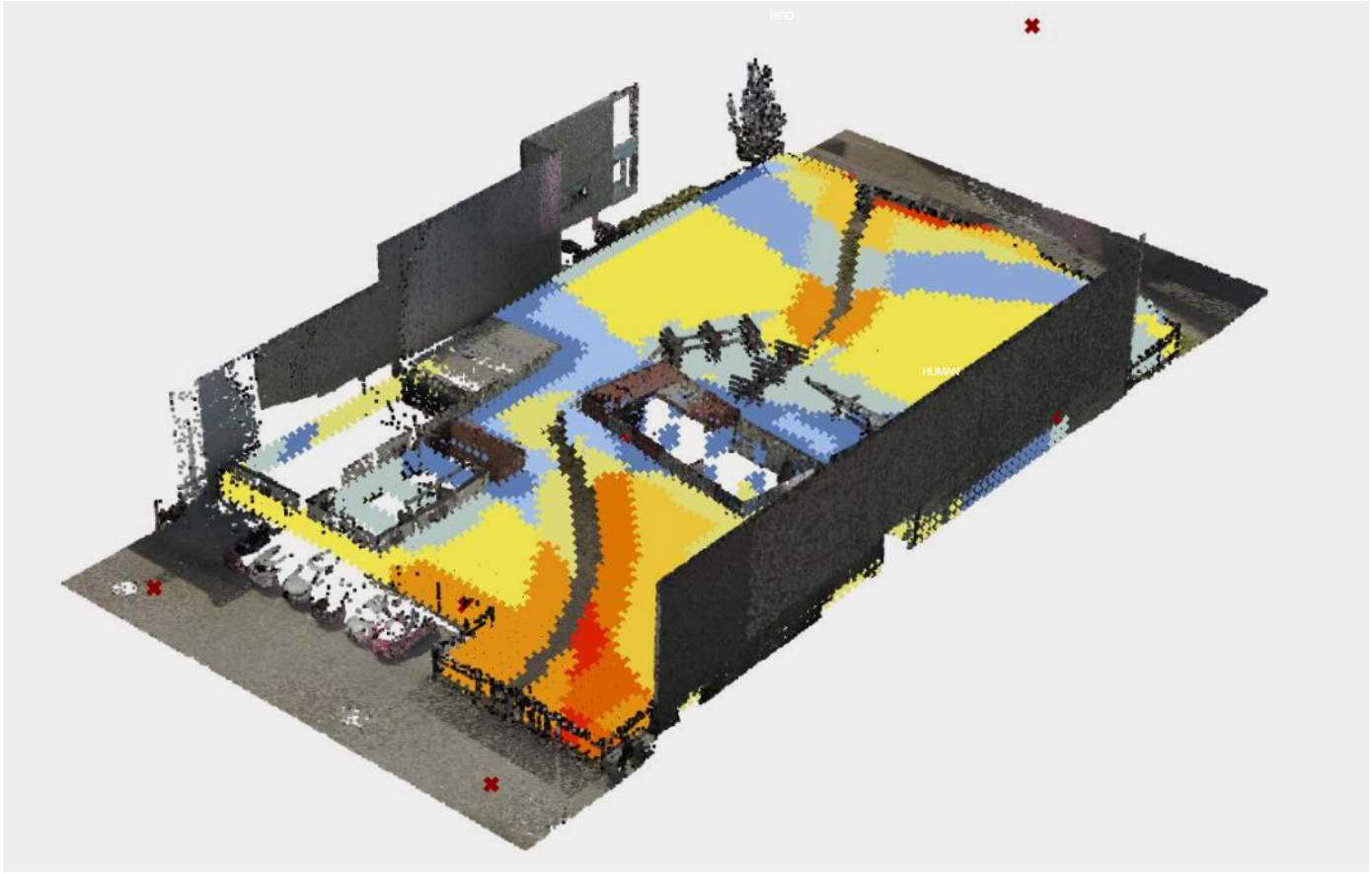


Fig. 12 Grasshopper Visualisation

Df_Lab – Semester 2, 2024

Df_Lab Studio Leader and Lead Researcher:

Michael Minghi Park

Students:

Stella Gorman, Matthew Park, and Andy Wilson

The Master of Architecture elective *Digital Fabrication Df_Lab: Designing Making* explores the intersection of digital fabrication, material experimentation, and ecological thinking. Centred on the use of *urban wood*, which is timber salvaged from trees felled within the city, the subject invited students to rethink how design and fabrication processes can engage with material cycles, sustainability, and local urban ecologies. Through an integrated workflow of computational design, prototyping, and robotic fabrication, the elective formed part of a broader research and teaching initiative investigating how architectural practice can address both human and more-than-human needs through design.

The digital fabrication workflow developed through this project was conceived as both a pedagogical framework and a research method. Applied to the design and fabrication of a full-scale installation at Fishermans Bend, it connected students, researchers, and technical staff in a shared process of experimentation and making. This iterative approach emphasised the role of prototyping as a bridge between conceptual design and physical implementation, where each iteration produced new insights into materials, structure, and fabrication logic.

Students began by exploring the tactile qualities of urban wood through hands-on exercises in the MSD Machine Workshop, fabricating small-scale joints and assemblies using traditional woodworking tools. This physical engagement grounded their understanding of material properties and craft before they moved into digital environments. Using Rhino3D and Grasshopper, students developed parametric design models that enabled rapid testing of joinery systems and complex geometries. These digital explorations were translated into tangible form through 3D-printed prototypes, allowing for quick feedback and refinement.

The workflow culminated in a series of full-scale experiments conducted in the MSD Robotics Lab, where students were supported by the Lead Technician, Nigel Brockbank to produce robotic-milled timber components. Working between analogue and digital models, students learned about robotic precision, tolerance, and assembly – transforming abstract design intentions into a built prototype.

In parallel, these methods informed a research project at Fishermans Bend focused on the design of a native bee habitat using reclaimed urban timber. Developed in collaboration with researchers from bioscience and urban horticulture, the

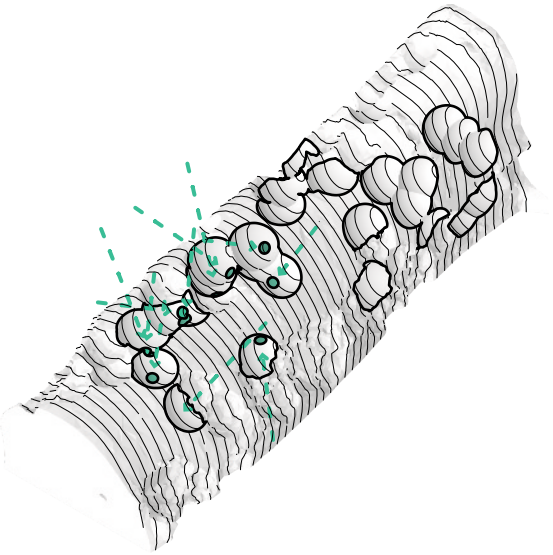


Fig. 13 (top) Digital representation of robotic ornamentation
Fig. 14 (top left) Campus Arborist
Fig. 15 (left) Insect Habitat ornamentation
Fig. 16 (bottom) Robotic Milling of timber joints

prototype addresses the habitat needs of native pollinators, including the *Blue Banded Bee*. Installed at Fishermans Bend at Vaughan Constructions during Melbourne Design Week 2025, the project demonstrates how digital fabrication can operate as a form of research-led design that bridges education, ecology, and community engagement.

Through this process, digital fabrication became more than a technical exercise, it became a way of thinking through making. By engaging with urban materials, advanced tools, and ecological narratives, students and researchers alike contributed to a broader conversation about how design education can prepare architects to build with care and curiosity for both human and more-than-human futures.

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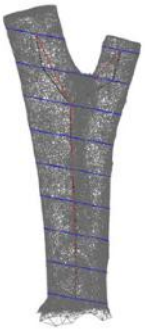
SB-10

SB-08



SB-01

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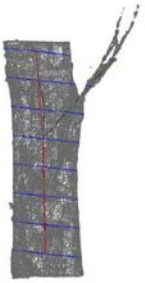

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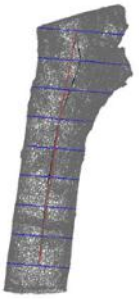

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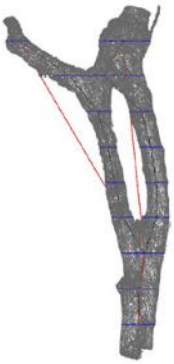

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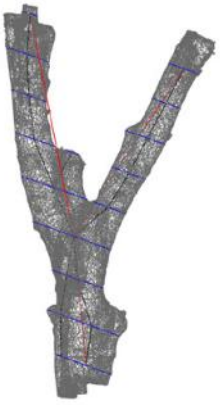

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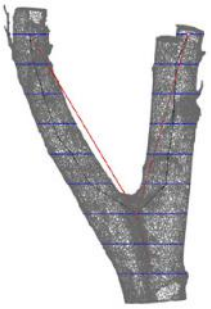

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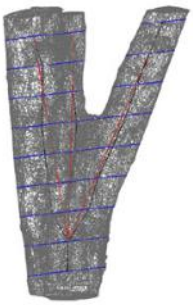

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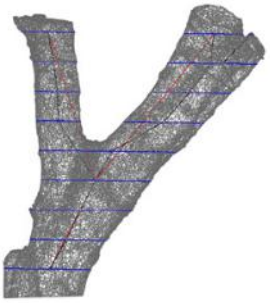

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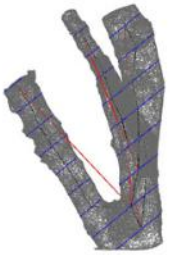

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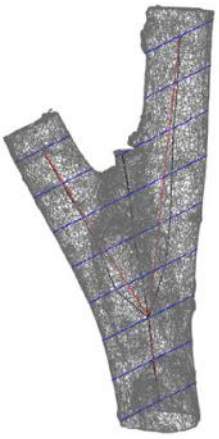

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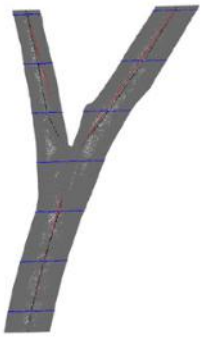

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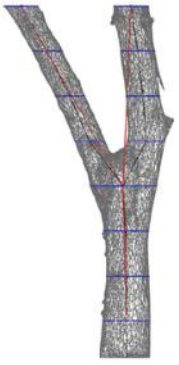

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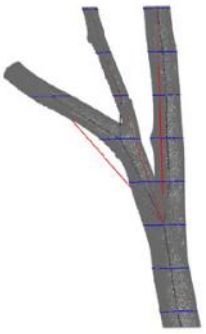

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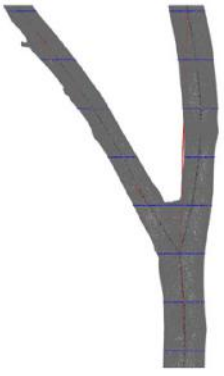

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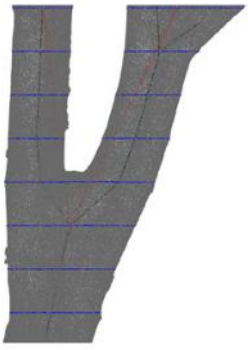

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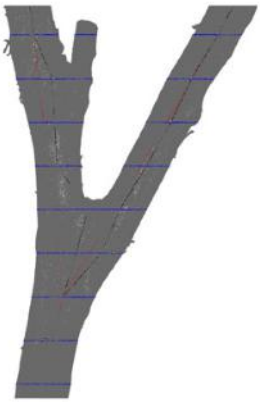

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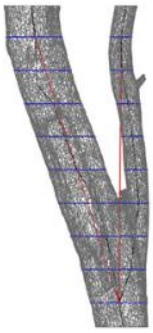

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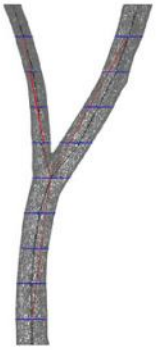

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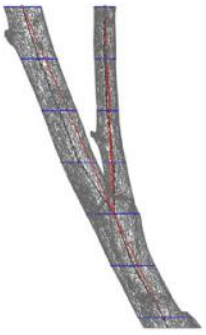

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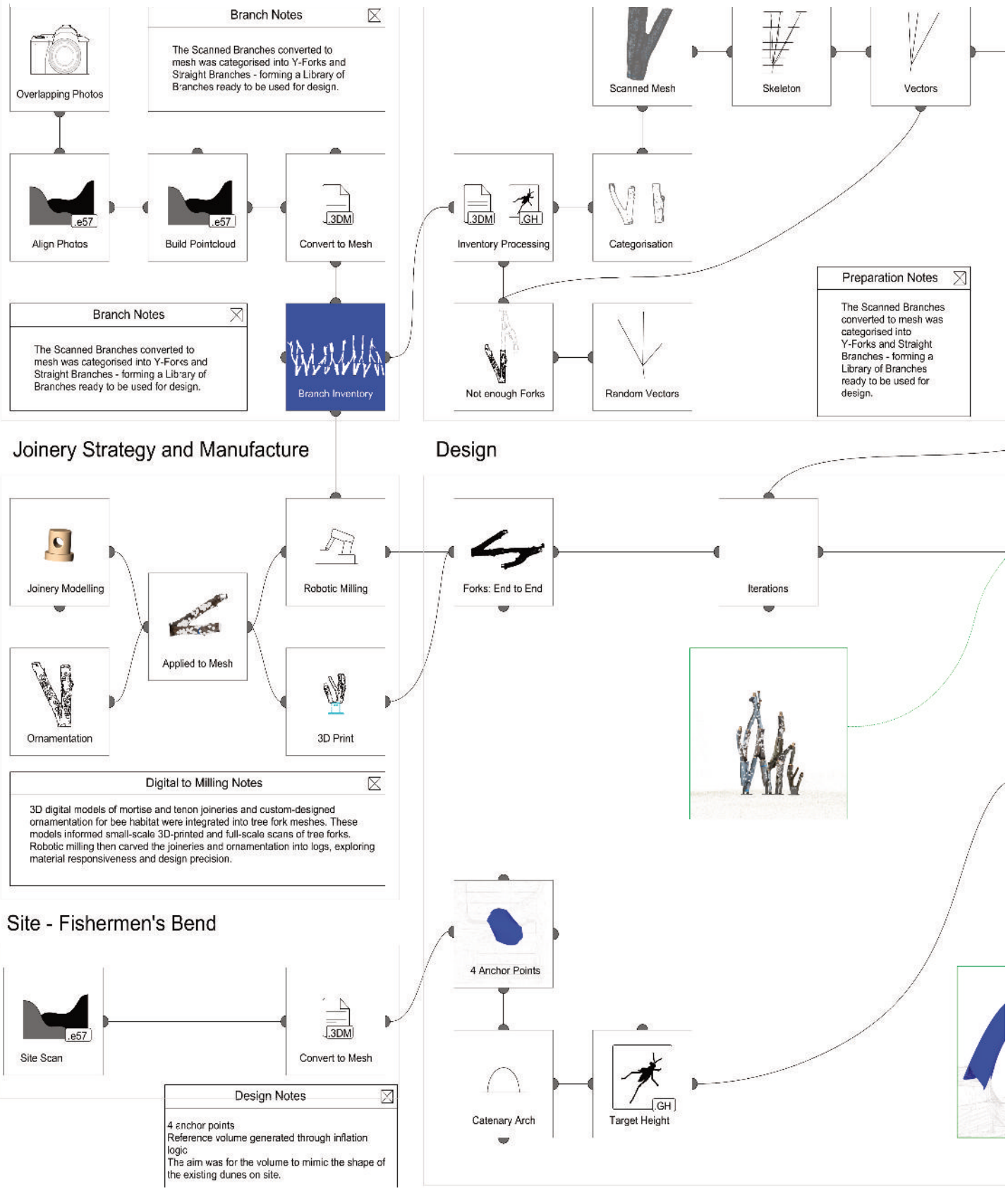
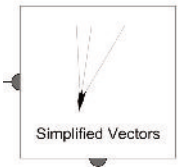

Overlapping Photos
Branch Notes
The Scanned Branches converted to mesh was categorised into Y-Forks and Straight Branches - forming a Library of Branches ready to be used for design.
Align Photos
Build Pointcloud
Convert to Mesh
Branch Notes
The Scanned Branches converted to mesh was categorised into Y-Forks and Straight Branches - forming a Library of Branches ready to be used for design.
Branch Inventory
Scanned Mesh
Skeleton
Vectors
Inventory Processing
Categorisation
Not enough Forks
Random Vectors
Preparation Notes
The Scanned Branches converted to mesh was categorised into Y-Forks and Straight Branches - forming a Library of Branches ready to be used for design.
Joinery Strategy and Manufacture
Design
Joinery Modelling
Ornamentation
Applied to Mesh
Robotic Milling
3D Print
Forks: End to End
Iterations
Digital to Milling Notes
3D digital models of mortise and tenon joineries and custom-designed ornamentation for bee habitat were integrated into tree fork meshes. These models informed small-scale 3D-printed and full-scale scans of tree forks. Robotic milling then carved the joineries and ornamentation into logs, exploring material responsiveness and design precision.
Site - Fishermen's Bend
Site Scan
Convert to Mesh
4 Anchor Points
Catenary Arch
Target Height
Design Notes
4 anchor points
Reference volume generated through inflation logic
The aim was for the volume to mimic the shape of the existing dunes on site.

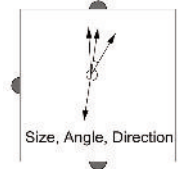


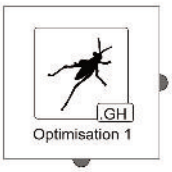
Node Placement

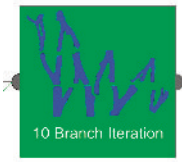
Instead of a uniform divison of the surface, adaptively the surface can be divided based on structural stress analysis. More nodes could be placed where more support is required.

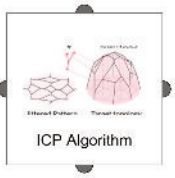
Jittering

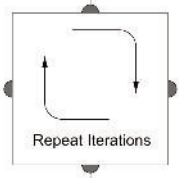
Instead of a uniform divison of the surface, adaptively the surface can be divided based on structural stress analysis. More nodes could be placed where more support is required.





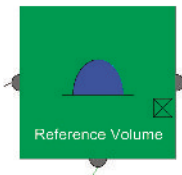






Matching Algorithm

Each node of the target volume was matched with a suitable fork based on dimensional compatibility.



Design Notes

The pattern and the angle of which the dome structure was determined using the structure using 10 Forks

Fig. 17 Prototype assembly in fabrication workshop

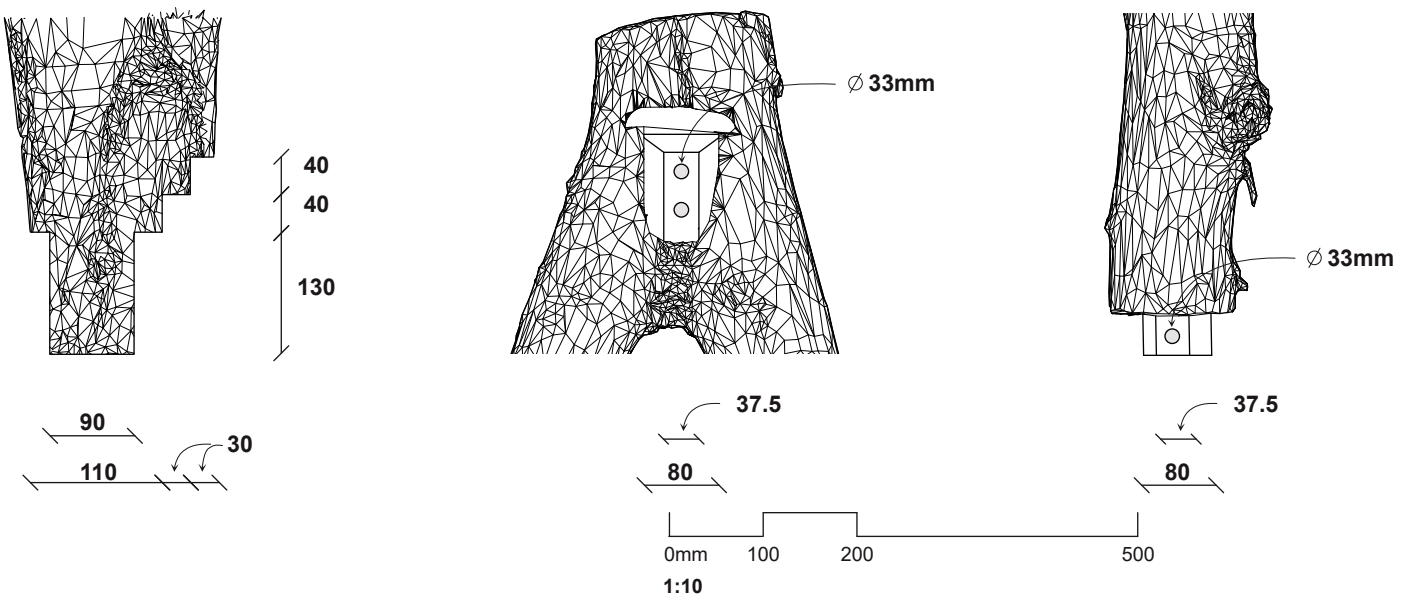


Fig. 18 Fabrication documentation

Fig. 19 Digital representation of final prototype

More-Than-Human Habitat- Fishermans Bend

The project's aim is to create a network of prototype more-than-human habitats that will demonstrate how to foreground biodiversity repair and regeneration at Fishermans Bend. Developing a holistic approach to urban design and development, that builds networks and corridors of biodiversity habitats, traced across the post-industrial urban terrain of Fishermans Bend. Each prototype habitats will help to articulate new forms of architecture and urban design which are beyond our existing human-centred approaches.

The proposals aim to provide refuge for non-humans inhabiting urban environments, which generally provide few habitat opportunities. In the case of Fishermans' Bend, industrial zoning, poor habitat connectivity, limited green space, heavy traffic, and pollution present complex challenges to non-human life.

In such environments, novel designs that can support animals and plants are needed. These efforts broadly align with the goals of the Fishermans Bend Urban Ecology Strategy, which highlights novel artificial habits as a potential solution for Fishermans Bend.

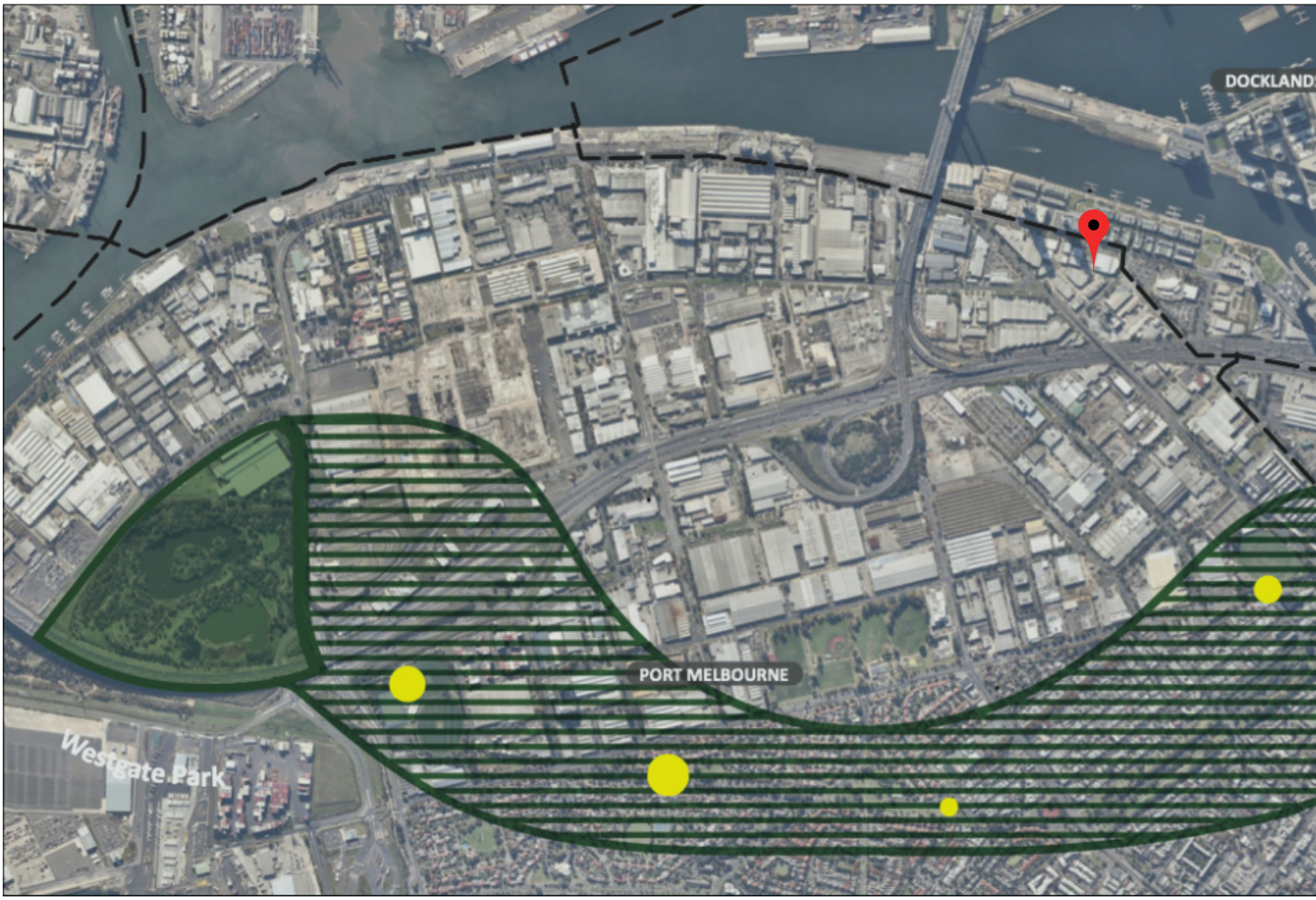
While there are plans for large-scale green corridors in Fishermans Bend, such solutions take several years to complete. In the interim, standalone structures like artificial trees or insect hotels can provide modest habitat analogues at low cost.

The field of design that focuses on these habitats is relatively young and few established methods exist. As such, the teaching team and students imagine these proposals as "design experiments" that generate useful data, which can inform refinements to the prototypes in response to stakeholder feedback.

Location of more-than-human prototype

Extablisehd gardens within pollinator corridor

Possible future gardens



Melbourne Pollinator Corridor

The Melbourne Pollinator Corridor (MPC) is an Australian-first innovation which will be, when completed, an 8km-long, ecology-centred, community-driven wildlife corridor for our native pollinating insects that are so important yet declining rapidly.

The MPC aims to include 200 gardens that will connect two large but isolated green patches that run along the Birrarung (Yarra River), Westgate Park and the Royal Botanic Gardens Melbourne.[1]

[1] The Heart Gardening Project: https://theheartgardeningproject.org.au/melbourne-pollinator-corridor

Fig. 20 Melbourne Pollinator Corridor

Fig. 21 Final review - DF-Lab

Design Reviews at the Melbourne School of Design

Design reviews play a central role in the development of student projects. They are moments of reflection, exchange, and critical dialogue – where ideas are tested, refined, and expanded through discussion with peers, academics, and external experts. Within the context of the *more-than-human habitat* investigations undertaken by Df_Lab and Si_Lab students, reviews provide an essential platform for articulating and communicating design intent. They invite students to explain their conceptual, technical, and ethical approaches, and to situate their work within broader ecological and social frameworks. Through this process, students learn to negotiate between vision and feasibility, receive diverse perspectives, and develop the capacity to position their projects within contemporary debates in design and architecture. Ultimately, design reviews foster a culture of open inquiry and collective learning that is fundamental to design education at the Melbourne School of Design, The University of Melbourne.

Fig. 22 Final review - SI-Lab

MSDx Summer 2024

The more-than-human habitat body of work completed by students in the SI_Lab and DF_Lab elective subjects was exhibited alongside other innovative studio work at the Melbourne School of Design's MSDx Summer 2024 exhibition.

Over two weeks, MSDx Summer 2024 welcomed a broad range of visitors from school students to industry stakeholders, current students to members of the Faculty's and University's broader communities. Showcasing this body of work at MSDx provided a meaningful opportunity to highlight collaborative and innovative design in action while acknowledging the support which made it possible.

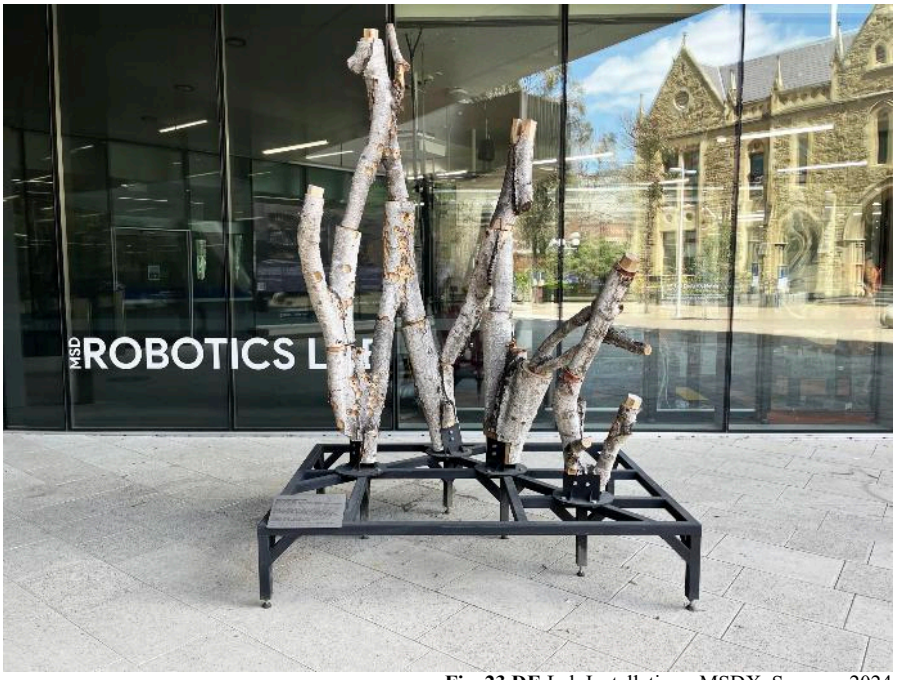


Fig. 23 DF-Lab Installation - MSDX, Summer 2024

Fig. 24 SI-Lab Installation - MSDX, Summer 2024

Melbourne Design Week 2025

15-25 May 2025, Fishermans Bend - Made by Robots: Exhibition

Made By Robots exhibited an in-situ prototype of a more-than-human habitat for native bees and insects. This prototype used tree cut-offs and was fabricated with the help of robots, articulating new forms of architecture and urban design which are beyond our existing human-centred approaches.

The project imagines how we can support biodiversity repair and regeneration at Fishermans Bend. Based on a holistic approach to urban design and development, suggesting networks and corridors of biodiversity habitats, traced across the postindustrial urban terrain.

This exhibition was designed and prototyped by students from the Digital Fabrication Elective; fabricated by Michael Park and the Robotics Lab at the Melbourne School of Design (MSD), University of Melbourne; funded by FB IDEAs and the Creative Futures Design Research and Education Fund at the University of Melbourne, and supported by Vaughan Constructions.

Fig. 25 More-than-human habitat installation, Fishermans Bend, May 2025

Outlook and Reflection

Rochus Urban Hinkel

The Creative Futures Design Research and Education Fund provided a vital opportunity to extend the temporal and material possibilities of a university-based design project. Typically, the twelve-week semester structure constrains the scale of experimentation, limiting the potential for more ambitious or materially resolved outcomes. Through this funding, researchers were able to continue working with selected students beyond the semester, deepening both the research inquiry and the technical refinement of the work. The fund enabled the employment of research assistants and student researchers, external experts contributing to the teaching and learning, and the design and development of a mobile workshop container, conceived as a portable fabrication hub for on-site experimentation. This sustained engagement allowed for reflection, iteration, and collaboration across disciplines, transforming the project into an evolving design-research platform rather than a finite academic exercise.

A key factor in the project's success was an external funding partner and collaborator, the Fishermans Bend Innovation Diversity Experimentation and Activation (FB IDEAs), a not-for-profit organisation supporting innovation and creativity during the large-scale urban renewal of the Fishermans Bend precinct in Melbourne. When the University of Melbourne site became unavailable due to scheduled demolition and construction works, FB IDEAs played a crucial role in identifying and providing an alternative site for the project at Vaughan Constructions in Port Melbourne. FB IDEAs support extended to funding materials and equipment, enabling the fabrication of the large-scale prototype of the more-than-human habitat. The partnership culminated in a public exhibition held on-site during Melbourne Design Week 2025, where students, researchers, and industry collaborators presented their outcomes to the broader community.

This collaborative ethos was further strengthened through partnerships with Julia's Urban Timber Mill, ARUP, and independent designers and fabricators. These engagements bridged academic research with professional expertise, creating a network of shared knowledge and technical exchange. Paul McKay from Julia's Urban Timber Mill, an arborist with a mobile urban mill, provided reclaimed timber and fabrication support, while engineering expertise from ARUP help us to develop structural integrity. Such collaborations demonstrated the power of cross-sector engagement, combining sustainability, material innovation, and design experimentation into a single, cohesive research framework.

Building on these partnerships, we agreed with Port Melbourne Secondary College to install the prototype as a more-than-human installation on their school grounds. This marks an important transition from industry-academic collaboration toward community-based engagement, where design research

becomes a living educational resource. The installation aims to foster dialogue between students, teachers, and researchers, inviting participation in the stewardship of human and non-human ecologies. In collaboration with Julia's Urban Timber Mill, the project will retain its emphasis on sustainable materials and local craftsmanship while embedding the research outcomes in a context of learning and community awareness. This initiative highlights how educational institutions can serve as active testbeds for ecological design, nurturing the next generation's understanding of interdependence between humans and the environment.

Looking forward, the project's ambition expands into a larger vision: the creation of a network of urban more-than-human habitats. Together with Paul McKay from Julia's Urban Timber Mill, the team is developing a system of distributed prototypes across the Fishermans Bend area, forming part of a broader more-than-human urban design strategy. Each installation could operate as both habitat and data-informed research platform, supporting biodiversity, monitoring ecological performance, and encouraging community interaction. This networked approach envisions a city that is responsive, inclusive, and symbiotic, where design becomes an instrument for ecological connectivity and environmental stewardship. By combining fabrication, digital information systems, and on-site participation, the initiative aims to redefine the role of design in urban regeneration, positioning it as a tool for coexistence rather than dominance.

Our research and its outcomes will gain further visibility through two presentations at the 58th International Conference of the Architectural Science Association (ASA), to be held in Melbourne from 3–5 December 2025. Two papers will be presented: *"More-than-human design using data: an example from pedagogy on data information technology"* by Tony Yu and Rochus Hinkel, and *"Utilising discarded wood for the design and fabrication of more-than-human habitats: prototyping in research and education"* by Michael Park and Rochus Hinkel. These contributions highlight the integration of material experimentation, digital data, and ecological design as a pedagogical and research methodology. Importantly, they also reflect the project's ongoing mentorship of emerging scholars: Michael Park, who has meanwhile begun further studies at ETH Zurich, and Tony Yu, who is developing a PhD proposal–demonstrating the project's extended impact.

Together, these outcomes articulate a forward-looking framework for creative futures in design research and education. The project's evolution, from semester–based experimentation to international recognition, illustrates how funding, collaboration, and mentorship can transform academic initiatives into living, adaptive systems. By connecting academia, industry, and community, it models a new form of design practice: one that is iterative, ecological, and deeply embedded in the material and social fabric of place.

Fig. 26 Section of final branch configuration

Collaborators

A collaboration between researchers from NExT Lab, Robotics Lab and the ADD+F research hub, both at Melbourne School of Design MSD, and students in Si_Lab: Spatial Information and Df_Lab: Designing Making, two master of architecture electives at MSD in Sem 2, 2024.

Funded by FB Ideas and Creative Futures Design Research and Education Funds, ABP

ADD+F Co-Director and Lead Researcher

Associate Professor Rochus Hinkel

SI_Lab: Spatial Information

Studio Leader and Lead Researcher:
Tony Yu

Students:

Cuihu Deng, Hengjia Hu, Douglas Thinwa, Taoyuan Zhu

DF_Lab: Designing Making

Studio Leader and Lead Researcher:
Michael Park

Students:

Stella Gorman, Matthew Park, Andy Wilson

Project Partners:

Kate Spencer, Bec McHenry, Markus Westbury, FB IDEAs

Designed and Fabricated by MSD

Exhibited at Vaughan Constructions at Fishermans Bend, Port Melbourne, Victoria in 2025

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Prof Dan Hill
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Andy Wilson and William Ward

Robotics Lab Technician

Nigel Brockbank

Film Production

Jordan Kaye

More-Than-Human Urban Design

Melbourne School of Design

Faculty of Architecture, Building and Planning

The University of Melbourne

https://msd.unimelb.edu.au/addf

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