

**Undergraduate Research Award
Faculty of Architecture – Available Research Supervisors – Summer 2026**

Sarah Cooper, CP
Inge Donovan, AR
Marcella Eaton, LA
Mercedes Garcia-Holguera, AR
Kamni Gill, LA
Yuhau Lu, LA

Mimi Locher, AR
Shauna Mallory-Hill, ID
Mark Meagher, ED
Brian T. Rex, AR
Jason Shields, ID
Ralph Stern, AR

ENVIRONMENTAL DESIGN PROGRAM

Dr. Mark Meagher

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Bio: <https://umanitoba.ca/architecture/mark-meagher>

Mark Meagher is an Assistant Professor in the Environmental Design Program. He has worked as a researcher and teacher at the University of Sheffield School of Architecture in the United Kingdom, the Media + Design Lab at EPFL in Switzerland, and the Center for Design Informatics at Harvard University in the United States. URA students will be invited to learn about the use of computational methods to inform design processes through work on one or more of the following projects:

- *AI for Animals*: A collaboration with Kamni Gill (Univ of Manitoba) to develop AI models and 3D virtual environments that represent the needs and life patterns of non-human animals.
- *Cosmologyscape*: A collaboration with artist and researcher Suzanne Kite (Bard College) to design furniture for sleeping and dreaming informed by machine learning analysis of a database of dreams.
- *Timber Database*: A collaboration with Markus Hudert (Aarhus University) to develop an online database of timber scrap and machine learning methods for material evaluation.

In addition to these projects I am also open to student-initiated projects that use one or more of the computational methods explored in my research.

DEPARTMENT OF CITY PLANNING

Dr. Sarah Cooper

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Expression of interest:

The Knowledge Bundle Gathering Process, as part of the larger Calendar of Ceremonies process, will engage Indigenous youth in caring for and upholding Nation-specific knowledges and practices of seasonal ceremonies. Each of the seven Indigenous Nations with territory in Manitoba has its own seasonal ceremonies, which are connected to the lands and waters and embedded in each Nation's language. The Knowledge Bundle Gathering Process will invite youth to take a leading role in preserving, caring for, sharing and extending knowledges shared by Elders and Knowledge Keepers about their respective Nation's seasonal ceremonies. The Undergraduate Research Award will fund one student to prepare the knowledges shared by Elders for use and archiving. This will involve reviewing, cleaning, and organizing the recordings, photos, notes and other data; developing written guidelines and practices to

ensure that the data is engaged with respectfully; beginning to develop educational resources and curriculum about seasonal ceremonies; and learning about interviewing, recording and audio engineering to continue to gather knowledges from Elders and Knowledge Keepers. Priority for this opportunity will be given to Indigenous students. Bio:

Sarah Cooper (settler) teaches in City Planning in the Faculty of Architecture. Most of her research focuses on housing and social policy, and draws on neoliberal urbanism, settler colonial theory and critical housing theory. She is also the administrative lead for the Calendar of Ceremonies project, and supports various planning-related projects with First Nations through the Indigenous Planning Studio. The Knowledge Bundle Gathering process is supported by a team of Indigenous and non-Indigenous faculty, staff and students at the University of Manitoba.

DEPARTMENT OF ARCHITECTURE

Inge Donovan

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Bio: <https://www.umanitoba.ca/architecture/inge-donovan>

Inge Donovan achieved her Bachelor of Arts in Architectural Design and Architectural History, Theory and Criticism from the Daniels Faculty of Architecture at the University of Toronto in 2019 after growing up in Nova Scotia, Canada. After professional experience in Berlin, she attended the Massachusetts Institute of Technology, where she achieved a Masters of Architecture and a Masters of Science in Building Technology. She is the cofounder of [Future Assemblies](#), an interdisciplinary research collective working between design, computation, engineering and industry, and [Pixelframe](#), a startup developing modular systems designed for reuse. Her research and design work is centered around the decarbonization of the built environment, leveraging design, material research, and computational tools to rethink building for the circular economy. Her approach integrates innovation and novel methodologies with a deep engagement with materiality and construction history.

Dr. Mercedes Garcia-Holguera

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Bio: <https://umanitoba.ca/architecture/mercedes-garcia-holguera>

Dr. Garcia Holguera is a registered architect (Spain) and LEED AP BD+C with professional experience in Europe, North and South America. She received her PhD from McGill University on the subject of biomimetic design for resource use optimization. Her research bridges across disciplines from science and technology, architecture and environmental design, with a focus on energy efficiency and sustainability. She is currently working on developing mycelium and bacterial cellulose based materials to optimize buildings' hygrothermal performance, and her work also encompasses quantitative assessment of architectural solutions with a focus on BIM and energy simulation tools.

Mimi Locher

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Bio: <https://www.umanitoba.ca/architecture/mira-locher>

Mimi Locher is the Dean of the Faculty of Architecture and a registered architect in Manitoba and the U.S. Her research spans the disciplines of interior design, architecture, and landscape architecture with a common theme: connecting contemporary design practices to traditional culture through a deep

understanding of nature and place. Her areas of study include community engagement through design and planning; design practices and processes; and Japanese architecture, gardens, and design. Community engagement will be the topic for summer 2026 research. Students employed with the Undergraduate Research Award will collaboratively work on projects and investigate methods for engaging underserved Manitoba communities through design and planning processes.

Research title: Community-based Design and Planning Research

The summer 2026 URA projects will focus on research related to community engagement through design and planning. URA students will work with post-graduate research assistants and myself to 1) collaborate with local organizations on community-based research and 2) investigate frameworks and methods for engaging underserved Manitoba communities through design and planning processes. The research will take place under the auspices of the pilot Community Design and Planning Centre (CDPC) based in the Faculty of Architecture. The CDPC is a hub for architecture, landscape architecture, interior design, and city planning projects in collaboration with underserved Manitoba communities (including First Nations, Métis, and Inuit), civil society organizations, ethnic groups, and similar associations throughout Winnipeg and Manitoba.

Outline of students' roles

The URA students will be involved in independent and collaborative research and reporting, including:

- collaborating on community-based design research projects, such as:
 - research and creation of a “Design [in] the City” curriculum for an afterschool program
 - research for an indoor sweat lodge for Star Blanket First Nation, SK
 - research and community engagement for a dog shelter for Muskeg Lake community, SK
 - research related to the potential Winnipeg rail yard relocation
- creating visual and written materials to communicate information about the CDPC
- researching community engagement processes used by design and planning professions
- locating potential partner organizations and associations in Winnipeg and elsewhere in Manitoba (and possibly visiting those organizations located in Winnipeg)
- investigating potential funding sources for CDPC research, design, and planning projects
- researching approaches to informing and involving students and faculty in CDPC projects

Expected quality of the training and mentorship to be received

The URA student(s) will have the opportunity to work with two mentors in a highly collaborative process, post-graduate researcher and CDPC Coordinator Alixa Lacerna (M.Arch UM 2022) and myself. Alixa crafted the theoretical foundations for the pilot Community Design and Planning Centre (CDPC) and co-taught a course on methods for community engagement in design. We are prepared to offer quality training and mentorship and excited to work with URA students this summer!

Brian T. Rex

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Associate Professor Brian Rex focuses in his research on urban morphology—*how did the city get this way?* He uses traditional and new tools such as physical models and point cloud scanning in his research. He relies on historical records and archival research as well. He understands the city as architecture.

He has taught at seven schools of architecture in his 30 year career and spent 17 as a unit administrator. He attended University of Texas at Arlington, Carleton University, and Columbia University. His teaching foci are in fundamental design, urbanism, and media theory.

<http://briantrex.org>

Prof. Ralph Stern

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Undergraduate Research Awards (URA) // Previous Topics:

- Alexandra Margulets (2021; w/o research travel to Berlin due to Covid):
Architecture through Techno: Post-Reunification Identity in Berlin
- Sydney Brown (2023; with research travel to Berlin):
'Stolpersteine' and Holocaust Memorialization in Berlin
- Katrina Wisneski (2024; with research travel to Berlin):
Mapping Sites of the Jewish League of Culture (1933-1941) in Berlin
- Jordyn Crampton (2024; with research travel to Thompson, Manitoba):
Indigenous 'Border Towns' in Navajo Nation and Northern Manitoba
- Hannah Maksimovich (2025; with research travel to Berlin):
Mapping the Lost Synagogues of Berlin

Ralph Stern is a registered architect of more than thirty years building, design, teaching, and research experience in Europe and North America, including work for a Pritzker-Prize winning office. Coming to the UM from Berlin and the progressive architectural design of contemporary Germany, as Dean of the Faculty of Architecture he co-created the Faculty of Architecture's FabLab, established Indigenous initiatives, founded international exchange programs, systematically upgraded Faculty facilities, facilitated the international University of Manitoba Master Plan Competition, initiated the first Faculty Undergraduate and Graduate Program Reviews, and facilitated the Faculty's first Strategic Plan. A licensed architect in New York and Manitoba, he served on the MAA Council for more than a decade.

Ralph Stern has taught design and/or history/theory at the Technical University Berlin, the University of the Arts Berlin, Columbia University, M.I.T., the Cities Program at the London School of Economics, and the University of Washington among other institutions. He has been a Visiting Scholar at Cambridge University and the Bauhaus University Weimar. He has lectured at Harvard, Yale, the Architectural Association London, the Universit(ies) of Edinburgh, Chicago, and Heidelberg, as well as the Charles University in Prague, the European University in Budapest, where he lectured on the Canadian Museum of Human Rights (CMHR). He has twice been a keynote speaker at the Jewish Heritage Foundation of Western Canada in Winnipeg. Ralph Stern is internationally published.

DEPARTMENT OF INTERIOR DESIGN

Dr. Shauna Mallory-Hill

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Dr. Shauna Mallory-Hill is an Associate Professor in the Department of Interior Design, Faculty of Architecture and LEED AP BD+C. Her research explores the impact of building design on occupant health, wellness and productivity. Her research is strongly person-centered with a concern for inclusion and stakeholder participation in design. Students employed under the undergraduate research award will have the opportunity to work alongside other graduate research assistants in a SSHRC-funded project entitled "Pathways to Affordable and Quality First Nation Housing." This five-year project involves collaboration with Indigenous communities and scholars seeking to address the current housing crisis through skills-building, sustainable, affordable, and culturally appropriate design. This project is part of a larger, national initiative, involving fourteen architectural school research teams from across Canada exploring the quality of the built environment. In May, the FAUM team will host all the teams here in Winnipeg at a National Convention.

DEPARTMENT OF LANDSCAPE ARCHITECTURE

Dr. Marcella Eaton

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Marcella completed her PhD in Philosophy and Design in Landscape Architecture in 1997, focusing on philosophy, ethics, and aesthetics in the education of landscape architecture students. This work is ongoing, with questions of how and what we teach in the design studio remaining current. Marcella continues extensive site visits and research work on seminal landscape projects globally. She has worked with academic colleagues across Canada to form Land|Terre Design Research Network, sharing ideas and research with academicians and professionals. As Principal Investigator for an SSHRC Connection Grant (2018), Marcella organized a National Colloquium in Winnipeg. She is involved in research on the history of the Department of Landscape Architecture and the University of Manitoba Campus Plan, which culminated in an exhibition in 2025 on Dennis Wilkinson. Further work includes an investigation into the key figures in the Department and the curriculum to contribute to a Canadian history of landscape architecture. Marcella works with the International Geodesign Collaborative (IGC) to assess carbon sequestration and reduce emissions through land-use changes.

Kamni Gill

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Bio: <https://www.umanitoba.ca/architecture/kamni-gill>

Kamni is a landscape architect with over 11 years of experience on projects in the United States and Switzerland. Kamni developed expertise from the residential to the regional scale in construction and detailing, habitat and river bank restoration, storm water wetland design, bioengineering techniques, forest design and management and grading and topography through work as a lead designer on projects at Hargreaves Associates, the Bioengineering Group (a consortium of engineers, hydrologists and ecologists), and Geller Associates. She was the principal of POD design in Switzerland where she completed a range of residential and public projects and honed her skills in planting design. A strong basis in practice has led to a teaching philosophy that is strongly rooted in landscape architecture criticism and analysis of seminal projects in the fine arts and landscape architecture.

Through the URA, students will engage in creative fieldwork to examine and represent local hydrological and forest systems. Techniques includes 3 D site scanning, cyanotypes, monotypes, thick sections and animation.

Dr. Yuhau Lu

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Bio: <https://umanitoba.ca/architecture/yuhao-lu>

Dr Yuhao Lu is an Assistant Professor in the Department of Landscape Architecture at the University of Manitoba, where he leads the **Future Elements Studio**. His research operates at the dynamic intersection of geospatial analytics, remote sensing, and cartographic design, focusing on how maps and three-dimensional models can quantify and communicate the complexities of human settlements.

Yuhao's work is defined by the framework of "**elementality**", a method of modelling cities through their fundamental anatomical units, such as individual trees and buildings. By integrating satellite and drone imagery with point clouds and open data, he develops **Urban Digital Twins (UDT)** and **Landscape**

Information Models (LIM) that bridge the gap between high-level technical evidence and the lived experience of urban dwellers.

He has a track record of delivering practice-ready urban knowledge and open-access tools. Notable contributions include co-developing **ur-scape**, an integrative planning support system used in rapidly urbanising regions of Southeast Asia and releasing open datasets such as the **Buildings of Winnipeg** and **Winnipeg Individual Tree Canopy** data. His doctoral research at the University of British Columbia (UBC) provided one of the first gap-free, 20-year multispectral time-series for 25 pan-Pacific cities, allowing for pixel-level testing of the Environmental Kuznets Curve.

Students in Yuhao's research group will have the opportunity to collaborate with some of the world's leading research institutions and organizations in urban analytics and geospatial sciences, including ETH Zurich, Oxford University, the University of British Columbia (UBC), the National University of Singapore (NUS), the Canadian Forest Service (CFS), and the United States Geological Survey (USGS).

Future Elements Studio: <https://festudio.ca/>

Yuhao Faculty profile: <https://umanitoba.ca/architecture/yuhao-lu>