Undergraduate Research Award
Faculty of Architecture – Available Research Supervisors – Summer 2023

Marcella Eaton	Lisa Landrum	Mark Meagher
Terri Fuglem	Mimi Locher	Jason Shields
Kamni Gill	Shauna Mallory-Hill	Ralph Stern
Mercedes Garcia-Holguera		

ENVIRONMENTAL DESIGN PROGRAM

Dr. Mark Meagher

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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, the Media + Design Lab at EPFL, and the Center for Design Informatics at Harvard University. Mark received his PhD from EPFL on the topic of responsive architectural environments; his current research focuses on applications of digital methods to support the design of sustainable communities. Students are invited to contribute to projects involving the use of machine learning to inform design and construction processes, including the development of a semantic and topological training dataset for Generative Adversarial Networks (GANs); the development of a Convolutional Neural Network (CNN) for the location and classification of defects in timber panels; and analysis and visualization of an image dataset of suburban animals in Winnipeg and the release of this resource with an open data repository.

DEPARTMENT OF ARCHITECTURE

Prof. Terri Fuglem

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Terri Fuglem is Associate Professor in the Department of Architecture, and Design Thesis Coordinator & Chair. She teaches graduate and undergraduate courses in the history and theory of architecture as well as Foundation Year studios in architecture. Current activities include the study of hundreds of student drawings dating back to 1915 discovered in the Russell Building tunnels, and their relationship to architectural pedagogy at the University of Manitoba. Research also includes the study of better environmental practices from historical and diversely cultural vantages; this work is motivated by my conviction that the cause of the current climate emergency is ultimately *cultural* in nature, and that only way to mitigate environmental and climatic destruction is to profoundly shift our way of life.

Dr. Mercedes Garcia-Holguera

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Bio: https://umanitoba.ca/faculties/architecture/facstaff/faclist/mercedesgarciaholguera.html

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.

Dr. Lisa Landrum

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Imagination is an architect's most crucial asset. Lisa's research explores architectural imagination and transformative action through multidisciplinary research and creative scholarship in history, theory, design. Projects involve the intertwining of architecture, performing arts and social justice. Current work includes publications and exhibitions on "Theatres of Architectural Imagination"; developing an architecture policy for Canada; studies of early UM women architecture graduates via Unstacking the Deck; and equity in architecture, as part of the Canadian Architecture Forums on Education (CAFÉ). Depending on students' interests, any one of these projects (or others) may become the focus of the summer's work. Lisa is Associate Dean Research for the Faculty of Architecture, and a registered architect in Manitoba and New York.

Prof. Mimi Locher

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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, along with time-honored design and construction methods and materials. Her areas of study include design practices and processes, community engagement through architectural design, and Japanese architecture, gardens, and design. Her current research looks at traditional construction techniques in Japanese wooden architecture, particularly the techniques, tools, and crafters involved in the restoration and rebuilding of traditional buildings, such as temples and *machiya* shophouses in Kyoto.

Prof. Ralph Stern

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Areas of research: 1) Urban history and representation with a focus on Berlin, 2) Urban history and representation in Cinema, 3) Transnational Indigenous history and representation with a focus on the Americas, 4) Aesthetic history and representation with a focus on the Sublime. Professor Stern has published widely in his areas of research. Prior to serving as Dean of the Faculty of Architecture, Professor Stern has taught Design and/or History and Theory at, among other institutions, the *Technical University Berlin*, the *University of the Arts Berlin*, the Cities Program at the London School of Economics, Columbia University and the Massachusetts Institute of Technology (MIT). A Visiting Scholar at Cambridge University and the Bauhaus University Weimar, he has lectured on History and Theory at, among others, the University of Edinburgh, University of Chicago, Charles University (Prague), Yale University and Harvard University.

DEPARTMENT OF INTERIOR DESIGN

Dr. Shauna Mallory-Hill

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Dr. 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 one of two active research projects. The first explores the development of an ergonomic kitchen design to support aging-in-place. The second involves work alongside Indigenous Communities and scholars seeking to address the current housing crisis through skills-building, sustainable, affordable, and culturally-appropriate design.

Prof. Jason Shields

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Jason's current research examines the role of Virtual Reality (VR) and Augmented Reality (AR) in interior environments and the impacts on archivism in contemporary BIM modelling processes. Students earning undergraduate research awards will have the opportunity to assist in examining pedagogical and communicative frameworks of architectural models using Virtual Reality hardware and software. Analysis of user-controlled design modifications and Integration of LIDAR scanning are examples of the work being examined. The research is primarily conducted in the Architecture / Engineering VR LAB. A strong understanding of cross-platform architectural software and general technical knowledge would be an asset for this role.

DEPARTMENT OF LANDSCAPE ARCHITECTURE

Dr. Marcella Eaton
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Marcella completed her PhD – *Philosophy and Design in Landscape Architecture*, in 1997 focusing on philosophy, ethics and aesthetics in the education of students of landscape architecture. This work is ongoing with questions of how and what we teach in design studio remains current. Marcella continues extensive site visits and research work on seminal landscape projects globally. She has worked with academic colleagues across Canada to form LandlTerre 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 created the website *landterre.com* to publish digitally Canadian landscape architecture research and work. Her current work includes a study of the history of the Department to coincide with its 50th anniversary.

Prof. Kamni Gill
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Kamni Gill's current research focuses on the cultural dimensions of trees and how they define spatial experience. At the same time, she is developing research that explores the habits and habitats of animals and how we interact with the more-than-human world. This year, successful candidates will combine fieldwork in the urban forest with intensive experiments in digital modelling to explore how handheld LIDAR technologies used in forestry offer new ways of understanding tree form and urban forest structures. Trees shape ecosystem processes, biomass and the habitat matrix for other species. The rich information content and detail of LIDAR technologies opens up the potential to better visualize tree form and forest structure and their relationship to ecological processes and animal habitats and use of space. Design research will be undertaken in collaboration with the FABLab.