MDes

Master of Design
School of Industrial Design
Carleton University

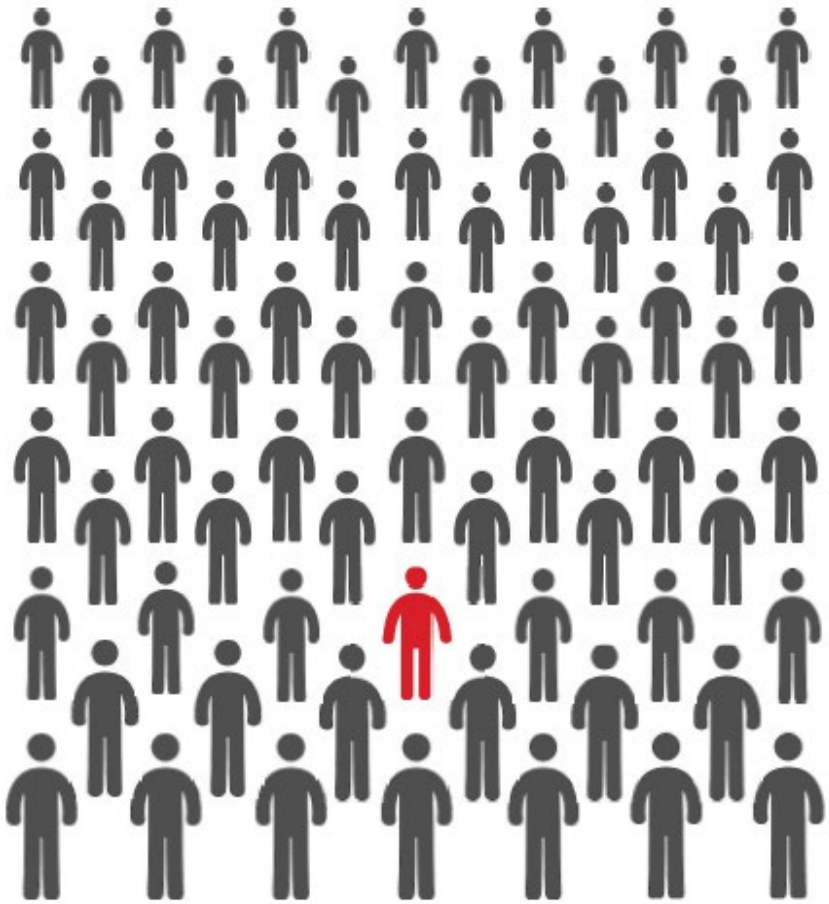
Future…

What do you like about design?

What do you like design to be/become?

…and what type of designer you want to be?

What are your plans after graduating from the Bachelor of Industrial Design?



Go Beyond Your Potential

MDes

Carleton University

The Master of Design is a postgraduate-level degree in the field of Design that focuses on exploring and advancing design principles and practices within a particular study focus.

What is a **Master of Design**?

The focus of the program is to advance knowledge in the field of Design through the study of advanced design principles and interdisciplinary design practices.

This is achieved through a program of studies that will enable graduates to integrate advanced design knowledge and methodologies, and interdisciplinary design processes into private and public sector business practice.

What is the MDes about?
https://carleton.ca/id/mdes/

A Master of Design allows you to explore design principles and practices within a particular area.

What is YOUR design INTEREST?

What is are you CURIOUS about?

What are you PASSIONATE about in design?

Maya Chopra

Gendered Design; Social Design; Intersectional Feminism

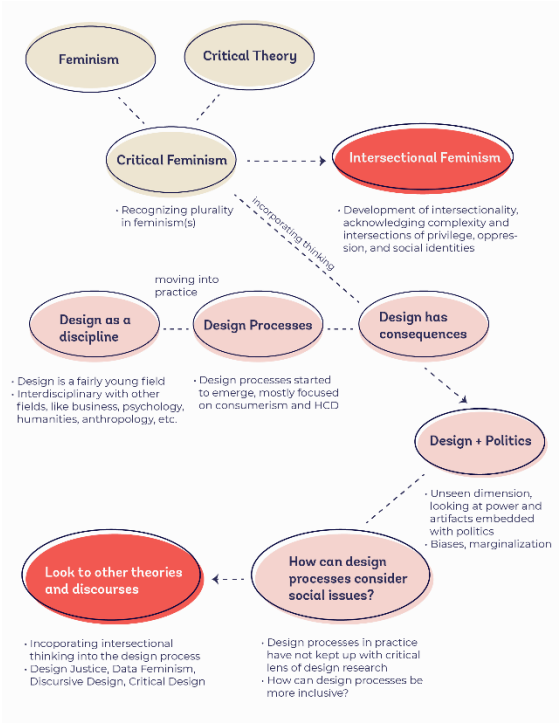
Exploring an intersectional design process

Over the past decade, the term *intersectionality* has gained popularity across academia and conversations concerning social justice. The concept has stimulated discourse around a new way of thinking about privilege, oppression, and how social identities such as race, ability, gender, class, ethnicity, interact together.

Design researchers are recognizing the complex roles design plays in contributing to power structures that reinforce privilege and oppression. However, the field of design has not yet fully embraced or explored the potential opportunities of bringing an intersectional perspective into the design process. Design has the potential to bridge the gap between theory and practice and bring intersectionality into critical praxis. By incorporating intersectional thinking into design processes, there is opportunity to support and advance approaches toward more inclusive design.

Why I am passionate about my research

Design is a unique field of research given its transdisciplinary nature. It serves as a both a lens to challenge existing situations and provides opportunities for intervention and change. I am interested in how design can support this and be used to enact positive social change.



Insights from literature so far

Ruzbeh Irani

Human Computer Interaction (HCI); Interaction Design; Virtual Reality (VR); Somatic Tacit Knowledge

Tacit Knowledge Transfer In Virtual Reality

This study involves the exploration of tactile feedback and its effects on cognitive load in virtual reality, specifically within the domain of motorcycle training. As virtual reality technologies further develop, its uses for training become more apparent and as a result the technology's requirements for learning need to be researched. The study identifies, using both qualitative and quantitative methods (mixed methods), how one's experience and performance differs from the use of supplementary peripherals in existing VR systems.

Testing procedure for data collection

1. Pre-Test Survey – Qualitative – Ethnographic data of prior experience
2. VR Testing – Quantitative – Performance data of 3 groups (Within Subjects)
3. Post- Test Survey – Qualitative – Honeycomb Framework – 9 Point Likert Scale

High Tactile Feedback Simulator

Mid Tactile Feedback Simulator

Low Tactile Feedback Simulator (Control)

Why I am passionate about my research

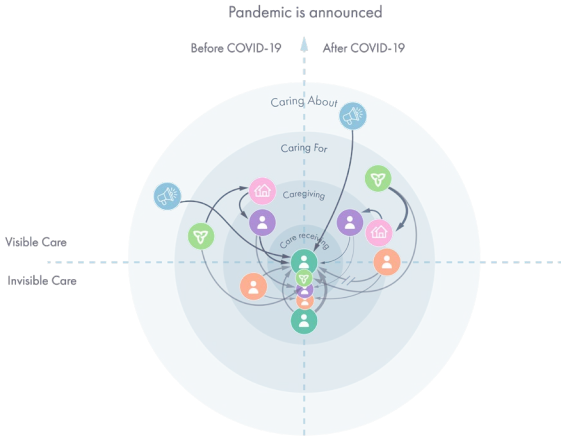
After getting into an accident, I was fearful of riding. I wanted to find a way to help train individuals without having them face the consequences of the real world. Virtual reality seemed to be a reputable tool for training within many industries; it's potential within the domain of motorcycle riding required research, hence my interest in the study.

Sophie Nakashima

Accessibility and Design; Co-design

Spirituality and Service Design: Supporting spiritual care in Ontario long-term care homes

This thesis research will investigate the role of service design for the delivery of spiritual care in long-term care homes in Ontario. While spirituality is an important aspect of health and wellbeing, there is limited guidance and documentation of how spiritual care is provided within long-term care homes in Ontario. Using a multi-phase research approach, this study will explore the role of service design in the context of spiritual care through engaging directly with long-term care homes. Through hearing from and co-designing with administrators and care providers, this study aims to gain a greater understanding of the landscape of spiritual care in Ontario, as well as apply a service design lens to understand how to support organizational needs and delivery of a complex service.



Initial exploration of system maps documenting flow of care in long-term care

Why I am passionate about my research

I am interested in exploring intersections of health and culture in my research. Service design is a unique and evolving field of design and I would like to investigate its applications in new contexts. I strongly believe in the value of co-designing and engaging community in order to drive design outcomes.

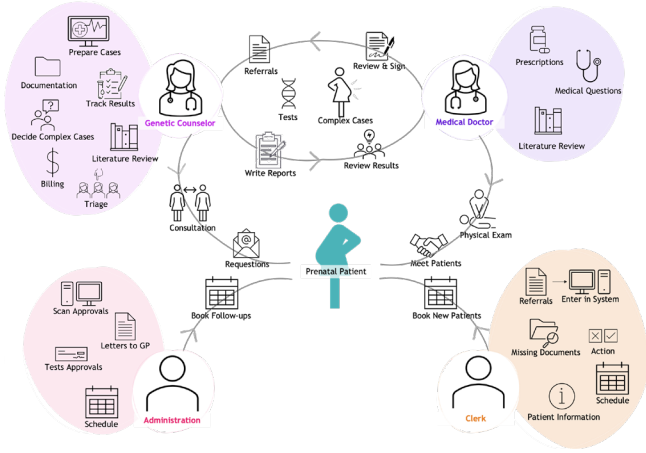
Outline of study phases

Maryam Attef

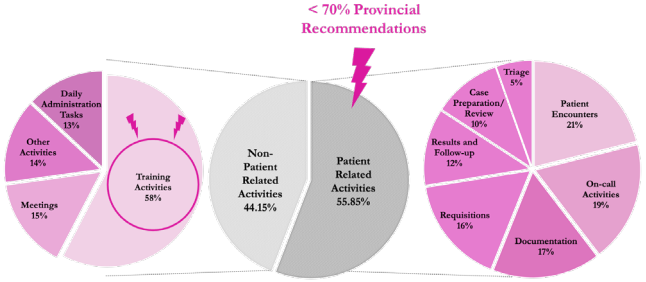
Healthcare; Human Factors in Design; Task Analysis; Virtual Care; Workflow

Improving the Efficiency and Capacity of Virtual Genetics Clinics using Human Factors Design Methods

Balancing patient quality of care and efficiency is a rising issue in healthcare, where clinic workflow continues to be problematic for a variety of reasons, including factors such as limited or inefficient space design or unsustainable workload conditions - factors that may negatively impact patient wait times and lead to healthcare worker burnout. This quality improvement study focused on developing an understanding of factors influencing the ability of prenatal genetics counsellors to efficiently see patients during the COVID-19 pandemic and strategies to improve their workflow using techniques from human factors and design. This study provides rigorous documentation of the subtasks to process patients, and a documentation of the time on tasks at the Prenatal Genetics Clinic, which the Clinic can compare with the Ministry's recommendations. In addition, this project provides a Lean Improvement toolkit to be used by any other division within the Genetics Clinic at CHEO to assist the clinic improve the design of their services.



Stakeholders at the Prenatal Genetics Clinic



Overall average time spent per task

Why I am passionate about my research?

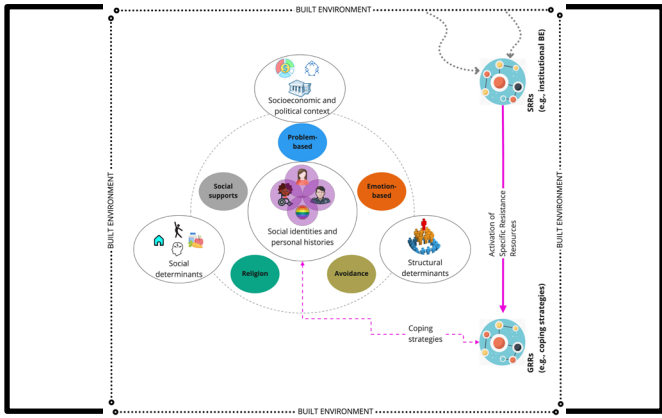
What interests me in the field of Ergonomics/Human Factors is that it focuses on matching workplace factors to employee's safety and increasing their productivity. As I learned about human factors in design, I was interested in how it is used to address problems in healthcare using multiple methods from science and design to understand the design of healthcare systems by studying systems holistically and how the design of the system affects how people interact and perform.

Cath Malcolm Edwards

built environment, coping, mental health, mental wellness, student wellbeing

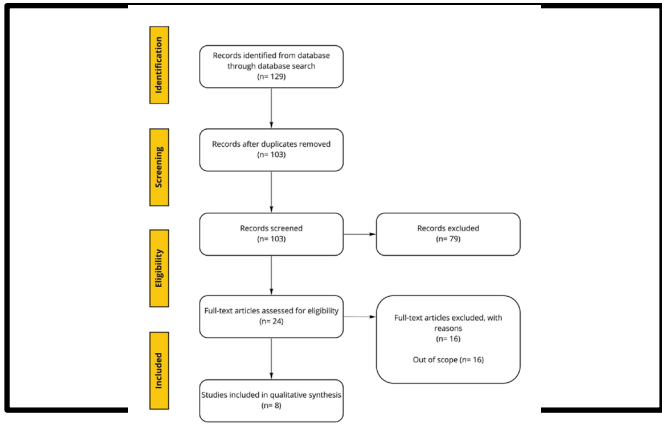
Coping strategies on campus: Exploring coping through student use and context of spaces

Although the role of the built environment has been studied in relation to mental health and wellness, there is little research about it in the context of post-secondary institutions. This gap is significant given the prevalence of mental health and wellness issues experienced by students. Embracing a more inclusive research practice may help yield better outputs and outcomes, including increased student wellness outcomes and organizational benefits.



What they learnt during the MDes

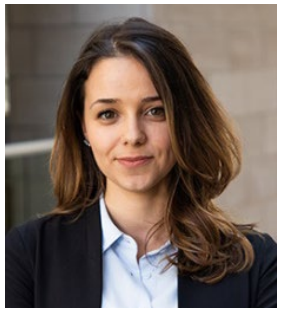
The MDes program creates opportunity to look at design as a discipline. It trains students to understand that designers are true facilitators, often holding the space between differing viewpoints. Over the course of the program, we explore different methods and approaches that build our designer toolkits as we embark on our careers. Overall, the program thoughtfully builds the skillsets required to launch our research thesis.



What they are passionate about their research

Imagine if the world could support dignity and compassion by being more accessible? Designers help make the implicit more explicit and by doing so, we can facilitate both spaces and places that support dignity, compassion, and wellness.

Fernanda Fontes

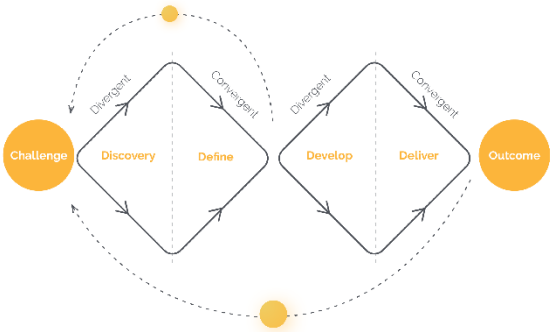


Creativity; Design Thinking; Iteration; Playful;
Children; Education through design;

Design iterations and Play: improving methods to support children's creativity

Over the last few years, international organizations have defined creativity and critical thinking as essential skills for the twenty-first century. In an attempt to foster those skills, pedagogical methods have been developed, and some are based on design processes (OECD, 2019). These processes combine thinking and planning to produce useful and innovative outcomes that improve people's life (Friedman, 2000). Iteration is an essential characteristic of the design process, as it allows designers to reflect and re-think their solutions to improve outcomes (Hocking et al., 2016; Luka, 2014). However, in the literature, it is unclear how iteration has been applied to the education context. Because of that, this study aims to understand "*how iterative processes can support children (7-11 years old) in developing creative and practical ideas in the education settings*". Therefore, we plan to use a generative and qualitative approach, that incorporates semi-structured interviews and participatory methods.

Phases of the design thinking process



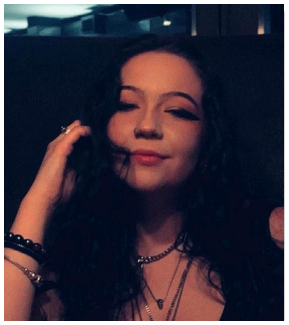
Double Diamond Diagram, created by British Design Council

Why I am passionate about my research

My interest in education through design started during my undergraduate degree, where I developed a playful booklet for children to learn about design. This project provided me with insights into the importance of design to support learning. Besides, I strongly believe in the power of education to improve society.

Leah Ross

Immersion, Embodiment, Heritage, Exploratory Learning, Affect

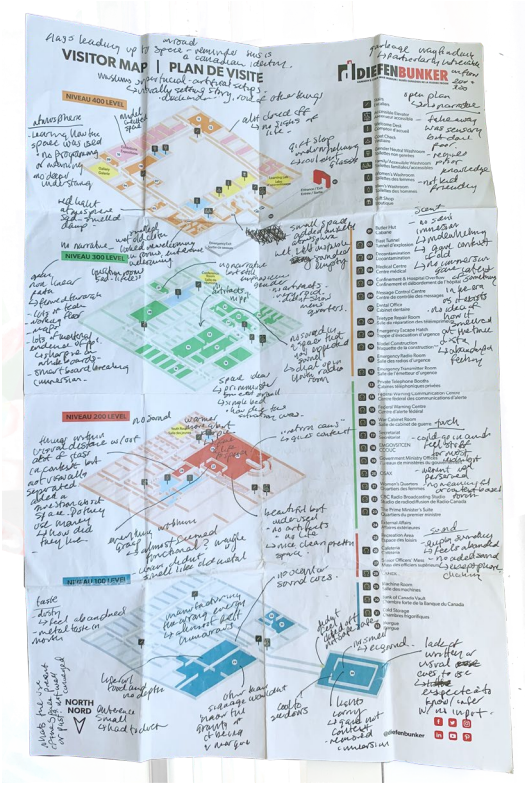


Immersive Heritage: Listening to the Histories of the Diefenbunker

My thesis investigates the connection between immersive heritage and exploratory learning. Since heritage is a mediator between the past and present - represented as narrative - the narratives that are available to visitors can shape how they conceptualize the past. With a narrowing scope of research into the affects of embodied experiences, I am curious to see if combining exploration and immersion tools will be effective in highlighting a diverse set of histories.

Why I am passionate about my research

With my background in Architectural History, I have always been interested in the power of material culture. Combining that with my interest in how people experience space through the senses has allowed me to uncover an important aspect of Exhibition Design I am enjoying discovering.



Sensory Map
of the Diefenbunker, 2022

Niyousha Saeidi

Women Centred Design, Application Development, Technological Infrastructure, Mozambique, Female Sanitation and Hygiene

How can design support female adolescents in Mozambique on better personal/community sanitation and hygiene practices. A project in collaboration with Waterlution. (This title is subject to change/modification)

I would like to explore the challenges with sanitation, hygiene, health, empowerment and education for females in Mozambique and design a tool to support female adolescents in Mozambique to acquire better personal/community sanitation and hygiene daily life practices regarding menstrual health, toiletry, pregnancy, etc. My methods consist of two parts, the research method and the participation/input method which both have the three sub-parts of the project ideation, the prototyping phase (which are distinct to that particular method and relate to one another), and the full scale project (which they both have in common). The process, in short, consists of research and analysis, ethics clearance, initial prototyping, data gathering/fieldwork, further semi final/final prototyping and designing the ideal tool at the very end.

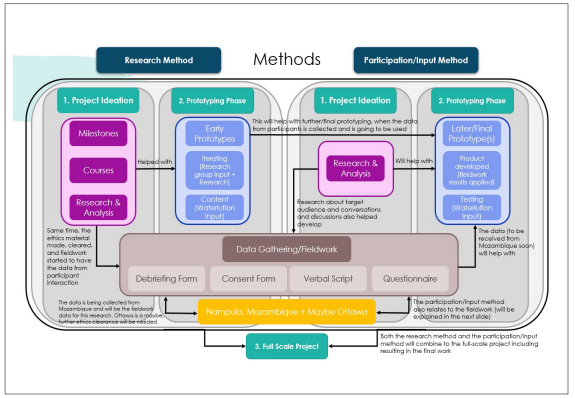


Figure 1. Thesis method mapping

Why I am passionate about my research

I am passionate about this subject because I want to make a tool that would make a positive impact, both in the short and long term and help empower the female population in developing nations. This tool could have multiple functionalities to make it easier for women in developing nations to maintain their female sanitation and hygiene and keep empowering them via education and support when needed.

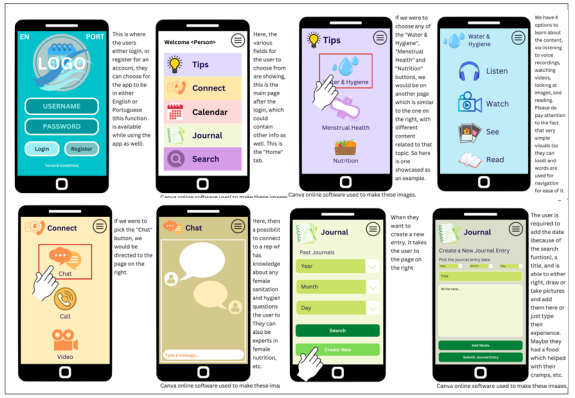


Figure 2. A few graphics of prototype 2

Jingyuan Wang

User Experience(UX) and Interaction Design, Prototyping Methods

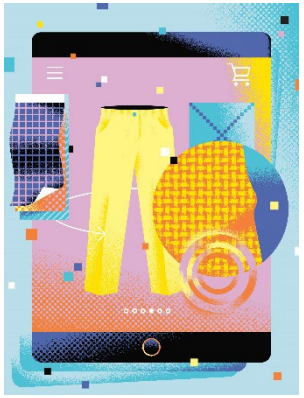
The Tactility of Augmented Reality in Online Retail Shopping

The risk of online retail/apparel shopping is that consumers will make returns and exchanges, which will increase the labor and capital costs of the company, also for consumers. Previous studies have shown that AR and virtual try-on can be an effective tool to help improve the user experience in online shopping and help reduce and return rates. My research will focus on the tactile with AR in online retail shopping. The research can help future AR applications evaluate more effective design solution, so that users can reap a better user experience when shopping online for apparel. To address the research questions for this thesis, an experimental research design will be employed using an AR prototype, each participant will be asked to use the AR virtual try-on technology for an online shopping experience, do the physical try-on afterwards, and rate the fit, size, feelings, and the experience with the purchased item.

[AR try-on]

Why I am passionate about my research

I am passionate about new trend, new things in design. I am interested in user experience design because I believe that a better user experience can help more people to make many things easier and can enhance the comfort of life.



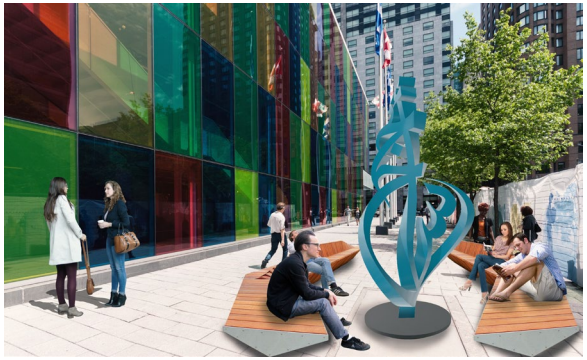
[haptic technology]

Medea Rasheed

[Public Art, Rapid Probe, Prototype, Well-Being, Interactivity]

Intersectional Relationships Between Public Art and Well-Being

This explorative design study proposes a two-phase temporary art installation process, the first being a rapid probe and the second being its successor prototype. The temporary installation will be built and situated on campus at Carleton University. The design will align with the aims of their Outdoor Space Master Plan's Big Moves. With an emphasis on human factors engineering, the study's probe and prototype will explore the experimental development of public art that can improve socio-psychological well-being. Public art is part of the fabric of many cities, often described as "art for the people" (Blackman, 2014). It brings cultural, aesthetic, and economic benefits to urban sites (Cheung et al., 2021). Although there is a lack of sufficiently defensible empirical evidence to suggest that public art is definitively beneficial to the lives of urban inhabitants (Tanguy & Kumar, 2019), it is claimed that public art can contribute to quality of life improvements (Blackman, 2014). This study will contextualize and scope this literature gap. Gathered data will be analyzed, its findings and insights organized in thematic fashion representing intersectional relationships between public art and its influence on the well-being of staff, faculty, visitors, and the student body. This study will inform future designs, serving as strategic guidance when considering new public art that will better serve the community at-large. Emotionally intelligent installations may have the potential to catalyze new approaches to existing public art policy.



Vision of Calligraphic Art Installation in the Public Realm

Why I am passionate about my research

I'm passionate about my research due to my professional backgrounds in urban planning and as a practicing professional artist. Installing my first public art installation with the City of Waterloo and experiencing the public art process fueled my curiosity to initiate this explorative design-centric research study. This study will not only serve the design community but will also inform future designs, with the intent to serve as a strategic guidance when considering new public art that will better serve the communities. And potentially be a catalyst to new approaches to existing public art policy.

Cheung, M., Smith, N., & Craven, O. (2021). The impacts of public art on cities, places and people's lives. *The Journal of Arts Management, Law, and Society*, *52*(1), 37–50. https://doi.org/10.1080/10632921.2021.1942361

Blackman, F. (2014). The Angel of the North: Public Art and Wellbeing, Durham theses, Durham University. Durham E-Theses Online: http://etheses.dur.ac.uk/10927/

Yasmine Butlin

Service Design, Strategic Design, Agonistic Participatory Design, Co-design

Strategic and Service Design to Align: Creating Space for Meaningful Dialogue Across Power Asymmetries

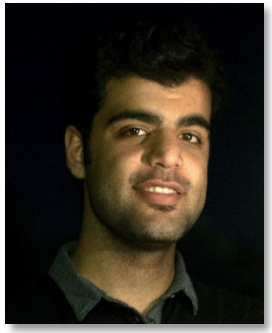
The last few years have witnessed the rise of employees voicing their opposition to organizational policies relating to hot-button social issues, from race to climate change, and mobilizing for change within their organizations. While companies have responded to this rise in employee activism in different ways, most often there is a disconnect (and related tension) between the socially-aware, values-driven cohort of the workforce, and senior management actions (Reitz & Higgins, 2021). Against this backdrop, my research examines what kind of strategic and service design techniques can be applied in a company context to transcend institutional power dynamics and create space for agonistic encounters in which employees and management can have meaningful dialogue on the significance of pressing social and environmental issues within and for the company.

Why I am passionate about my research

We are at a new moment when it comes to public expectations of corporate entities: the perceived lack of government action to address social and environmental issues places pressure on corporations to act, and the nature of the (now predominantly Millennial) workforce has never been so values-driven. It is an exciting time to examine the impact Design can have in this evolving corporate landscape.

Hooman Gheshlaghi

Co-design, Co-collaboration, Collective Creativity

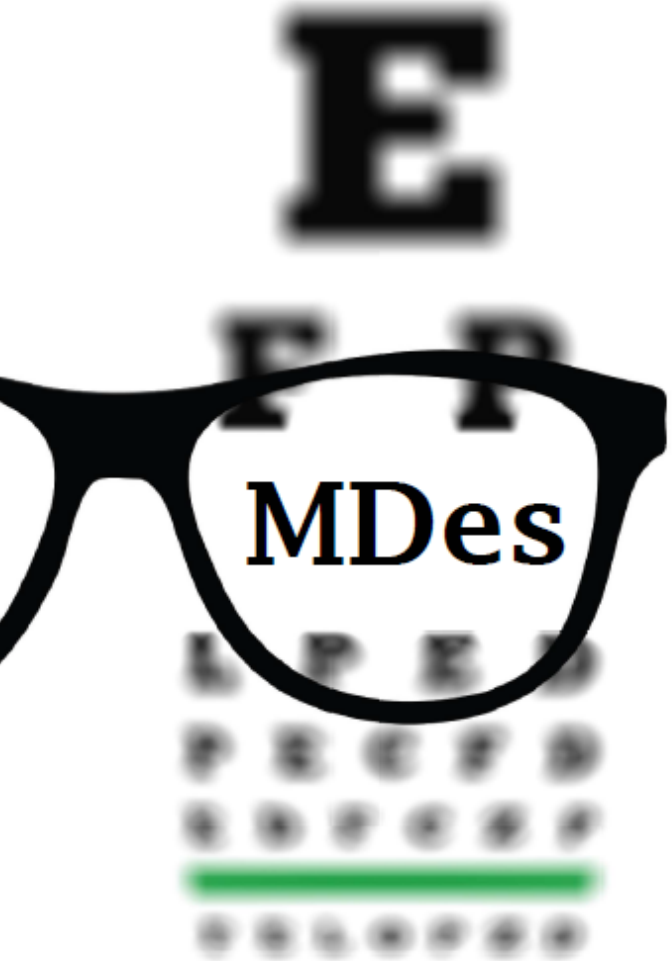


Supporting Students Aged 8 to 12 Regarding Cyberbullying Through Design

The introduction of the internet has changed the quality of how we interact and communicate with each other drastically. But aside from all these advancements, it has also brought forth new and complex challenges in our daily lives. For my thesis project, I am taking a deeper look into one of these challenges, cyberbullying. Although various prevention tools and education programs have been implemented to tackle traditional bullying, cyberbullying has not yet been under the spotlight as it is a relatively new concept. For my project, I have decided to take a deeper look into how children see and define cyberbullying as it has mostly been defined and analyzed by adults. Through discussion sessions with students aged 8 to 12, I will aim to discover cyberbullying as described by them. Through these discussion sessions, I will gain first-hand knowledge from the children on solutions to tackle cyberbullying. With these insights, I will design a solution that will be validated by the same children at the end of my thesis project.

Why I am passionate about my research

In a world where designers are mostly adults with their own perspectives, what roles do children play? How much of their voice is heard in the design process? Through my thesis project, I am passionate about exploring children's perspectives on cyberbullying. I am also very interested to explore the factors that play a role in how cyberbullying affects children.



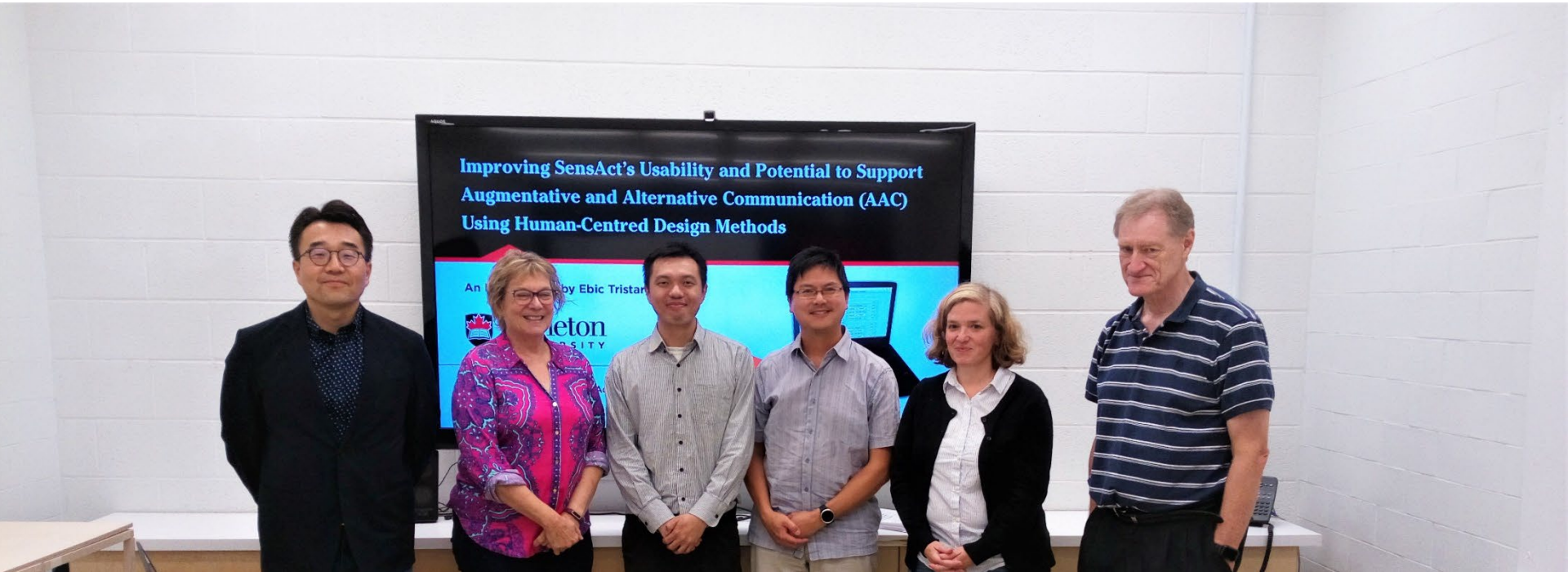
Completing a Master of Design program can help you…

- To achieve a deeper theoretical and practical understanding of design potential and issues.
- To develop in-depth knowledge on a particular specialization, such as design research and design education, accessibility and inclusion, social design, health and wellness, prototyping, UX/UI design, service design, etc.
- To learn advanced research and communication skills.
- To learn how to collaborate with other disciplines and support their innovation processes.
- To boost your portfolio and extend your network of contacts in and beyond the industry.
- To showcase leading design discoveries through academic platforms (i.e., papers, conferences, exhibits, etc.).

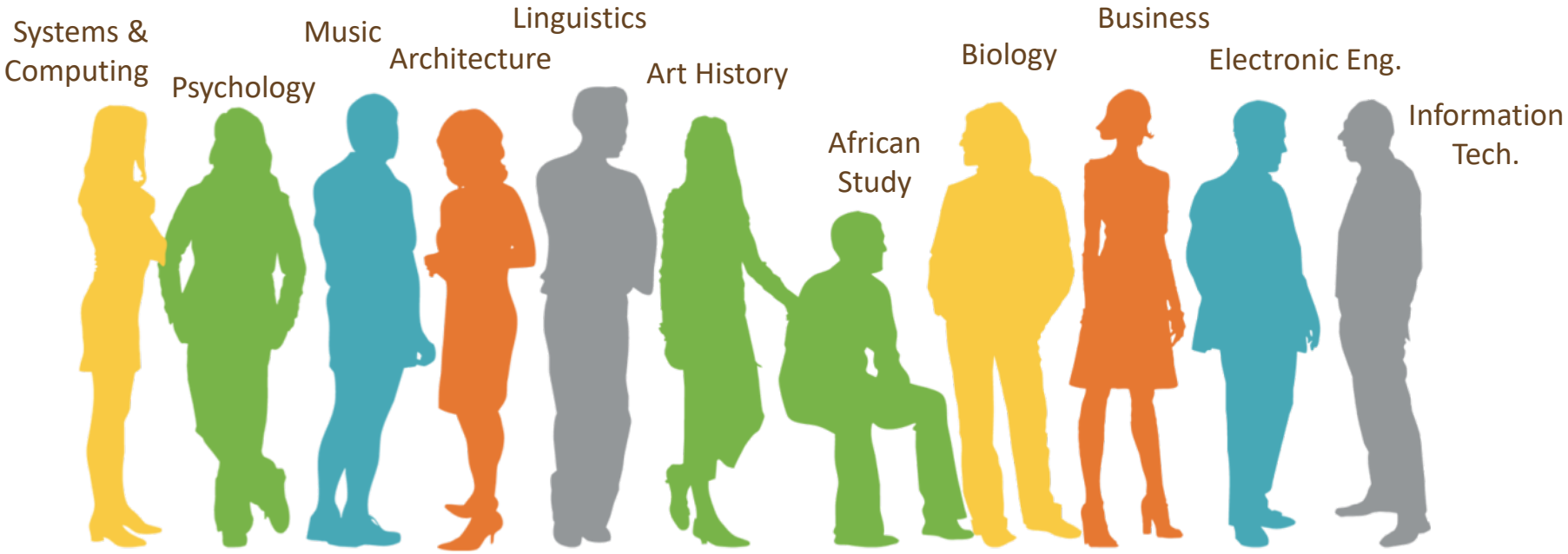
What does a Master program entail?

- In order to complete the MDes program, you must complete a sequence of core courses and write and defend a thesis in a study subject you have chosen.

- The thesis is accomplished with the support of one thesis supervisor, and eventually one co-supervisor both in and outside of the school of Industrial Design.



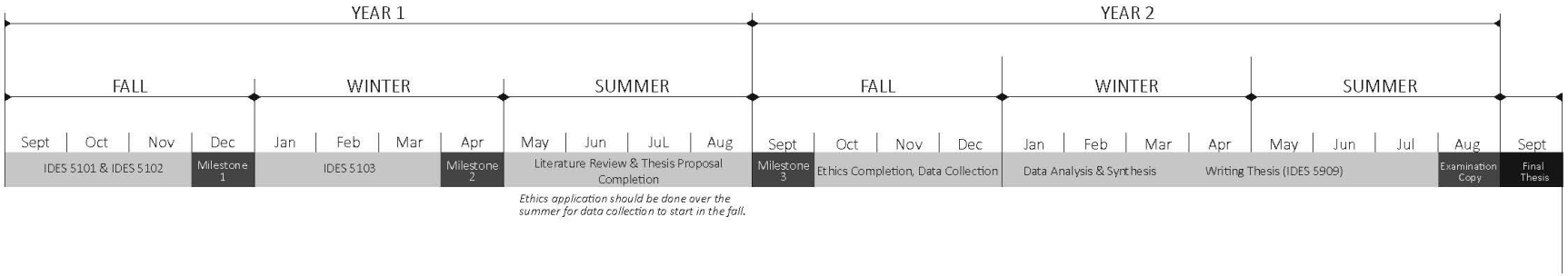
Interdisciplinary Collaboration



MDes
Study Sequence

	Year 1			Year 2	
Research & Course work	**Semester 1 Fall**	**Semester 2 Winter**	**Semester 3 Summer**	**Semester 4 Fall**	**Semester 5 Winter**
IDES 5101 (0.5 credit) Interdisciplinary Design Development Seminar	●				
IDES 5102 (0.5 credit) Research Methods	●				
IDES 5103 (0.5 credit) Interdisciplinary Design Development Studio		●			
Elective (0.5 credit)	● or	●			
Elective (0.5 credit)		●			
Elective (0.5 credit)			● or	●	
IDES 5909 (2 credit) Thesis					●
Semester Credit	1.0 or 1.5	1.0 or 1.5	0.5	0.5	2.0
Accumulated Credit	1.0 or 1.5	2.5		3.0	5.0
Deliverables	**Milestone 1** Statement of Study Interest Thesis supervisor Assigning form	**Milestone 2** Literature Review		**Milestone 3** Thesis Proposal	**Final Thesis & Oral Examination**
Research Activity	Establish area of interest Identify potential research topic Prepare Milestone 1	Scope of topic Hypothesis & Questions Develop methodology Prepare Milestone 2	Ethics Application Data Collection (If applicable) Literature Review Prepare Milestone 3	Conduct data collection Analyze & Synthesize data Identify Insights Draft of thesis	Examination Copy Complete Thesis Oral Defense
Supervisor	Confirmation of SID Supervisor		Work continue with the supervisor and co-supervior	Work continue with the supervisor and co-supervior	Formation of Examination board

MDes path completion



Ethics application should be done over the summer for data collection to start in the fall.

Milestone 1
Statement of Study Interest

Statement of Study Interest is a summary of your research interest that has been narrowed down during the 1st semester. It includes a brief description of your preliminary research questions along with the implication of the potential results of the research. Make sure that your research topic must tie to the research areas of the SID faculties with whom you want to work.

This document must be submitted to the MDes Brightspace submission link and, eventually, emailed to the external co-supervisor for evaluation by **December 23** in the 1st Fall term (If you don't meet this deadline, it will be difficult to meet the April deadline for Milestone 2.)

Students must submit the thesis supervisor form no later than September 30.

Milestone 2
Literature Review

Literature Review is an overview and evaluation the scholarship that exists on a specific topic or research question student's research topic. It allows students to gain a good perspective and comprehensive overview of their research topic in the literature; and to to identify critical points in current theoretical and methodological contributions to a particular topic where their research focus would fit. This substantial document of the preliminary research into a thesis topic areas must be submitted to the MDes Brightspace submission link and, eventually, emailed to your external co-supervisor by **April 30 in the 2nd term.**

Milestone 3
Thesis Proposal

Thesis proposal describes what you will investigate, why it is important, and how you will do the research to get your thesis plan approved. It includes the clear research questions, hypothesis investigated, relevant sources from literature review, and doable data collection and analysis methods and research plan.

Milestone 3 must be submitted be submitted to the MDes Milestones Brightspace submission link an, eventually, e-mailed to your co-supervisor by **September 30 in year 2.**

Examination Copy

Examination copy of your thesis must be distributed to the thesis examination committee by **the end of August in year 2.**

Oral thesis defense will be scheduled 3 weeks after the submission of the examination copy.

Final Thesis

The deadline of a final thesis submition is usually in **the middle of September** for November graduation (date changes yearly).

If the final thesis is not submitted until middle to end of September, graduation will take place in the winter semester, without having to pay ongoing tuition fees.

Students must successfully satisfy each milestone requirement before proceeding. If a milestone is unsatisfied, the re-submission date will be negotiated with the Graduate Program Coordinator and the student's thesis supervisor.

Financial support!

- Domestic students (Canadian Citizenship or Permanent Resident) receive financial support from Carleton University in the form of teaching assistantships (TA) and scholarships based on academic excellence.

- You do not need to apply for these types of assistantships or scholarships, you will automatically be considered at the time of admission.

- Students will receive their TA assignments based on their background and preferences within with Bachelor of Industrial Design undergraduate courses.

Application

Deadline: February 28th to be considered for funding

(if space and funds remain, submissions will be accepted till August 31st)

Faculty Research Areas & MDes Thesis Opportunities

Bjarki Hallgrimsson

Physical Prototyping Methods and Technologies; Community Based Design (with a focus on prototyping); Design History

Research focus and activity

My main research focus is **prototyping** methodology. This broadly includes *technological aspects of making prototypes* for various stages of the design process using different approaches, processes and materials. Additionally, prototyping extends beyond the purely physical to include *processes and activities that involve many stakeholders in transdisciplinary workflows*. This is more related to design thinking and participatory design as an approach to engage many stakeholders in a project, as opposed to necessarily build physical prototypes.

I also collaborate with the History and Art and Architectural History departments at Carleton on capturing and evolving the **historical narrative** about the *industrial design profession*. We have inherited historical design artefacts from the previous *DX Museum exhibit* in Toronto that is now part of our own collection. Furthermore, the location of Carleton University in Ottawa is a significant cultural advantage for research in this area. This track allows students to build interdisciplinary expertise in theoretical aspects as well as archival research and ethnographic research using oral histories as an example.

Bjarki Hallgrimsson

Physical Prototyping Methods and Technologies; Community-Based Design (with a focus on prototyping); Design History

Current and past research projects

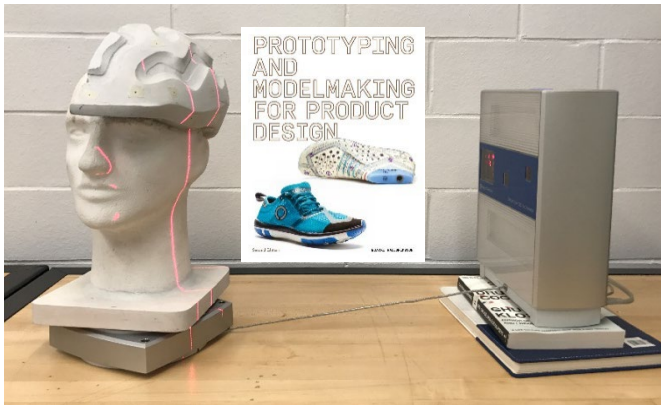
Design History Project

In collaboration with the Art and Architectural History and History departments at Carleton University we are researching design history through various research lenses. Ongoing work includes *research on the DX Museum artefacts*. Completed thesis work includes: Alisdair, MacRae, "Investigating History Through Exhibition Design: A Case Study On Wim Gilles", 2018.

Artefacts from DX Museum

Prototyping and Modelmaking

Research and investigation into the *types of prototyping approaches and methods* that designers use in their product development process. The work has been published as a book in 5 languages and is now in it's 2nd edition.



Prototyping and Modelmaking for Product Design, 2nd Ed.

Research Assistant opportunities for students

- Opportunity for students who wish to join my research group will be offered an RA stipend of 4-5K.

Chantal Trudel

Design for Health and Wellness; Transportation Design; Human Factors; Systems Design; Service Design; Participatory Design; Community-Based Research

Research focus and activity

My research and educational approach is grounded in salutogenic and participatory practices to support *responsible design* for *health*, *wellness*, *inclusion* and *accessibility* in both clinical and public health settings.

Prior to my appointment at Carleton University, *I worked as a product designer* followed by more than *10 years of experience in healthcare planning and design*. Throughout my career in both industry and the academic setting, I have been a strong proponent of participatory design, acting as a facilitator to engage community stakeholders in the design and development of 'their' goals, objectives, programs and projects.

My students and I work closely with community partners such as Bruyère Research Institute, the Children's Hospital of Eastern Ontario (CHEO), and the National Research Council's Centre for Air Travel Research. Together, we are working on advancing our understanding and development of the *built environment, service models and emerging technologies to support health and wellness.* This includes studying diverse settings where health and wellness can be fostered through visioning alternatives, whether large or small. We use *ethnographic approaches* and *creative methods* to engage multiple stakeholders throughout the work, as well as large scale quantitative measures to understand larger demographic considerations related to design. Working in these *transdisciplinary teams* which include community members, healthcare researchers and clinicians, engineers, interior designers, human factors professionals, we are creating new service models and workflows and supportive environments through space planning, product and technology development.

Chantal Trudel

Design for Health and Wellness; Transportation Design; Human Factors; Systems Design; Service Design; Participatory Design; Community-Based Research

Current and past research projects

Research and Education in Accessibility, Design, & Innovation (READi)
READi provides accessibility training and skills to students. It is the first *interdisciplinary post-secondary accessibility-training program offered in Cana*da. This integrated solutions-oriented training program includes applied and experimental learning with business, non-government organizations, accessibility experts and persons with disabilities.

Bruyère Real-time Monitoring & Analytics to Support the Design of Patient/Resident Care Workflows, Environments & Products
In this new research program being developed by Prof. Trudel and Dr. Adrian Chan, students will work with leading researchers, industry partners, patients, and care providers to design *new ways to learn and think about health* through real time data.

Learning through the Pandemic – Rethinking Long Term Care Design
Funded by the Canadian Institute for Health Research and the Foundation for Health Environments Research (USA), *students are working with LTC homes across Canada to re-imagine service*s, the environment, products, and technologies to support this sector.

Denise Pong designing with a Bruyère resident.

Real-time Monitoring & Analytics Research Program

Research Assistant opportunities for students

- 2-year RAship Salary: 20K+ (with opportunities for additional funding)

Chantal Trudel

Design for Health and Wellness; Transportation Design; Human Factors; Systems Design; Service Design; Participatory Design; Community-Based Research

Current and past research projects

National Research Council Centre for Air Travel Research (NRC CATR)

Working with Dr. Shelley Kelsey, Chantal and her students have focused on studying *the air travel experience of marginalized groups* over the past several years. Their projects have included the design of airport and cabin interiors, information systems, wayfinding and service models to include and support older adults, people living with obesity, in air travel design and evaluation. The team has also worked on pandemic research in air travel to support UX under these new conditions and the integration of VR/AR design in air travel design methodology.

National Research Council
Centre for Air Travel Research

NRC Aging in Place (AiP) Research Program

This 7 year research program focused on supporting *a more inclusive and usable door-through-door travel experience for older Canadians*. Students will work at Carleton and the NRC Centre for Air Travel Research (high-fidelity air travel simulation centre).

Dr. Kelsey, Prof. Trudel & Rob Shudra at the NRC CATR

Research Assistant opportunities for students

- AiP Research Program: 2-year RAship Salary of 40K

Chiara Del Gaudio

Participatory Design; Political Design; Gender and Design; Strategic Design for Social Innovation, Speculative and Critical Design; Decolonising Design

Research focus and activity

Chiara Del Gaudio's main research and practice interests are *Design as a political process*, *Participatory and Collaborative design approaches*, *Strategic Design for Social Innovation*, and *power and conflict in Design processes*. Within this framework, her research mainly focuses on designers' contribution towards more democratic scenarios. Specifically, she seeks to explore how designers can promote the conditions for them to happen and Design processes for self-determination. In this regard, at the current moment, she is researching how power plays out in the Design process, how Design can promote the transgression of oppressing social norms, and how to evolve the existing Strategic Design practice through the concepts of tactics, devices, and strategies, and the theories of complexity. Moreover, she has been researching the *limits, challenges, and risks related to collaborative and participatory approache*s when applied in society, and mainly in *conflict-affected and fragile urban areas*; and the necessary conditions for this kind of Design practice. She also is an active and growing member of the design research community at the national and international levels.

Chiara Del Gaudio

Participatory Design; Political Design; Gender and Design; Strategic Design for Social Innovation, Speculative and Critical Design; Decolonising Design

Current and past research projects

Urban Imaginaries

The project seeks to promote the collective creation and discussion of new urban imaginaries for Ottawa. It will do this through a series of public events aiming at catalyzing collaborative knowledge sharing and building.

Tackling gender oppression by embracing transgression in Design

this research project, exploratory in nature, aims to understand how Design can support the transgression of socially defined gender norms and, therefore, address gender oppression. It will also reflect on the relevance of embracing transgression in design processes towards increasing the creative potential of design practice and enabling plural possibilities of being.

Research Assistant opportunities for students

- Supervised students that show interest, appropriate skills and a pro-active approach will be offered the opportunity to join my research activities and will receive an RAship for this.

Chiara Del Gaudio

Participatory Design; Political Design; Gender and Design; Strategic Design for Social Innovation, Speculative and Critical Design; Decolonising Design

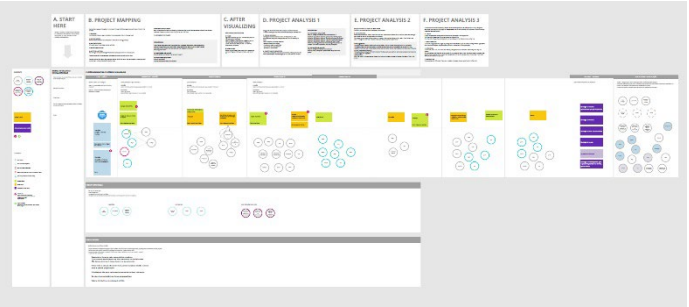
Current and past research projects

Unveiling Co-design

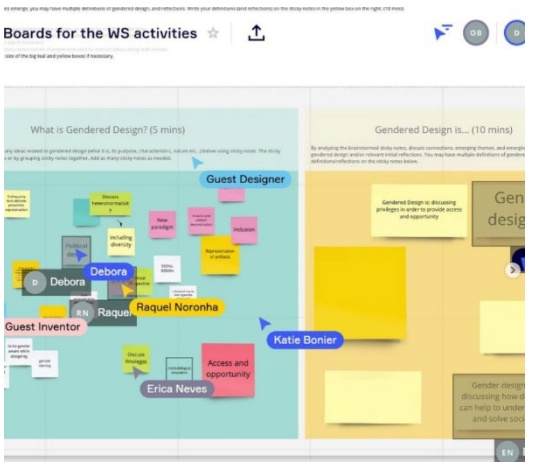
This research project aims to strengthen the democratic potentialities and dimensions of co-design processes. Its main goal is to promote an understanding of where and when co-design processes are not democratic and promote awareness about how the decisions taken by the participants of a co-design process can influence the wider context.

Gendered Design in STEAM in Low and Middle-Income Countries

a three-year research program financed by the International Development Research Centre (IDRC) Canada and managed by Carleton University (Canada) aiming at identifying, supporting, and promoting a community of experts in LMICs in Latin America, Africa and Asia engaged, or interested in engaging with Gendered Design as a potential field of practice and research.



Mapping Exclusions within Co-Design processes



GDS workshop

Chiara Del Gaudio

Participatory Design; Political Design; Gender and Design; Strategic Design for Social Innovation, Speculative and Critical Design; Decolonising Design

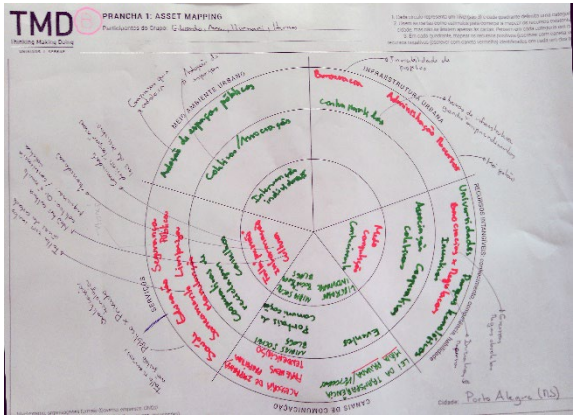
Current and past research projects

Thinking Making Doing

a project set up in collaboration with SEBRAE-RS in Porto Alegre, Brazil. Through a Service Design and Strategic Design approach, the project aimed at designing new services for 10 local collaborative spaces that could work on an ecosystem level.

Design for Democracy

A series of activities (events, design and research activities) to reflect and promote reflections on the relationship and strong convergence between Design and Democracy, as well as to promote new design practices related to four dimensions of this relationship: (1) design of democracy; (2) design for democracy; (3) design in democracy; (4) design as democracy. The topic was addressed through lectures, round tables and design activities that allowed knowledge exchanges and building between experts from different academic areas and the local community. Here the final statement produced together with the participants:
http://democracy-design.designpolicy.eu/statement/chiara-del-gaudio/



Mapping Ecosystem Opportunities

2nd Event: exploring design contribution through Art, Design, Arquitecture, Music

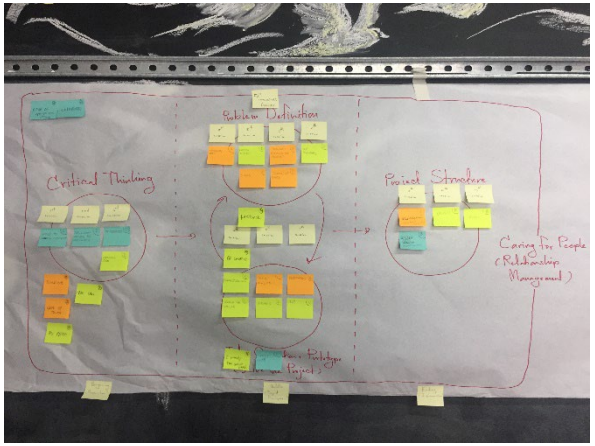
Chiara Del Gaudio

Participatory Design; Political Design; Gender and Design; Strategic Design for Social Innovation, Speculative and Critical Design; Decolonising Design

Current and past research projects

City Visionaries

a research project conducted in collaboration by University Brunel London and TransLab (a social innovation laboratory, localized in Porto Alegre, Brazil), and financed by Newton Fund and British Council. The project consisted in the development and implementation of a program for helping NGOs in co-designing with young people from local favelas new businesses that could contribute to the local context.



City Visionary: the program

Transformando o Serviço em PMEs

a research project set up with SEBRAE-RS in Porto Alegre, Brazil. Through a Service Design and Co-Design approach, the project aimed at redesigning the innovation processes of 10 small local businesses.

Story board of the new service

Juan Jiménez Garcia

Human-Computer Interaction (HCI); Interaction Design (IxD);Personal Informatics for Healthcare and Wellness; Human-Centered Design (HCD); Ethnographically Informed Design; Generative Design; Participatory Design

https://juanjimenezdesign.com

Research focus and activity

Designing for personal reflective and persuasive informatics

The design of technology-mediated solutions that supports people's daily life. An exploration on persuasive vs. reflective personal informatics solutions and how they can be harmonized for user empowerment. This work aims at providing the user with more meaningful information elements to follow a more deep and critical reflection process, therefore, creating user engagement and proper understanding of their behaviors and actions.

Designing for healthcare and wellness scenarios

The design of technology-mediated solutions that considers the current digital transformation in healthcare services as broadly changing from being solely delivered by professionals in hospitals, to considering daily-life experiences and patients' personal contexts. This implies an increasing amount of personal data where patients are considered to be more responsible to monitor and reflect on their health condition based on personal health data.

Designing for social innovation

The design of digital technologies that embrace a community-based participatory approach to enhancing accessibility of digital technology by closing the gap between design requirements and people's localized needs and values. This work takes a multidisciplinary focus on developing and applying human-centered design methods in a real context.

Juan Jiménez Garcia

Human-Computer Interaction (HCI); Interaction Design (IxD);Personal Informatics for Healthcare and Wellness; Human-Centered Design (HCD); Ethnographically Informed Design; Generative Design; Participatory Design

Current and past research projects

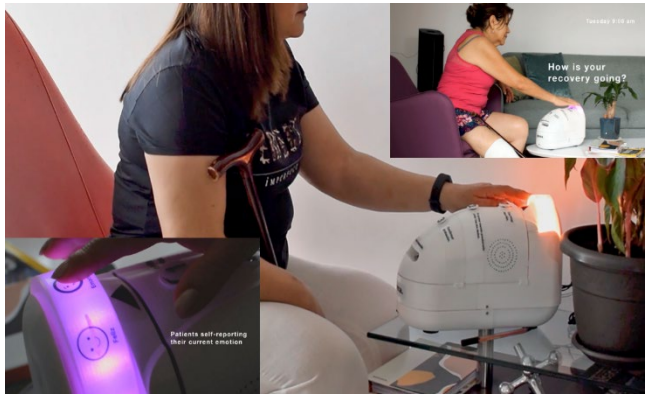
Improving Tuberculosis contact tracing

A cross-sectional qualitative study combining human-centered design, social science methods, and a knowledge-growing strategy. This project aimed at identifying barriers, facilitators, and design opportunities in the improvement of identification of TB contact and key-patients towards a technology-assistive follow-up treatment. Details: https://juanjimenezdesign.com/tuberculosis/

Field work and Contextmapping techniques
with TB contacts and key-patients

Designing a supportive patients' experience digital tool: the case of Total Hip Replacement Process.

This project aimed to develop an emotional assistant monitoring device to support Total Hip Replacement patients during the recovery process. This device enables the collection and delivery of meaningful information to activate patients' awareness about the course of their recovery and to help them to cope with the emotional and physical dynamics changes of the recovery.
Details: https://juanjimenezdesign.com/emma/



EMMA – Tangible User Interface.
In-the-field prototyping testing

Juan Jiménez Garcia

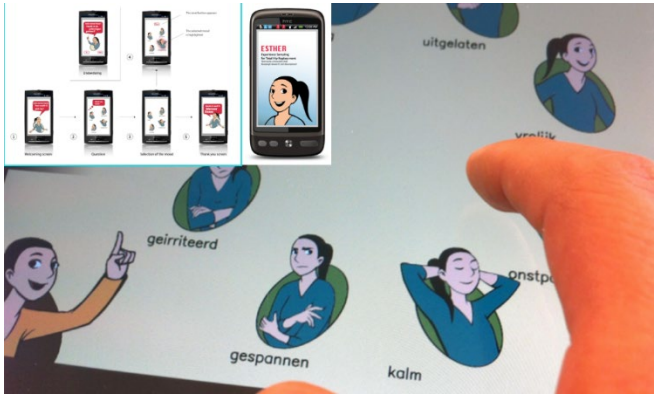
Human-Computer Interaction (HCI); Interaction Design (IxD);Personal Informatics for Healthcare and Wellness; Human-Centered Design (HCD); Ethnographically Informed Design; Generative Design; Participatory Design

Current and past research projects

Designing reflective healthcare informatics: supporting patients during recovery at home.

This project addressed the challenge to design research tools that fit in the user's home context and recovery process after Total Knee/Hip Replacement. ESTHER was designed as an in-situ ecological design tool to capture an acute view of the life of THR patients during recovery at home. It samples and assesses both qualitative data (user-driven) and quantitative data (system-driven) from patients' event of sequences, physical activity and mood.

Details: https://juanjimenezdesign.com/esther/

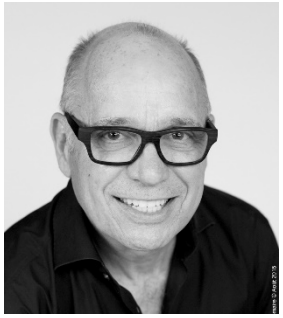


Participatory Design – Workshops with community leaders and members. Digital prototype.

Research Assistant opportunities for students:

- I want to work with graduate students who are keen to create social impact by designing socio-technical systems that deliver meaningful experiences between people, technology, and data, understanding and representing human needs through digital interactions that improve people's daily life.
- Salary will be defined based on the level of involvement and the funding assigned to a specific project.

Stephen Field



Co-creation and Co-design; Design Entrepreneurship; Participatory Research; Cross Culture Collaboration; Distributed Studio

Research focus and activity

Coming from a global background in design and development of energy efficient housing components and manufacturing, my research focus has led to demonstrate how collaborative holistic approaches can be utilized in developing sustainable products and systems for remote Canadian First Nations and Inuit communities. By working within interdisciplinary framework that creates participatory research teams within the university; Sprott School of Business, School of Industrial Design, and Environmental Engineering. Through this collaboration students embrace co-creation and co-design research methods. By conducting intensive multi-week field trips, students actively engage with communities, employing participatory approaches implementing prototyping and testing methods. Due to the geographic isolation students develop tools and methods that facilitate distant distributed studios, allowing for ongoing community engagement. Graduate students interested in collaboration that applies design processes to assist in developing self-sufficiency and self-reliance through community entrepreneurship that is respectful to the indigenous communities.

Stephen Field

Co-creation and Co-design; Design Entrepreneurship; Participatory Research; Cross Culture Collaboration; Distributed Studio

Current and past research projects

Maasai Community Engagement

This interdisciplinary collaborative project between the Sprott School of Business, School of industrial Design, and Environmental Engineering, engaging students in co-design and co-creation with Maasai communities in the district of Longido, Tanzania. Active engagement research to create self-reliance, self-sufficiency in a sustainable context.

Interdisciplinary Framework for Northern First Nation and Inuit Communities

This research focuses on developing interactive processes allowing potential high impact solutions to be generated by all parties despite cultural differences and geographical separation. Several Northern communities such as Na-cho Nyak Dun in Mayo Yukon, Igloolik Nunavut and Masset BC, among others have extended their participation with students from Sprott School of Business and School of Industrial Design. This Interdisciplinary research utilizes and evaluates digital collaborative tools such as Virtual Reality, into the research process to allow for engagement between the geographically distributed teams.

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Tim Haats

Design Entrepreneurship; Emerging Design Technologies; Prototyping Methods; Innovation; Design Thinking; Intellectual Property

Research focus and activity

Tim's research interests revolve around design, entrepreneurship, and business, and the emerging design practices that support innovation. This includes topics such as design entrepreneurship, design thinking, business design, emerging technologies, design tools and methods, and intellectual property. Currently, Tim's focus is mainly on design entrepreneurship and emerging technologies.

Within the topic of design entrepreneurship, Tim is working towards understanding the dynamics of venture start-ups and how design can play a critical role in the development of successful small businesses. He is also trying to understand what makes designers entrepreneurial and how to foster more designer-founders in support of innovation and economic development.

Within the topic of emerging technologies, Tim is exploring the use of Extended Reality (XR) – including Virtual Reality (VR), Augmented Reality (AR), and Mixed Realty (MR) – within industrial design practice, and how these technologies can support product development through forms of collaboration, communication, prototyping, and testing. This includes understanding how professional designers are currently using these technologies, but also investigating new opportunities that will enhance the design process. Furthermore, Tim is exploring the development of new technology applications. This work is being done in collaboration with businesses and organizations who are innovating within their respective industries.

Tim Haats

Design Entrepreneurship; Emerging Design Technologies; Prototyping Methods; Innovation; Design Thinking; Intellectual Property

Current and past research projects

XR Technologies for Industrial Design Practice

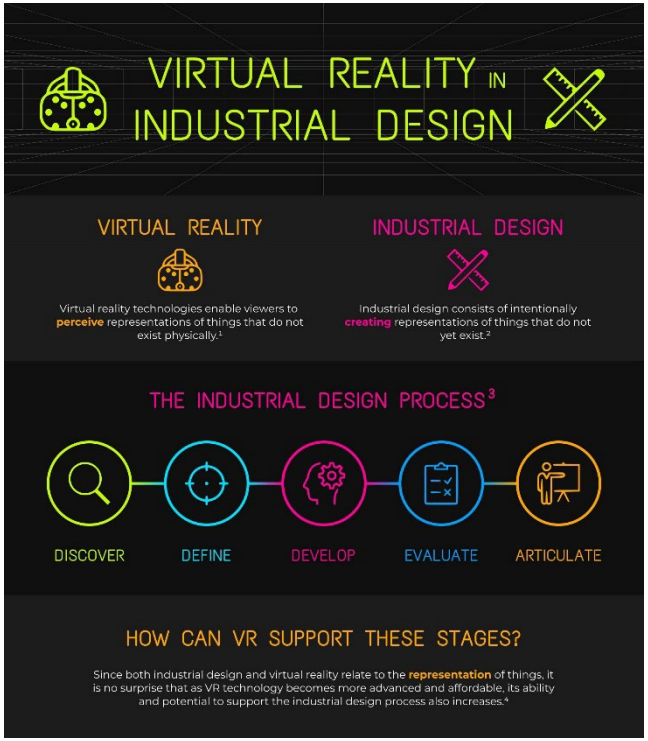
Advancements in technology and digital tools are providing industrial designers with new opportunities to enhance their design capabilities. This research project explores these opportunities to understand how emerging Extended Reality (XR) technologies are shaping the modern industrial design practice, and how they can be integrated into the product development process most effectively.

Designers' Entrepreneurial Intentions

What makes a designer entrepreneurial? To answer this question, we need to understand the designer's aspirations, motivations, and intentions; we need to understand the designer's state of mind towards entrepreneurship. This research project explores these factors from various perspectives to identify key considerations for fostering entrepreneurial activity amongst industrial designers.

Research Assistant opportunities for students:

- Students who wish to work on one of these projects will be offered an RA stipend of up to 5K.



VR in Industrial Design

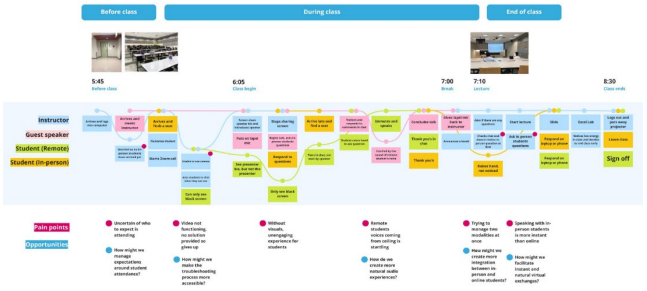
Tim Haats

Design Entrepreneurship; Emerging Design Technologies; Prototyping Methods; Innovation; Design Thinking; Intellectual Property

Current and past research projects

Improving the Quality & Experience of HyFlex Teaching & Learning

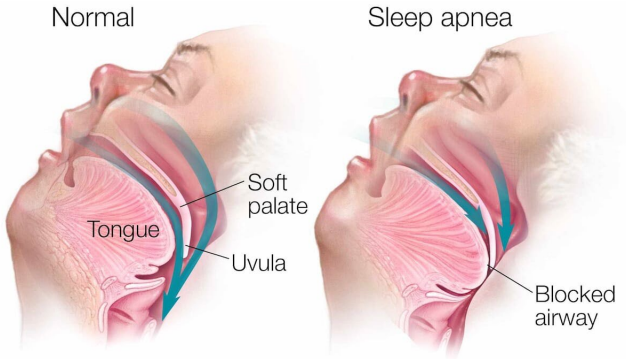
The COVID-19 pandemic has pushed Universities and Colleges to explore new ways of delivering education. One such strategy has been to implement the hybrid-flexible (HyFlex) teaching model. This research project explores the user experience and pain points of HyFlex teaching and learning to identify opportunities for new design solutions that will enhance the effectiveness of the HyFlex model in higher education.



Journey mapping HyFlex class experiences

Innovation, Design & Development of a Novel Snoring & Obstructive Sleep Apnea Prevention Device

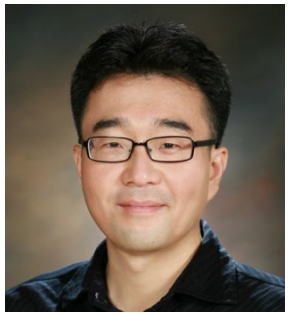
Sleep-related breathing disorders, such as obstructive sleep apnea, can be life threatening. Although solutions exist to treat these disorders, there are several issues relating to cost, comfort, and convenience with the products that are on the market today. This applied design research project explores the development of a novel snoring and obstructive sleep apnea prevention device that will address these issues, specifically for the senior population who wear full or partial dentures.



Collapse of soft tissues causing sleep apnea

Source: https://www.sleepcareonline.com/articles/what-is-the-main-cause-of-sleep-apnea/

WonJoon Chung

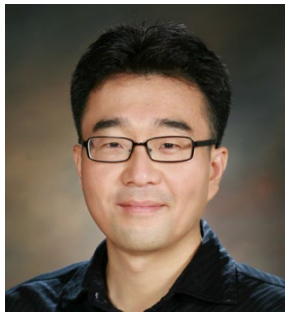


Creativity in Design; Co-design; Individual and Collective creativity; Prototyping Methods; Design Thinking & Pedagogy

Research focus and activity

Dr. Chung's research focuses on individual and collective creativity of designers, strategic research on design thinking, and pedagogical research to improve students' design competency in response to the demand of the 21st century. Specifically, he is interested in working on a practical application of the characteristics of design thinking such as abductive reasoning process, reflective practices, outside the box thinking, and iterative process using tangible artifacts (i.e. sketches and prototype) to tackle wicked design problem.
His research endeavour led him to be invited to participate in several government-funded projects in Korea that allowed him to establish a partnership with a number of prestigious industry partners as well as design department in universities in Korea.

WonJoon Chung



Creativity in Design; Co-design; Individual and Collective creativity; Prototyping Methods; Design Thinking & Pedagogy

Current and past research projects

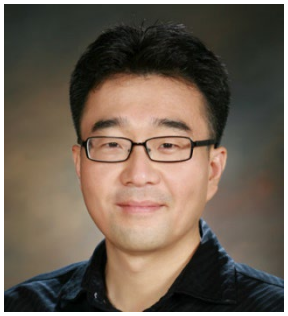
Development of convergence design workshop Program (2014)

Existing research on creativity discusses theoretical principles such as abductive thinking, bisociation, and out-of-the-box thinking as the underlying mechanism for generating creative ideas. Yet, there is little research on how inexperienced designers (e.g., design students) can experience these principles and put them into a design practice in various contexts. This project developed a group workshop technique in which participants can experience the principles of creativity in collaboration with others. In terms of design education, the workshop technique and tools can be used as supplementary material to allow student designers to experience the principles of creativity in a playful manner, while also practicing to strike a balance between imagination and reality in their design ideas.

Collaborative ideation workshop with non-designers

Collaborative ideation workshop with non-designers

WonJoon Chung

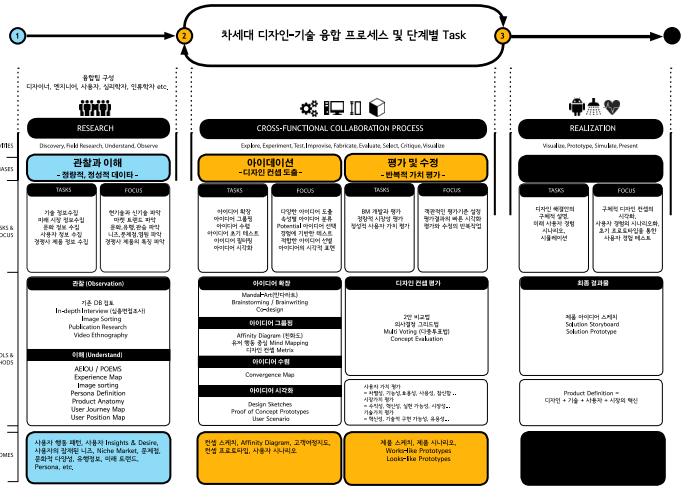


Creativity in Design; Co-design; Individual and Collective creativity; Prototyping Methods; Design thinking & Pedagogy

Current and past research projects

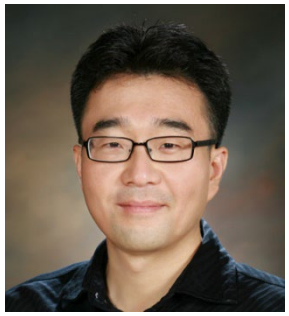
Converging design for small and middle size enterprises in Korea (2014)

A number of methods and techniques have been developed and used to facilitate the process of interdisciplinary collaboration in design practices. As they were developed based on unique design cultures and different organizational structure, however, it may cause a problem if one which has a different culture and structure try to adapt it without serious consideration of their own cultural differences and custom. For this reason, this project conducted cultural, contextual and ethnographic investigation and develop more proper methods of the convergence design that suitable for design industry in Korea. The theoretical basis of the convergence design are investigated in order to develop effective methods of convergence design for Korean.



Design convergence platform

WonJoon Chung



Creativity in Design; Co-design; Individual and Collective creativity; Prototyping Methods; Design Thinking & Pedagogy

Current and past research projects

Designing Learning Space to Promote Creativity and Collaboration in Schools (2020)

The rapid development of digital technology and the emergence of the 4th industrial revolution has led us to re-evaluate the current education system and curriculum. Particularly, it is necessary to redesign the traditional learning space like a classroom to be more effective space that allows students to actively engage with their learning and accommodating their multiple demands. This notion brings our attention to design a new classroom environment that would be appropriate for the young students to actively engage with teachers and their peers, foster their experiential learning, and facilitates greater access to contents and resources. This matter is not limited to a particular region, but a global concern and also is not only an issue of the post-secondary education but that of k-12 education as well.

(Postponed due to COVID 19)

Steven Pong

Healthcare Design/Research; Model Making; Physical User Interface; Prototyping; Sensory Perception of Data

Research focus and activity

I have expertise in many areas of design and can demonstrate to students, from real-world experience, how to conduct research, design, test, and manufacture devices and systems across many domains from activities of daily living to life changing medical and healthcare devices.

Students will benefit from my years of mentoring both graduate and undergraduates through the development of their theses. I worked for over a decade on academic and commercial medical/healthcare projects where design considerations are critical to successful outcomes. Additionally, it has been my pleasure to assist students with design and construction of the devices required to complete their studies, while teaching them how to work safely and efficiently to make what they didn't think possible.

My research interests lie in how design inputs, through co-investigation, can advance research outcomes in areas not normally associated with design such as psychology, biomechanics, and medical diagnostics. I have established excellent relationships with leading investigators in these areas and have recently been appointed to an Affiliate Scientist position at the Kite Research Institute/University Health Network. This provides access to their world-class scientists, laboratories, and workshops. There are great opportunities for designers to direct, shape and improve approaches to conducting research beyond the traditional roles of design.

Steven Pong

Healthcare Design/Research; Model Making; Physical User Interface; Prototyping; Sensory Perception of Data

Current and past research projects

Making National Parks In Canada Accessible

The Accessible Parks Canada project is an interdisciplinary research project being conducted by the Engineering Health Lab (part of The KITE Research Institute) and affiliated researchers. Our goal is to revise guidelines for making Canada's national parks more accessible. Our long-term vision is to ensure individuals with disabilities and their caregivers can participate in all activities offered at Canada's national parks. The specific objective of this multi-year project is to develop recommendations for making the national parks barrier free by 2040.

www.accessibleparkscanada.ca

E-Stethoscope / Telemedicine

People recovering from COVID-19 (PrC-19) are at very high risk for dysphagia, which represents a serious risk for complications. This study investigates the prevalence and impact of swallowing impairment in PrC-19. It will also determine how age, frailty and underlying risks impact the frequency and severity of dysphagia after COVID-19 infection. This 3D printed single-patient electronic stethoscope and the accompanying software was developed with the SleepdB Lab at KITE | Toronto Rehab to collect data for this study.

https://steeleswallowinglab.ca

Steven Pong

Healthcare Design/Research; Model Making; Physical User Interface; Prototyping; Sensory Perception of Data

Current and past research projects

Hand Hygiene Performance Improvement

Poor hand hygiene by health care workers is a major cause of nosocomial infections. This research evaluated the ability of an electronic monitoring system with real-time prompting capability to change hand hygiene behaviors. Once the technology had been developed, multiple clinical trials were conducted. Some results include: the use of electronic monitoring with real-time prompts of 20 seconds' duration nearly doubles handwashing activity and causes handwashing to occur sooner after entering a patient room. These improvements are sustainable over a year.

https://hygienicecho.com

Sleep Apnea Diagnostics

Our research team designed and validated a personal home sleep test that transforms the precision of a sleep laboratory into an accessible solution. The device is worn over the nose and mouth and captures multiple data streams by using two channels, a microphone and an accelerometer. Breath sounds and head movements are recorded for up to eight hours of sleep, and a sleep study report is generated and then interpreted by your physician.

https://kite-uhn.com/lab/sleepdB

Useful links

MDes info: https://carleton.ca/id/programs/mdes/
Faculty profiles: https://carleton.ca/id/people/
Application information: https://carleton.ca/id/programs/mdes/application-mdes/
MDes studio projects: https://carleton.ca/id/programs/mdes/mdes-studio/

for more information

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