

Inquiry@Queen's
17th
Annual Undergraduate
Research Conference

Program

March 9 & 10, 2023
Stauffer Library

queensu.ca/iatq



March 2023

We are now in our 17th year of celebrating the discoveries of a new generation of scholars at the annual Inquiry@Queen's Undergraduate Research Conference. This year, for the first time since 2020, the conference is back in-person at Stauffer Library. I@Q is more than a conference; it is an approach to learning where the teacher and the learner reside in the same person. It is a natural extension of a university that prides itself on the quality of undergraduate education and its scholarship and research.

The theme for the 17th Annual I@Q Conference is **Misinformation: Rogue Inquiries**. In today's social media, news-on-demand driven world, misinformation is rampant. The spread of incorrect and misleading information by political and non-political players alike wreaks havoc on society's ability to make informed, critical, evidence-based decisions. Misinformation and disinformation are so prevalent that the question needs to be asked whether it is in fact now the norm, while truth and facts are the rogue actors.

In a world of ubiquitous and competing information, the ability to pose critical questions and forge a path to answer them has never been more important. Students who engage in inquiry projects are better able to analyze, synthesize, and evaluate information; develop discipline-specific research skills; persist and make intellectual and personal gains; demonstrate greater problem-solving and research skills; and are more satisfied with their overall educational experience.

This year, the theme for the conference and the overall goals of undergraduate research at Queen's collide, as misinformation and disinformation pose a threat not only to the public, but also to researchers, educators, and students. While not all of the research being presented at this year's conference is directly or explicitly related to our theme of Misinformation, they all demonstrate the importance of inquiry-based learning in the university undergraduate experience.

The 2023 I@Q conference consists of five presentation sessions, two panel sessions, a poster session, and a keynote address. We invite you to attend as many of the sessions as you can and to pose challenging questions to our presenters and panelists. Later this year, all the presentations, panels, and posters will be published in the [2023 I@Q Conference Proceedings](#).

Thank you for attending, sincerely the 2023 I@Q Conference Planning Team:

Klodiana Kolomitro (Co-Chair): Associate Vice-Principal (Teaching and Learning)
Nasser Saleh (Co-Chair): Librarian for Educational Initiatives, Queen's University Library
Mark Swartz (Co-Chair): Scholarly Publishing Librarian, Queen's University Library
Emma Bullerwell: Library Accessibility Services Assistant, Queen's University Library
Alicia Cappello: Engineering & Science Librarian, Queen's University Library
Catherine DeNoble: eReserves and Copyright Technician, Queen's University Library
Nisha Simon: Graduate Student and Library Intern, Queen's University Library
Carling Spinney: Reference Assistant, Queen's University Library
Brianna Storms: Information Resources Librarian, Queen's University Library

We recognize that Queen's University is situated on traditional Anishinaabe and Haudenosaunee Territory and that it is a privilege to learn together on this land.

Table of Content

Conference Schedule 4

Presentation Session A: **Misinformation** 5

Keynote Presentation 7

Pizza with the Posters!..... 8

Panel Session A: **Queen’s Journals**..... 18

Presentation Session B: **Geography**..... 19

Presentation Session C: **History & the Arts** 22

Presentation Session D: **Culture & Society**..... 25

Panel Session B: **Principal’s Undergraduate Research Leaders** (PURLs) 28

Presentation Session E: **Science @ Work** 29

Acknowledgements 31

Conference Schedule

Thursday, March 9, 2023

- 9:00-9:15 Welcome and Land Acknowledgement: Dr. Klodiana Kolomitro, Associate Vice-Principal (Teaching & Learning) (Stauffer Library, Room 014)
- 9:15-10:15 Presentation Session A: *Misinformation* (Room 014)
- 10:30-12:00 Keynote: Dr. Amarnath Amarasingam: *Dangerous Conspiracies: When Do Bad Ideas Become Violent?* (Room 014)
- 12:00-1:30 Pizza with the Posters! (Stauffer Library, Atrium and Room 121)
- 1:30-2:30 Panel Session A: *Queen's Journals* (Room 014)
- 2:45-4:00 Presentation Session B: *Geography* (Room 014)

Friday, March 10, 2023

- 9:00-9:10 Welcome Back & Land Acknowledgement (Room 014)
- 9:10-10:25 Presentation Session C: *History & the Arts* (Room 014)
- 10:40-11:55 Presentation Session D: *Culture & Society* (Room 014)
- 12:00-1:00 Lunch (Room 121)
- 1:00-2:00 Panel Session B: Principal's Undergraduate Research Leaders (PURLs) (Room 014)
- 2:15-3:30 Presentation Session E: *Science @ Work* (Room 014)
- 3:30-3:45 Wrap-Up / Thank You (Room 014)

Please note that by attending this conference in-person, you agree to be photographed or recorded on video.

Presentation Session A: Misinformation

Room 014, Stauffer Library

Thursday, March 9, 9:15-10:15

Moderator: Katrina Carbone, PhD Student, Faculty of Education

DEFIANCE, RESILIENCE, AND (MIS)REPRESENTATION: The social implications of consuming and perpetuating mis/disinformation about the engagement of older adults in music theatre

Presenters: Maysaa Alikhan, Thomas Cherney, Felicia Holmes, Ben Ma, Victoria Marmulak, Emma Patterson, Hanne Poulsen

Faculty Supporters: Dr. Julia Brook and Dr. Colleen Renihan, DAN School of Drama and Music

There is an abundance of research that reveals our society's stereotyping of older adults and the negative cultural images of the process of ageing (DeMuth, 2004; Fealy et al., 2012). These stereotypes—*disinformations*—that are attached to older individuals suggest that as we age, we enter a stage of stagnation, decline, and decreased resilience. However, there is substantial evidence that as people age, they still maintain considerable adaptability, mental resilience, and overall well being (Friedan, 1993, as cited in DeMuth, 2004). *Rise, Shine, Sing!* is a weekly online research-creation program that investigates how music, dance, and theatre can affect and contribute to the resilience and wellbeing of older adults. Through our work as research assistants on this project, we have observed the leaps and limitations of music theatre participants within our research community. Drawing from our experiences with the program, and reflecting upon our positionality in our research contexts, we will explore the ways in which misinformation and disinformation affect older individuals and the limitations placed on them by both society and themselves. Specifically, we will confront the stereotypes associated with older adulthood, the ageism present in the theatre industry, and resilience through the ageing process. At the same time, we will examine the ways that intergenerational communities, the importance of pursuing new passions, and creating opportunities to be expressive can enhance the lives and PERMA wellbeing of older adults. Our collective research and work with *Rise, Shine, Sing!* suggests that older adulthood can be a time of vibrancy, creativity, and increased agency.

How Does Social Media Affect US Political Polarization?

Presenter: Jimmy Powell

Faculty Supporter: Dr. Elizabeth Goodyear-Grant, Department of Political Studies

Political polarization has been rising in the United States of America for decades, drastically affecting the political climate. This paper explores the ties between social media and this increase in political polarization. It clarifies that the start of political polarization was before the start of social media. However, it also explores how these social media sites increase polarization through their own algorithms and agendas through an exploration of Twitter and Facebook. This includes but is not limited to the prevalence of fake news on sites such as Twitter and Facebook. Lastly, it explores potential solutions to this issue and what can be done to resolve these polarizing conditions.

Rethinking Tourism: Misrepresentations, Orientalism, and Colonial Nostalgia in the Contemporary Mass Tourism Industry

Presenter: Kai Siallagan

Faculty Supporter: Dr. Amet Weldemichael, Department of History

My prospective presentation takes a critical approach to the dynamics and effects of "mass tourism" in the Global South, particularly in Lake Toba, Indonesia. This analysis rests on the corpus of my past and ongoing research surrounding economics, colonial policy, and ethnopolitics in the region (see bibliography). I explore the complex terrain of the contemporary tourism industry of Indonesia as a case study into the often-invisible

negative impacts of mass tourism on Indigenous communities in a globalised setting. Consequently, for the purposes of the presentation, I plan to expand the discussion beyond my particular research context to illustrate how mass tourism produces negative outcomes among communities across the world in areas such as Latin America, Africa, and South Asia. My work thus endeavours to question how erroneous colonial discourses remain present and powerful in the ways in which contemporary tourism has evolved and is conducted.

My presentation meshes well with the theme of this year's conference; the archives are a powerful engine of misinformation in historical analyses. The goal is to illustrate how colonial misinformation campaigns—represented and empowered through the archives—continue to produce harmful bodies of knowledge (discourses) with real impacts on the politics, economies, and societies of today. I thus hope to bring a critical discussion to the conference that interrogates assumptions surrounding the supposed neutrality of tourism as commonly expressed in Western society.

Keynote Presentation

Room 014, Stauffer Library

Thursday, March 9, 10:30-12:00

Moderator: Dr. Nasser Salah, Librarian for Educational Initiatives, Queen's University Library

Dr. Amarnath Amarasingam, Assistant Professor

School of Religion and Department of Political Studies, Queen's University

We are thrilled to have Dr. Amar Amarasingam join us for the 2023 I@Q Conference Keynote Presentation titled, "*Dangerous Conspiracies: When Do Bad Ideas Become Violent?*"

Dr. Amarasingam's research interests include terrorism, radicalization and extremism, conspiracy theories, online communities, diaspora politics, post-war reconstruction, and the sociology of religion. He is the author of *Pain, Pride, and Politics: Sri Lankan Tamil Activism in Canada* (2015), and the co-editor of *Stress Tested: The COVID-19 Pandemic and Canadian National Security* (2021) and *Sri Lanka: The Struggle for Peace in the Aftermath of War* (2016). He has also published around 50 peer-reviewed articles and book chapters, has presented papers at over 100 national and international conferences, and has written for The New York Times, The Monkey Case, The Washington Post, CNN, Politico, The Atlantic, and Foreign Affairs. He has been interviewed on CNN, PBS Newshour, CBC, BBC, and a variety of other media outlets. He tweets at @AmarAmarasingam.

Our keynote will be streamed live on the Queen's University Library's YouTube channel at:

<https://www.youtube.com/@queensuniversitylibrary4093>. If you're watching via YouTube, you're welcome to submit questions to Dr. Amarasingam via the I@Q email address: iatq@queensu.ca.

Pizza with the Posters!

Atrium, Stauffer Library

Thursday, March 9, 12:00-1:30

Posters will be on view March 9 & 10

The Environmental Impact of Road Salt on Inland Lakes in the Township of Leeds and the Thousand Islands

Presenter: Miller Armstrong

Faculty Supporter: Dr. Neal Scott, Department of Geography and Planning

In Canada we use an annual amount of almost 7 million tons of sodium chloride to keep our roads ice free in the winter. Road salt is the mineral form of sodium chloride (NaCl), and it de-ices the roads by decreasing the freezing point of water. Most of this road salt ends up in the surrounding ecosystems and waterways. This contamination impacts ecosystem balance, the species in the area, and the drinkability of our water. This research aims to determine if the excessive use of road salt in the winter influences the chloride levels of inland lakes in the township of Leeds and the Thousand Island and what effects this may have had. The lakes looked at in the township are Temperance Lake, Gananoque Lake, Gananoque River, South Lake, Killenbeck Lake and Lyndhurst Lake. These lakes are all located next to a major roadway however, they vary in level of urbanization the area has experienced. Annual samples were taken from 6 lakes in the spring and summer. The same sample points were visited every year at similar times of year. Using statistical analysis and GIS software we are able to see if there is a reoccurring pattern in increasing and decreasing chloride levels in proximity to where the road salt is applied.

Beyond Four Walls: Understanding the Lived Experiences of Homelessness in Kingston Through a Review of Literature

Presenters: Mayank Bansal, Caitlyn Dignard

Supporters: Trellis HIV & Community Care

Homelessness is a significant issue in Kingston, Ontario, with a 2018 report estimating that 1,725 people experienced homelessness in the city over the course of the year. This literature review aims to synthesize existing research on the prevalence, causes, and interventions of homelessness in Kingston, in order to identify gaps in knowledge and suggest future research and policy directions. A systematic search of electronic databases was conducted, with inclusion criteria focusing on articles that explore the prevalence, causes, and interventions of homelessness in Kingston. The lack of affordable housing was identified as a major factor contributing to homelessness in Kingston, along with inadequate income and employment opportunities, mental health and addiction issues, domestic violence, and a lack of supportive services. Several programs, such as the Kingston HomeBase Housing program and the Street Health Centre, have been found to be effective in addressing immediate needs, but long-term outcomes of these interventions require more research. Additionally, barriers to accessing and implementing interventions, such as a lack of affordable housing and funding for support services, and stigma and discrimination against those experiencing homelessness, require further attention. Overall, there is a need for continued research on specific sub-populations and the long-term outcomes of interventions, as well as continued investment in evidence-based interventions and programs aimed at addressing homelessness in Kingston.

Streaming And Inclusivity

Presenter: Alexa Bartels, Hannah Westrik, Sarah Luo, Emma Gardner, Isabelle Braat

Faculty Supporter: Dr. Holly Ogden, Faculty of Education

The purpose of our collaborative research is to explore the most significant ways in which streaming in high schools inhibit inclusivity. The negative impacts of streaming include: unequal career, educational, and life

opportunities for Applied and Academic stream students; (Ontario Educators, 2023); social hierarchies/divisions (Hallan & Ireson, 2006); differences in mental health supports; and inequitable intellectual expectations based on race, gender, and socioeconomic position (Barry et al., 2022). Findings suggest that educators can improve experiences of student inclusivity in high schools by emphasizing the focus on the learning setting and student needs rather than on streams. Teacher Education programs can emphasize cultural competence and differentiated instruction. Governments can continue to dismantle streams by developing new accessible and inclusive curricula and utilizing a variety of accessible assessment approaches to dismantle systemic discrimination of streaming that marginalizes Black, Indigenous, racialized, low-income, disabled, and special needs students.

Neurodivergence: ADHD

Presenter: Alayna Cusimano and Dionisia Tedesco

Faculty Supporter: Dr. Holly Ogden, Faculty of Education

The purpose of our collaborative research is to explore how teachers can help a student with ADHD become more accountable for their learning as they progress through their education career. A child with ADHD can be identified as having “a persistent pattern of inattention and/or hyperactivity–impulsivity that interferes with functioning or development” (CDC, 2022). Findings suggest that the earlier, in school, a teacher can identify the symptoms of ADHD in a student, the more successful a student is across their education career (DuPaul, 2014). With early identification teachers can work with their students with ADHD to identify strengths and weaknesses in terms of their learning and start to introduce appropriate intervention strategies. As the student progresses through their education career teachers can also work with the student to develop the necessary hard and soft skills to advocate for themselves and for their learning needs as they gain more independence in school. Knowing what accommodations they are entitled to, what works for them, and being able to communicate their needs is vital, especially at points of change and as they leave public schooling and enter post-secondary. Our recommendations will help educators as they learn to support their students with ADHD to help them be successful, not just within the classroom but across their schooling and beyond.

Revelations: Theatre That Celebrates the End of the World

Presenter: Charlotte Dorey

Faculty Supporter: Dr. Jenn Stephenson, DAN School of Drama and Music

This poster will focus on the participatory play *Revelations* by Toronto-based theatre creators Anahita Dehbonehie, Griffin McInnes and Aidan Morishita-Miki presented as part of Kingston’s Kick & Push Festival in the summer of 2020. The show used game mechanics to have us prepare for the apocalypse- but not the one we were living in the height of the COVID-19 pandemic, but the potential future nuclear apocalypse. The first half of the show involves the audience communicating with the other groups who are all isolated in their own households via walkie-talkie. The audience then came together in a park downtown to determine who would win the game and “survive” the apocalypse by escaping via boat, car, or on foot (ultimately decided by the roll of dice).

At its core, this show asked what we value more, the individual or the collective. This is a piece of participatory theatre and participation is, by definition, not something you can do alone. And yet when we look at the inspiration for this show we see so much individualism. Doomsday preppers create bunkers for themselves and their loved ones, preparing for the day when a natural disaster, economic collapse, or nuclear war means that it’s everyone for themselves. In its sim, *Revelations* asks us to confront our own approach to the end of the world; it offers us valuable lessons in collective care that can be applied easily to our real world.

Coastal Erosion and The Minas Bay: An Analysis

Presenter: Hannah Flemington

Faculty Supporter: Dr. Neal Scott, Department of Geography and Planning

Located on the Cumberland Basin, the Joggins Fossil Cliffs are lined with fifteen kilometers of exposed rock layers that hold relics of 300 million years (ENSECO, 2023). Founders of modern geology, Charles Lyell and William Dawson, discovered tetrapods, amphibians, and reptiles, preserved in the upright fossilized trees (ENSECO, 2023). Characterized by extreme tides, turbulent currents, silt-laden waters, and a soft substrate, 100 billion tons of seawater rise and fall as much as 48 feet every day. Erosion instigated by tidal processes is destructive, causing environmental degradation and posing threats to crops, pastures, and forests. However, climactic storm surges can accelerate these processes (Kelly & Wach, 2020). Under these conditions, the first definition of rare organisms preserved in their original environmental context, are under threat. This research investigates the impact of Hurricane Fiona on the Cumberland Basin and the rates of erosion before and after the storm. Using ArcGIS Pro, satellite imagery has been transposed and georeferenced onto the terrain. Photogrammetry techniques have been used to transpose aerial photography onto three digital elevation models (DEM) to visualize elevation and will be used to produce "rate-of-change" statistics. A python code has established Hurricane Fiona's flooding extents at 5 and 10 meters during peak storm, September 22nd, 2022. The hypothesis of this research is Hurricane Fiona has accelerated erosion rates due to expedited environmental variables associated with storm surges. This is significant to determine how long we might have before this incredible archive of biological material is no longer available.

ENSECO. (2023) About the Cliffs. The Cliffs - Joggins Fossil Cliffs, Nova Scotia, Canada (UNESCO World Heritage Site). <https://jogginsfossilcliffs.net/cliffs/>
Kelly, T. & Wach, G (2020). Analysis of Factors Influencing the Interpretation of a Digitally Examined Fluvial Meanderbelt System: Joggins Formation, Nova Scotia. Canadian Journal of Earth Sciences. 57. 524-541. 10.1139/cjes-2018-0263.

An Assessment of Phosphorus Fractions in the Canadian High Arctic Post-Permafrost Disturbances

Presenter: Eric Guan

Faculty Supporter: Dr. Neal Scott, Department of Geography and Planning

Climate change is impacting all natural processes, and the phosphorus cycle is no exception. With the High Arctic warming at a significantly increased rate compared to the rest of the world, thawing permafrost could potentially release great amounts of carbon, which through cellular respiration in microbes and plants, would eventually enter the atmosphere creating a runaway positive feedback cycle. The purpose of this research is to determine the amounts of the different forms of phosphorus present in High Arctic soil after a permafrost disturbance. This project will be done as a chronosequence as opposed to a longitudinal study, as it is not practical to measure time over a period of 60-70 years.

Soil samples were collected from the Cape Bounty Arctic Watershed Observatory on Melville Island in Canada. 3 sites were sampled, each with a different amount of time elapsed since a permafrost disturbance occurred. These 3 sites vary from the disturbance occurring 1-2 years ago, to 14 years ago, to 60-70 years ago. 3 replicates were taken from each site. Furthermore, each site had its own respective control, from which 3 replicates were also taken. Chemical analysis of the amount of phosphorus present in the soil samples will be done using the Hedley method of phosphorus fractionation. The Hedley method is a method of phosphorus fractionation that is done by sequentially adding stronger reagents to remove various forms of occluded, non-occluded, labile, and resistant forms of phosphorus.

The results of this project are still unknown, as much lab work has yet to be completed. However, I expect phosphorus fractions results to vary between the different sites. This is significant as human disturbances and interference may cause accelerated permafrost thaw in the High Arctic, furthering altering ecosystems.

We All Think Differently! How Can Teachers Effectively Accommodate the Needs of Neurodiverse Students?

Presenter: Lily Hines, Liz Arminen, Bridget Mienkowski

Faculty Supporter: Dr. Holly Ogden, Faculty of Education

The purpose of our collaborative research is to examine how teachers can effectively accommodate the needs of neurodiverse students in mainstream classrooms. Neurodiversity refers to the idea that we all have unique ways of thinking and interpreting the world around us. It is an inclusive term meant to emphasize that differences are not deficits. This term is often used in the context of neurological, behavioral and developmental conditions. Recent studies suggest that the number of people diagnosed with ADHD have increased 4.1% and autism diagnoses have increased ninefold (Abdelnour et al., 2022). This increase clearly highlights the need for increased teacher education in this field. Our findings have identified numerous strategies to help teachers support the needs of neurodiverse students. Some of these strategies include presenting information in smaller chunks, diversifying teaching methods, and implementing different levels of support in the classroom in order to create a safe and inclusive environment for everyone. Other supports for neurodiverse students include individualized education programs. These documents enable teachers and students to collaborate in developing effective learning plans. Through establishing a student's individual strengths, weaknesses, needs and goals, teachers can effectively support their learning in the classroom. Further research on this topic could explore changes to curricula and teacher education that would better support the needs of all students. Our recommendations aim to help educators provide superior and equitable support to all students throughout their academic careers.

WELL Building Standard: A review and bibliometric analysis of a nascent field

Presenter: Tejas Kokatnur

Faculty Supporter: Dr. Elie Azar, Faculty of Engineering & Design, Carleton University

The building and construction industry has been focusing on making more energy-efficient buildings given the high energy and carbon intensity of the sector. Recently, the focus has been increasingly shared with building for occupant health and well-being. The WELL Building Standard (or WELL v2), first launched in 2014 by the International WELL Building Institute (IWBI), is a building certification that aims to directly support and promote occupant health and well-being in buildings. Currently, there are more than 4 billion square feet of WELL projects in 124 countries. In parallel, academic studies are increasingly documenting and evaluating WELL implementations in buildings. However, the current literature is disaggregated and lacks focused review efforts to converge and corroborate conclusions from the growing number of WELL case studies and evaluations. This paper presents a review and bibliometric analysis to enhance the state of understanding of WELL, identify its strengths and weaknesses, and guide future research on the topic. A three-step methodology is proposed, including (i) an article search, screening, and selection using the Scopus database; (ii) a detailed review of the studies applying the WELL Building Standard in actual buildings; and (iii) a bibliometric analysis of the studies (e.g., sources, authors, citations) to map and understand how the field has evolved and where it is heading. The bibliometric analysis work will be implemented using the Biblioshiny (R package) and CiteSpace (Java application) tools. The paper will conclude with concrete recommendations for different stakeholders, such as building designers, owners, researchers, and policymakers.

Can archives lie? Forgery and fame in contemporary history.

Presenter: Eva Macdonald

Faculty Supporter: Jenn Lucas, Department of History

A nefarious plot of forgery and fame that shocked the world in 1996.[1] A hidden tunnel of dubious origin that baffled Kingston's historical experts in 2009.[2] But how could the world of British counterfeiting possibly collide with Kingston's local mysteries?

For Queen's annual I@Q Conference, I would love to present a research poster answering just that. The key to both cases lies in the importance of archival evidence to uncover misinformation both large and small. In the modern day, historians are constantly surrounded with conflicting arguments and many have relied on archival evidence to settle debates and quell misinformation. But are archives always reliable? Can archives lie?

To best address these questions, my poster would engage with both the theoretical aspect of archival diplomacy and the practical side. It would expand upon the key examples mentioned previously and analyse the historical use and abuse of archives in the name of stopping misinformation. Therefore, such a poster would be significant because it would explore the ambivalent position of the archival record and expose the dangers of archival manipulation at an international level.

A tale of ingenuity, the case of the Staffordshire art forgeries revolved around the infiltration of leading archives and planting of false documents to bolster the legitimacy of counterfeit paintings.[3] The uncovering of such a plot shocked artists and archivists alike and suddenly cast doubt on the reliability of the archival record. On a much smaller scale, a similar archival debate was battled out in Kingston with intriguing results.

[1] Rodney G.S Carter, "Tainted Archives: Art, Archives, and Authenticity," *Archivaria* 63, no.1 (2007), 75-86.

[2] Rodney Carter, email message to author, February 14, 2023.

[3] Carter, "Tainted Archives," 79-80.

Reimagining Death Education at Queen's University: Creating Accessible Resources on Grief, Trauma, Death and Dying for the Campus Community

Presenter: Rachel Maloney

Faculty Supporter: Dr. Dan Vena, Film and Media

University can be a tumultuous time for many students, bringing new opportunities, responsibilities, and independence into the forefront of our lives. This time of significant life change and can be stressful enough as is, but when you add grief and loss into the equation, things can become quickly overwhelming. Death is not given space in public discourse, resulting in a greater society that is in denial of the realities of loss, how it affects us and the inevitability that we will experience it in our lives. With the supervision of Dr. Dan Vena, I have created an online resource, [Conversations with Death](#), designed to fill the gap on our campus, and provide critical, comprehensive and diverse information under the umbrella of grief, death and dying to stimulate open conversation and curiosity amongst our student body. Through consultations with various industry professionals such as funeral directors, charity organizers, death doulas, professors, and chaplains, I created various sections of this resource including international funeral practices, death positivity, body disposition, helpful grief practices and more. Furthermore, throughout this website there are a plethora of resources for students to investigate, whether this is for grief support or curiosity to learn more. By showcasing this resource, I wish to communicate how critical death education and death positivity are to creating a community on the Queen's University campus where students are encouraged to be open about their experiences with death and grief while being supported by their peers and the university.

Estimation of Lake Ice Thickness with Satellite Radar Altimeter Waveforms

Presenter: Nora Mangan

Faculty Supporter: Dr. Neal Scott, Department of Geography and Planning

Background and Relevance: The phenology of seasonally ice covered lakes has been altered with anthropogenic climate change; recent studies point out an overall reduction in the number of days in which the lake is covered with ice [1]. Lake ice is essential for many northern communities in fishing and travel. Reductions in the thickness in ice is a major safety risk, especially when those who travel on ice have historically been able to trust it. Remote sensing efforts have majorly focused on sea ice and glacial changes, and little is known about changes in lake ice thickness besides the seasonal length of ice coverage. Previous researchers

have determined that the Ku-band (13 to 17 GHz) is capable of penetrating through freshwater ice and is scattered from both the snow/ice and the ice/water interfaces [1]. A radar altimeter operating at the Ku-band holds the potential to measure the height of the sensor above the snow/ice interface and above the ice/water interface. The difference between these two measurements yields the ice thickness. This method has been confirmed with data from the Cryosat-2 satellite [1], but only tested with arctic lakes. There is a gap in knowledge of how mid-latitude lakes have responded to changing climates in terms of their seasonal ice thickness.

Objectives and Methods: Ku-band radar altimeter measurements from the JASON series of satellites can be used to determine lake ice thickness by calculating the distance between dual-peak waveforms, representative of snow/ice and ice/water interfaces. A study area will be chosen after a review of the available data coverage and an overall analysis of scattering. Snowpack, bubbles, and wetness of the ice adds noise to the waveform and complicates the ice thickness retrieval. A lake that minimizes these factors will be selected for the study area. Data will be extracted from an orbit passing over the lake for each month of a year and in intervals of 5 years. The JASON series has the following advantages to the Cryosat-2 satellite: Improved temporal resolution – CryoSat-2 covers polar regions, while the JASON Series covers the area between N: 66.15° N and S: -66.15°; and greater coverage – Jason-1/2/3 have the shortest revisit cycle (~10 days) among all existing satellite altimeters and have been operating since 1992 [2]. The radar altimeter measurements will be displayed as the travel distance as a function of mean normalized power. The difference between peaks on the waveform will be calculated and logged as the ice thickness during that time. The results will be validated by comparing the estimated lake ice thickness values with ice fishing logs from similar dates. There is potential for the ice thickness data to be interpolated across the entirety of the lake using ArcGIS Pro, but this is contingent on the specifics of the study area.

Anticipated Contributions: This study will: (1) estimate ice thickness in areas where in situ drill-hole measurements cannot be taken, (2) introduce another factor in climate change discussions and models, (3) further our ability to monitor biophysical factors with remote sensing at global scales.

[1] J. F. Beckers, J. Alec Casey and C. Haas, "Retrievals of Lake Ice Thickness From Great Slave Lake and Great Bear Lake Using CryoSat-2," in IEEE Transactions on Geoscience and Remote Sensing, vol. 55, no. 7, pp. 3708-3720, July 2017, doi: 10.1109/TGRS.2017.2677583.

[2] C. J. Donlon et al., "The Copernicus Sentinel-6 mission: Enhanced continuity of satellite sea level measurements from space," Remote sensing of environment, vol. 258, p. 112395–, 2021, doi: 10.1016/j.rse.2021.112395.

Influence of lithospheric scale basement faults on seismicity in the Himalayan orogenic system: A numerical modelling approach

Presenter: Michelle Pearce

Faculty Supporters: Dr. Laurent Godin and Dr. Hom Nath Gharti, Department of Geological Sciences and Geological Engineering

The Himalayan system is the result of a continental collision that occurred approximately 55 million years ago between the Indian and Asian tectonic plates^{1,2}. The collision resulted in the underthrust of the Indian crust beneath Asia, and a deformed crustal wedge^{3,4}. The Indian plate records a complex pre-Himalayan geological history that includes several basement faults that reach depths of 70 kilometres and are oriented at a high angle to the Himalayan front⁵. These basement faults bound topographic basement highs that are interpreted to limit the rupture of Himalayan earthquakes⁶. Recent research suggests the basement faults control the distribution and magnitude of seismicity along the Himalaya⁷.

The Himalayan system serves as a prototype for novel three-dimensional numerical modelling to understand if and how inherited basement structures influence seismicity in orogenic settings. Models are generated using the Coreform Cubit meshing software and are run on the supercomputer platform hosted at the University of

Toronto. The initial model contains three crustal blocks: the Indian crust, a deformed orogenic wedge, and the Asian crust, all cut at a high angle by a lithospheric scale basement fault. The 2015 7.9 MW Gorkha earthquake is simulated, and slip is generated along the Himalayan basal detachment. Seismograms, shear wave potential, and compressional wave potential movies are created to understand if and how the inherited basement faults influence seismicity within orogenic systems. Understanding how these regionally significant basement faults influence seismicity in the densely populated regions of northern India and Nepal is of utmost societal importance.

1. Najman, Y., *et al.*, (2010). Timing of India-Asia collision: Geological, biostratigraphic, and palaeomagnetic constraints. *Journal of Geophysical Research: Solid Earth*, 115.
2. Hodges, K. V. (2000). Tectonics of the Himalaya and southern Tibet from two perspectives. *Geological Society of America Bulletin*, 112(3), 324-350.
3. Godin, L., *et al.*, (2019). Influence of inherited Indian basement faults on the evolution of the Himalayan Orogen, in *Crustal Architecture and Evolution of the Himalayan-Karakoram-Tibet Orogen*, R. Sharma, I. M. Villa, and S. Kumar, Editors, *Geological Society of London Special Publication*, 481, 251-276.
4. Chung, S.-L. *et al.* (2005). Tibetan tectonic evolution inferred from spatial and temporal variations in post-collisional magmatism. *Earth-Science Reviews* 68, 173–196.
5. Godin, L., & Harris, L. B. (2014). Tracking basement cross-strike discontinuities in the Indian crust beneath the Himalayan orogen using gravity data – relationship to upper crustal faults. *Geophysical Journal International*, 198, 198-215.
6. Gahalaut, V. K., & Kundu, B. (2012). Possible influence of subducting ridges on the Himalayan arc and on the ruptures of great and major Himalayan earthquakes. *Gondwana Research*, 21(4), 1080-1088.
7. Gahalaut, V, K., & Arora, B. R. (2012). Segmentation of seismicity along the Himalayan Arc due to structural heterogeneities in the under-thrusting Indian plate and overriding Himalayan wedge. *Episodes Journal of International Geoscience*, 35(4), 493-500.

Parameterization of Turbulent Diffusivity using Gradient Descent

Presenter: Thomas Pendergast

Faculty Supporter: Dr. Jason Olsthoorn, Civil Engineering

Fluid mixing and turbulent processes such as double diffusion are chaotic by nature and can be very difficult to parameterize. Experts have called for further investigation into parameterizing double diffusion and other vertical mixing processes for the implication that it may have on large-scale ocean and climate models. Interference from lateral flows and lateral mixing can often make field-data-driven parameterizations difficult and isolated experiments may have much more accurate results. By conducting isolated experiments which target a specific process, we can better quantify the effect that the individual process has. Using a variational method, the turbulent diffusivity associated with double diffusion can be parameterized by minimizing a cost function comparing a basic diffusion model to laboratory data.

Special Educator Toolbox: What are the qualifications necessary for a teacher's toolbox to effectively support the needs of students with disabilities?

Presenter: Jocelyn Peng, Emma O'Brien, Emma Mcshane, Sabrina Tanenbaum, Kaitlyn Trowbridge

Faculty Supporter: Dr. Holly Ogden, Faculty of Education

The purpose of our collaborative research is to explore the qualifications necessary in a teacher's toolbox to effectively support the needs of students with disabilities. Students with physical, intellectual, behavioural and/or developmental disabilities that impede their ability to continuously and effectively be integrated into a traditional classroom setting will require supports from specialised teachers and outside resources (Ontario Human Rights Commission, 2018). Findings suggest that in addition to specific training and qualifications, special education teachers should collaborate with parents and guardians on a classroom level, employ technological resources to enhance the learning experience of those students with disabilities, and differentiate what additional knowledge is required beyond general certifications. Further research on this topic could explore specific ways educators can consider cultural or racial conceptions of disabilities while still fostering

family involvement, technology and apps tailored specifically towards students with disabilities, and implementing these suggestions in the real-world then reporting on the results.

Approaches to International Education: Beyond curriculum, what are the most important factors to consider when assessing an education system?

Presenters: Maggie Rohrauer, Natalia Ayala Giraldo, Grace Baillargeon

Co-authors: Aumama Al-Naib, Erin McFadden, David Patterson

Faculty Supporter: Dr. Holly Ogden, Faculty of Education

The purpose of our collaborative research is to explore and assess international approaches to education beyond a country's curriculum to deduce the primary factors that affect a child's quality of and outlook towards education. Findings suggest that the elements of teaching training, assessment practices, technology use, and timetabling within schools offer a comprehensive view on the circumstances that impact a child's education. Essentially, the content and learning goals outlined in the curriculum are not as important as the way in which they are implemented and presented in the classroom. Our findings do not suggest that one education system was necessarily better than another, but rather that each independent education system is characteristic of and influenced by the culture, philosophies, development, and traditional way of life within that country. Teachers can broaden their knowledge of how education systems around the world depend on the ideologies and internal control of the government behind each of these elements. Additionally, since Canada is multicultural, teachers can deduce how implementing another country's approach in one or more of the four factors could improve Canada's education system. Further research on this topic could extend to exploring more countries' education systems and establishing a course of action towards systemic change. Our recommendations will support new educators by broadening their perspective on what education in Canada could look like in the future by considering approaches by other education systems around the world.

Showcasing a Student-Led Anti-Racism Virtual Simulation Module for Equitable Learning

Presenters: Han Shu Pu, Mujeedat Lekuti, Zainab Baig, Alexandra Lawrynuik, Rishika Gowda, Javeria Baig

Co-Authors: Laura A. Killam, Wiley Chung, Monakshi Sawhney

Faculty Supporter: Dr. Marian Luctkar-Flude, School of Nursing

Background: Misinformation and disinformation perpetuate negative stereotypes, reinforce prejudice and lead to racially motivated discrimination. As displayed in post-secondary institutions worldwide, white-centric perspectives are primarily embedded in school cultures and systems. Such racial aggressions produce 'racial battle fatigue,' creating physiological, psychological, and behavioural stress for the recipient. Virtual simulation is proposed as an educational strategy for learners to identify racism in an academic setting and develop allyship for equity-seeking groups. This poster aims to advocate the use of virtual simulation to improve the overall educational experience by highlighting the voices of diverse students and educators.

Methods: Our team developed a pre-learning simulation consisting of five short scenes depicting racially discriminatory acts. It highlights the urgency to discontinue the term 'microaggression'. A longer simulation was developed in which a racially discriminatory act is depicted, with a bystander present. This longer simulation allows participants to adopt the role of a bystander and use the ARISE model to ally with the BIPOC community in addressing racism (overt and covert racism). The ARISE model encompasses five key elements: awareness, responding with empathy, inquiring about facts, using "I" statements, and educating and engaging.

Intended Outcomes: We seek to provide information regarding racial inequities in higher education curriculum by: (1) illustrating how racism affects people in their learning environment, (2) demonstrating how bystanders

might apply the ARISE model to help a person experiencing racism in an educational setting, and (3) learning how to be an ally.

How have wildfires affected forest basal area in Northern and Southern California during the 21st century?

Presenter: Catherine Savard

Faculty Supporter: Dr. Neal Scott, Department of Geography

Wildfires are unplanned and dynamic fires that occur in areas of combustible vegetation. They can be natural or human-induced and play a vital role in ecosystem health. The severity and intensity of wildfires can change over time based on the weather, available fuel and topography. California is continuously experiencing longer wildfire seasons as a direct result of climate change, affecting the forest structure of the state's forest. Forest basal area is used to determine forest stand density and is an indicator of annual growth potential (Nix, 2020). It is often used as the basis for making important forest management decisions. My research will determine how wildfire frequency and extent have affected the basal area of Northern and Southern California's forests in 2000 and 2017. Fire perimeter and frequency data obtained from the United States Forest Service regional datasets website will be used to define fire characteristics in the regions. Tree basal area data obtained from the United States Forest Service regional-level datasets website will be used to quantify the basal area of critical forest types. Percent change in basal area, fire frequency and acres burned each year will be determined to compare the burn regimes of the two regions during the two years to see how that has impacted the forest's basal area. The findings will give an idea of how the rate of wildfires has changed in the last two decades and its subsequent impacts, which can help us better prepare for the future of forests in an ongoing climate crisis.

Left out of the in: Investigating Accessibility's Influence on Theatre Audience In-groups

Presenter: Bethany Schaufler-Biback

Faculty Supporter: Dr. Kelsey Jacobson, DAN School of Drama and Music

It is well acknowledged that the affective nature of attending theatre offers audience members a sense of community amongst one another (Fischer-Lichte, 2008; Hurley, 2010; Heim, 2020). Gathering together to share time, space, and experience provides theatre audience members an opportunity to be a part of a unique collective for the brief duration of the performance. Given the broadly shared objective and role for attending performance, a psychological in-group is created amongst audience members. These psychological in-groups are established to be an enforcer of perceived safety amongst its members, contributing to understood behavioural expectations, foregrounded trust, and comfort (Morton & Power, 2022). Knowing this, this poster considers nuances to the audience in-group by investigating the ways in which access needs impact how these groups are created. I will examine the limitations to the audience in-group as a result of access needs not being met during the performance. From content warnings to participation expectations to physical access, this poster will explore the creation of psychological in-groups created amongst audiences during theatre performance through a lens of accessibility, perceived safety, and comfort. In doing so, we can consider the ways in which care is established and provided to audience members, what sort of care is being offered, and whose care needs are being prioritized.

Fischer-Lichte. "Shared Bodies, Shared Spaces: The Bodily Co-Presence of Actors and Spectators." *The Transformative Power of Performance*. Routledge, 2008, pp. 38-74.

Heim, Caroline. *Actors and Audiences: Conversations in the Electric Air*. Routledge, 2020.

Hurley, Erin. *Theatre & Feeling*. Macmillan International Higher Education, 2010.

Morton, Thomas, and Power, Seamus. "Coming together after standing apart: What predicts felt safety in the post-coronavirus crowd?" *Soc Sci Med*, vol. 293, 2022, pp. 1-9.

The IMPACT Cross-Sectional Study: The socioeconomic experiences of US and non-US immigrants in Canada in the midst of the COVID-19 pandemic

Presenter: Anwar Subhani

Faculty Supporter: Dr. Setareh Ghahari, Faculty of Health Sciences

Background: The COVID-19 pandemic has exacerbated socioeconomic deficiencies within Canada's immigrant populations, yet the difference between immigrants from countries with similar language and resources (such as the US) and those from a different background (non-US countries) is not well understood. Accordingly, the IMPACT study at the centre of this article included a Canadian national survey that compared key domains of life in US immigrants with non-US immigrants to provide policymakers with a research-based path toward delivering culturally targeted and socially competent services.

Methods: Potential participants were recruited from newcomer support services centers to complete the IMPACT survey which assess participants' self-perceived impacts of COVID-19 on various socioeconomic markers. For each socioeconomic variable, we analyzed the experiential differences between US vs non-US immigrant subgroups.

Results: On average, non-US immigrants in Canada were less likely to disclose their COVID-19 health status; this trend was correlated with reported concerns over discontinuation of one's income. Qualitative themes within the non-US immigrant subgroup elucidated a mentality of "making it on [one's]own", and consequently, a reluctance to seek out external resources. Surprisingly, the US immigrant subgroup was subject to a comparatively greater post-pandemic decrease in socioeconomic well-being, resulting in proportionally greater food and financial insecurities than non-US immigrants.

Conclusion: The study highlighted two key findings: (1) US immigrants faced a proportionally increased instability of their socioeconomic well-being; whilst (2) non-US immigrants faced greater social and intrapersonal barriers to external supports and experienced a greater incidence of COVID-19 infections, likely resulting from this cohorts reluctance to miss employment income.

School Safety: What Effective Strategies are Elementary Schools Currently Using to Ensure Student Safety?

Presenter: Rys Zhu and Emily Reed

Faculty supporter: Dr. Holly Ogden, Faculty of Education

The purpose of our collaborative research is to explore effective strategies to ensure student safety in elementary schools. Student safety includes both physical safety, prevention of physical violence, abuse, or bullying (DPHCS, n.d.); and psychological safety, establishing well-being, belonging in classrooms and support for emotional and mental health. Findings suggest misunderstandings, microaggressions, racism, and physical violence directly undermine feelings of belonging (Cohen, 2021), with a wide range of school violence leaving students vulnerable to a negative learning environment and an adverse impact on growth (NASP, 2023). Elementary teachers should collaborate with principals, school boards, and parents in fostering positive behavioural learning and the continuous support of Bill 13 of the Accepting Schools Act (DPCDSB, 2012). Further research on this topic could enact new safety regulations within schools, with an emphasis on psychological safety and better implementation of physical safety protocols. Our recommendations will support elementary educators as they recognize the ineffectiveness of punitive negative reinforcement, and the importance of necessary precautions and getting involved in protecting the school community.

Panel Session A: Queen's Journals

Room 014, Stauffer Library

Thursday, March 9, 1:30-2:30

Moderator: Nisha Simon, Graduate Student and Library Intern, Stauffer Library

Represented Journals:

1. QAPSULE: Established in the fall of 2021, Qapsule is a student-led initiative to highlight high-quality health sciences-related work from students at Queen's University.
2. QUEEN'S LAW JOURNAL: Established in 1968, is one of Canada's leading general law reviews, and is produced by a student editorial board under the direction of faculty advisors. The Journal publishes student scholarly contributions and submissions from legal professionals and academics.
3. POLITICUS: Established in 2014 at Queen's University and publishes student submissions in the discipline of political science.

Following an introduction reflecting on undergraduate student publishing from Mark Swartz, Scholarly Publishing Librarian at Queen's University, the panelists will begin the session by introducing the scope of their respective journals and what motivates each journal representative to contribute to publishing initiatives at Queen's University.

Several questions will be posed by the moderator to facilitate discussion and address the various aspects of the journal publishing process including the article review process, journal awareness and marketing strategies, and undergraduate student publishing opportunities. The audience are welcome to participate by asking questions to the panelists throughout the session.

Presentation Session B: Geography

Room 014, Stauffer Library

Thursday, March 9, 2:45-4:00

Moderator: Sylvie Garabedian, Principal's Undergraduate Research Leader, Smith School of Business

Soil Properties after Vineyard Abandonment

Presenter: Mackensie Dodd

Faculty Supporter: Dr. Neal Scott, Department of Geography and Planning

The abandonment of vineyards has been shown to change soil properties and structure. The analysis of vineyards in the Castilla y Leon region in northern Spain and the soil properties of specific points in the regions demonstrate a change after the vineyard land's abandonment. Historical data has shown that there have been observed changes in the soil and the hydrological properties after a vineyard has been abandoned (Vazquez-Blanco, 2022). Comparisons made between active vineyards and those that have been abandoned show some contrasts between each in the collected soil data and how the land use and land cover have changed (ESDAC, 2022). Additionally, the determination of why the production yield abandoned the vineyards and if the vineyards were abandoned due to economic reasons or if climatic changes caused the land to be deemed unsuitable for vineyard occupation. This report aims to show that soil properties and structure are altered in an area after vineyards are abandoned, and the land is no longer cultivated. The comparisons of active vineyards and vineyards that are now abandoned provide for the stark differences to be observed.

Vázquez-Blanco, R., Nóvoa-Muñoz, J. C., Arias-Estévez, M., Fernández-Calviño, D., & Pérez-Rodríguez, P. (2022). Changes in Cu accumulation and fractionation along soil depth in acid soils of vineyards and abandoned vineyards. *Agriculture, Ecosystems & Environment*, 339.

<https://doi.org/10.1016/j.agee.2022.108146>

European Soil Data Centre (ESDAC) (2022), esdac.jrc.ec.europa.eu, European Commission, Joint Research Centre

Changes in Glacial Area Extent in Auyuittuq National Park, Pangnirtung

Presenter: Ashley Duyveseyn

Faculty Supporter: Dr. Neal Scott, Department of Geography and Planning

With global temperatures rising four times faster in the Canadian Arctic compared to global averages, glaciers in the Canadian Arctic Archipelago (CAA) are starting to shrink at an alarming rate (Paul et al., 2020). To quantify rates of change, frequent updates of glacial outlines to provide an accurate database for monitoring are needed (Schaffer et al., 2017). Rundle, Nerutusq, and Fort Beard Glaciers are all located on the Penny Ice Cap within Auyuittuk National Park, Baffin Island, Canada. Using a combination of aerial photography and ArcGIS Pro, I examined the historical and recent changes in glacial area extents. High resolution historical aerial photographs from the National Air Photo Library dating to September 1959 were manually georeferenced onto ArcGIS Pro. Photogrammetry techniques were then used to combine the aerial photographs into one combined orthographic image. The historic glaciers were then outlined using a manual technique based on the pixel size (8 µm) of the images using ArcGIS Pro. This allows me to compare glacial outlines from 2010 using the Randolph glacier inventory and 2022 using manual outline techniques described, respectively. Because using a manual technique can create accuracy limitation, specifically during the georeferencing process, I compared results for both time periods using an automatic method. Results from my work will provide estimates of changes in glacier area over time, the relative precision of different methods, and weather rates of shrinkage have increased over time.

Paul, F., Rastner, P., Azzoni, R. S., Diolaiuti, G., Fugazza, D., Le Bris, R., Nemec, J., Rabatel, A., Ramusovic, M., Schwaizer, G., & Smiraglia, C. (2020). Glacier shrinkage in the Alps continues unabated as revealed by a New Glacier Inventory from sentinel-2. *Earth System Science Data*, 12(3), 1805–1821.

<https://doi.org/10.5194/essd-12-1805-2020>

Schaffer, N., Copland, L., & Zdanowicz, C. (2017). Ice velocity changes on Penny Ice Cap, Baffin Island, since the 1950s. *Journal of Glaciology*, 63(240), 716–730. <https://doi.org/10.1017/jog.2017.40>

The impact of urbanization on water quality and riparian land cover change in the Grand River watershed

Presenter: Wenji Hu

Faculty Supporter: Dr. Neal Scott, Department of Geography and Planning

The research topic of my paper is the impact of urbanization on water quality and riparian land cover change in the Grand River watershed. Urban expansion could have unpredictable impacts on natural environment and resources. This watershed is comprised of lots of major rivers and tributaries in Canada which are significant hydrological resources to humans and nature, so it plays important roles in providing nearby residences water use and land irrigation. The watershed contains two First Nation territories and a total of 39 municipalities, including larger cities like Waterloo, Kitchener, Guelph, and Cambridge (GRCA 2008), so rapid urbanization could be one of the factors to degrade water quality and the underwater ecosystem. Moreover, due to the water quality change of the water, the riparian area land cover can correspondingly change over the years. Therefore, this study will mainly focus on studying water quality trends from 2000 to 2020, and data is collected from 12 water monitoring stations near the large cities in the watershed. The water quality will be defined by parameters like pH, temperature, conductivity, turbidity, and other chemical elements. The land cover layer of 2000 and 2020 will be used to compare the riparian land cover change, illustrating the spatial relationship of urban expansion and riparian area with significant land cover change. Furthermore, more discussions will focus on if the riparian land cover change is closely related to water quality degradation caused by urbanization. The final deliverable would be presented by ArcGIS pro layouts and statistic charts.

Suitability analysis for wind farm constructions in Yukon area

Presenter: Junyang Ma

Faculty Supporter: Dr. Neal Scott, Department of Geography and Planning

The development of science and technology has made people's quality of life better and better, and the mature use of electricity has made people's lives more convenient and faster. However, this has also led to a drastic increase in people's use of non-renewable energy such as coal and oil. In 2021, about 4,108 billion kilowatt-hours (kWh) (or about 4.11 trillion kWh) of electricity were generated at utility-scale electricity generation facilities in the United States, about 546 million short tons (MMst) of coal were consumed. (EIA). In such situation, the exploitation and use of renewable energy becomes significantly urgent and necessary. From 2008 to 2018, global installed wind power capacity grew by an average of 17.2% per year (BP Statistical Review of World Energy 2020). On IRENA's (2019) transformation roadmap, to stay on the pathway of 1.5 °C warming, wind energy is projected to generate 35% of the total electricity demand by 2050. My study area for my research is in Yukon, it is in south part of Canada and contains 4.7 percent of total area. The aim of my project is to determine the suitability of Wind Farm Expansion and its Electric Applications Radiation for Yukon area. The method for the project is using reclassify analysis tool in order to find the suitability site for constructing the wind farms.

The Effects Atmospheric Changes have on Runoff

Presenter: Marco Tobio

Faculty Supporter: Dr. Neal Scott, Department of Geography and Planning

Over the last century, the earth has seen unprecedented atmospheric concentrations contaminate our ecosystems due to human activity. Predictions state the introduction of carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons (CFCs), will increase temperatures, and change the amount and location of precipitation causing more runoff. This could potentially result in disturbance events such as floods, to be more frequent and severe. This study aims to perform an assessment of the effects of a range of hypothetical climate changes on runoff in the North-east Pond River watershed, located in Newfoundland.

To carry this out a watershed runoff model simulates runoff in the basin for current climatic conditions and for hypothetical climatic conditions that represent a range of possible climate changes (Bobba et al., 1997). The hypothetical changes in climate will showcase the effects of a 2°C increase in temperature on the total annual precipitation. This will then be compared to flood forecasting models to analyze how runoff will be affected by various climatic conditions, inducing unusual flooding events (Wijayarathne & Coulibaly, 2020). Previous studies have indicated the runoff sensitivity in watersheds to changes in temperatures which raises concerns as to the adverse effects this may cause in limiting water resources in the semi-arid regions in parts of Canada and the U.S. Thus, there is a need to increase the understanding of the sensitivity of water resources in Canadian watersheds to climate variability and climate change as effects of this magnitude on the North-east Pond River could have significant environmental implications.

Bobba, A. G., Singh, V. P., Jeffries, D. S., & Bengtsson, L. (1997). Application of a watershed runoff model to north-east pond river, Newfoundland: To study water balance and hydrological characteristics owing to atmospheric change. *Hydrological Processes*, 11(12), 1573–1593.

[https://doi.org/10.1002/\(sici\)1099-1085\(19971015\)11:12<1573::aid-hyp491>3.0.co;2-v](https://doi.org/10.1002/(sici)1099-1085(19971015)11:12<1573::aid-hyp491>3.0.co;2-v)

Wijayarathne, D. B., & Coulibaly, P. (2020). Identification of hydrological models for operational flood forecasting in St. John's, Newfoundland, Canada. *Journal of Hydrology: Regional Studies*, 27, 100646. <https://doi.org/10.1016/j.ejrh.2019.100646>

End of Day 1

Presentation Session C: History & the Arts

Room 014, Stauffer Library

Friday, March 10, 9:10-10:25

Moderator: Melody Garas, Principal's Undergraduate Research Leader, Faculty of Arts & Science

Botticelli's "The Birth of Venus" and the Visual Politics of Desirability

Presenter: Alexis Bruno-McKinney

Faculty Supporter: Dr. Jane Tolmie, Gender Studies

This project examines three contemporary re-creations of Sandro Botticelli's *The Birth of Venus*, exploring how modern depictions of the same image and story return to and change Botticelli's vision. I juxtapose the fifteenth-century painting with three contemporary re-creations: Larry Moss' *Birth of Venus in Arigami* (2009), Lady Gaga's *Applause* music video (2013), and David LaChapelle's *The Rebirth of Venus* photograph (2019). Venus has timeless status as an icon of beauty and desirability, but she changes over time in art.

The original was created during the eruption of humanistic culture in the Early Renaissance and had radical and controversial influence.[1] The Renaissance saw a rise in ideas about religion, politics, and science, that influenced artists to push the boundaries of representability by seeing the body for visual pleasure.[2] Due to the authority of the church, the nude or partially nude body was subject to censorship, and erasure. Many artworks, including some by Botticelli, were confiscated or destroyed because they were considered obscene.[3]

Botticelli's painting was a private commission as the subject matter was controversial. It hung above the bed of wealthy statesman Lorenzo de' Medici.[4] Now the original is accessible in public space, as are re-creations of the original, as the politics of representability have changed. Censorship of the female body still exists, but the boundaries of nudity continue to be pushed and moved in art, and in public discourses about art.

[1] "Renaissance Nude," Getty Museum, Getty Publications, https://www.getty.edu/art/exhibitions/renaissance_nude/inner.html.

[2] Ibid

[3] Ibid

[4] ("Medici: Godfathers of the Renaissance, Botticelli, PBS" 2023) "Medici: Godfathers of the Renaissance., Botticelli," PBS (Public Broadcasting Service), <https://www.pbs.org/empires/medici/renaissance/botticelli.html>

Trust, Deceit, and Disgust Within the Marriage Between Lucrezia and Nicia in *La Mandragola* by Machiavelli

Presenter: Isobel Gibson

Faculty Supporter: Dr. Anthony D'Elia, Department of History

Niccolo Machiavelli (1469 - 1527) is most famous for his instructional book, *The Prince*, however, he experienced greater success during his lifetime for his play *La Mandragola*. The play is centred around one man's efforts, Callimaco, in having sex with Lucrezia, a young woman who is married to an older man, Messer Nicia. Despite being married for six years, the marriage between Lucrezia and Nicia has not yielded a child - this was unusual. Trickery ensues, with the play ending with Callimaco successfully duping Nicia and 'getting the girl,' with Lucrezia and Callimaco confident in their ability to continue this affair going forward. The unfortunate marriage dynamic of Lucrezia and Nicia was not one that was created because it differed from the norm, but rather the typical marriage culture and gender expectations of the time contributed to the discord of their marriage. Neither partner has respect for the other; Nicia has a certain level of complacency, perhaps even avoidance or fear, of Lucrezia and being reproached. On the other hand, Lucrezia sees Nicia as dim-witted and seeks many opportunities to avoid physical contact with him. Machiavelli provides a rich and nuanced picture of married life, albeit exaggerated at times as part of the larger plot of *La Mandragola*. The marriage of Nicia and Lucrezia

also reveals that there is much more behind prescribed gender roles of being fertile and economically capable when it comes to compatibility within the confines of typical marriages in Renaissance Italy. The disrespect and dislike seen in the marriage between Lucrezia and Nicia is amplified through neither character satisfying gender expectations, and existing in a marriage dynamic that was, while common, still problematic.

The process behind the *Ol' Medical Colouring Book*

Presenter: Carolyn Kane

Faculty Supporter: Jenn Lucas, Department of History

The *Ol' Medical Colouring Book* was inspired by the New York Academy of Medicine Library's *Colour Our Collections* annual colouring festival, which was launched in 2016. In which libraries, museums, and other cultural institutions are invited to share images from their collections in the format of a colouring book. Queen's W.D. Jordan Rare Books and Special Collections partnered with the Bracken Health Sciences library to create a colouring book focusing on medical content which emphasized the importance of mental health for students during the exam period (as well as other stressful periods). This proposed presentation would explore the creation process, the inspiration and need for the colouring book. While also addressing disinformation found in sources and how this was combatted with the proper information. The initiative of the colouring book is aimed at providing students with fun relaxation resources, the presentation would cover why there is a need for this specifically during exams, which has been born out of the advancement of technology.

Amia Srinivasan's Feminist Analysis of Pornography

Presenter: Summer Wilson

Faculty supporter: Dr. Jackie Davis, Department of Philosophy

My research will focus on Amia Srinivasan's political and cultural characterization of sex. In her 2021 book *The Right to Sex*, she asks about how we should talk about sex and what is sexual justice and sexual politics. Specifically, I will be looking at her philosophizing on pornography, the idea of societally imposed sexual inclusion, and sexual relationships as depicted in pornography. The specific essay where she discusses this is *Talking to my Students about Pornography*. However, I will also examine some of the other essays in the book (*The Right To Sex*, *On Not Sleeping with Your Students*, and *Sex, Carceralism, Capitalism*) as I believe these essays contain overlapping ideas on feminism and connect to her analysis of pornography in significant ways. I will also look into any follow-up to the publication of her essays, such as interviews about the book or further comments to ensure that I am working with the most recent and accurate depiction of her opinions.

There is a lot of formal academic response to her book, likely because of how new and popular the publication is. I will focus my research on papers that review her work, and how they critique her viewpoints or agree with them. Particularly I am looking at responses by Judith Butler, Maggie Doherty, Kathleen Stock, Elaine Blair, James H. Lewis, Khaleel Rajwani, and others whom I may come across in my research. I think doing so would show how others engage with her work and how her work fits within the existing feminist literature. Also, I will research deeper into the authors she has mentioned directly in her essays, such as Catherine A. Mikkinon, Jane Gallop, Freud, etc., to better understand their views. All of this is to help create a contextual and comprehensive account of Srinivasan's feminist characterization of sex and pornography in the twenty-first century.

The significance of this study is to better understand recent progress in gender relations and power dynamics in the politics of the twentieth century. Srinivasan's work is important because it is both relevant and grounded in the philosophical discipline; she writes about the ideas of past philosophers and the unique culture of our time simultaneously. The study will be in presentation format, with an extensive poster and script.

Remembering Forgotten Stories in the Archives: A Life in Papers- Allie Vibert Douglas

Presenters: Rhianna Wood, Victor Drazilov, Emily Ritonja

Faculty Supporter: Ken Hernden, Queen's University Archives

Out of approximately 10 km of research material in the Queen's Archives, how do you remember just one person, especially when the archival records are often fragmented? As HIST 502 Interns for the 2022 Fall Semester, we dived into this idea, aiming to rediscover (and, through digitisation, publicly promote) the life and works of Dr. Allie Vibert Douglas, a Canadian astronomer, physics professor and former Dean of Women at Queen's University.

In our 4-month research period, we made a number of fascinating discoveries in her fonds that we would like to bring to this conference. First, we learned how easily misinformation can pervade archival research with incomplete or biased documentation, in addition to the personal bias brought by the researchers themselves. As the first female astrophysicist in Canada, her archival material gave us insight into how embedded gender bias was in the academic world. After receiving an email from her living relatives, we were able to learn firsthand the impact archival research can have in the contemporary world. As well, we found a surprisingly high emotional impact from our readings in the archives, as we began to feel that a relationship had developed between us despite all the time that has passed between our lifetimes.

Our research brought us to the conclusion that while the archives can promote misinformation, it is also an essential tool to combat it. Archives provide a snapshot of someone's life on paper, allowing the opportunity to rediscover history through the words of who lived it.

Presentation Session D: Culture & Society

Room 014, Stauffer Library

Friday, March 10, 10:40-11:55

Moderator: Sanchit Kaushal, Principal's Undergraduate Research Leader, Faculty of Health Sciences

The Power of Indigenous Music: Ethnography, Resistance, and Protests

Presenter: Andrina Cockerham

Faculty Supporter: Dr. Gordon Smith, DAN School of Drama and Music

"The Power of Indigenous music: Ethnography, Resistance, and Protests" is a comprehensive study of the history of musical ethnography within the Indigenous topic, how it later affected Indigenous peoples, and how it is shown in popular music today. Throughout the era of musical ethnography, musical *salvaging*, and corrupted motives took place, and as a result, ethnography was an ever-changing field of anthropology. This history later encouraged Indigenous artists to express themselves in music and other art forms. The Hallcui Nation is used as a 'case study' to showcase how Indigenous artists have used various forms of art to express, resist, and protest issues within Indigenous communities caused by colonialism, while an in-depth understanding of ethnography in the musical topic is analyzed. The Hallcui Nation is a Hip-Hop based group and their music is focused primarily on protest and resisting while educating their listeners on topics such as police brutality, colonialism, and topics on their communities and ways of understanding. Understanding this history is necessary, and is especially important in school systems of all grades. Within the institution of Queen's University, and more specifically in the Bachelor of Music program, students are given an opportunity to learn about the music of all cultures and traditions, but usually, only specific cultures and traditions are centered in these discussions. Indigenous artists and musicians create powerful, artistic, soulful, and vulnerable pieces, and to truly understand how powerful they are one must understand the history of colonialism and musical ethnography in Canada.

No Nut November: Needed? Or Just Nuts?

Presenter: Melody Garas

Faculty Supporter: Dr. Caroline Pukall, Department of Psychology

This blog-style paper written for PSYC333 concerns the rampant misinformation regarding the safe and healthy sexual practices of masturbation, informed by research regarding masculinity, masturbation, and health. In today's society, especially amongst adolescents and young adults, the idea of "No Nut November," amongst other trends where masturbation is discouraged, runs rampant and is a very common source of this misinformation. In this paper, the problematic roots of No Nut November are addressed, and the broader harmful implications of this misleading information are discussed. Previous research done regarding abstaining from masturbation is reviewed to demonstrate that masturbation has been empirically proven to have great health benefits, and little to no disadvantages. Research regarding the clinical benefits of abstaining from masturbation, is reviewed to illustrate that there have been no empirical findings to indicate that any significant clinical benefits can be yielded from abstaining from masturbation. The paper discusses the implications of these findings; shaming people for these healthy and natural sexual behaviors contributes to severe emotional and physical harm-especially when it concerns adolescents. This is a narrative that needs to be recognized as more than an internet joke, especially on campus; the first step to combatting it is to educate those most susceptible to harm.

A Holistic Approach to the Indigenous Torontonians' Mental Health Inequity

Presenter: Mark Labib

The prevalence of mental health disorders in Canada is at an all-time high, affecting approximately 6.7 million Canadians, making it the leading cause of disability in the country. This study focuses on the mental health situation in Toronto, one of Canada's biggest cities, and aims to identify the causes of frequent mental health

visits by assessing the social determinants of health (SDH) related to mental health. The hypothesis of a correlation between the density of the Aboriginal population in Toronto and mental health prevalence visits is supported by numerous academic studies and prevalent factors. The long lasting trauma caused by residential schools impacts mental health through increased anxiety, depression, and poor relationships with caregivers. Additionally, the assimilation of the Aboriginal population has also caused a significant loss of socioeconomic status (SES). By placing them on reserves with limited financial support. Finally, epigenetics plays a significant role in understanding the intergenerational effects of historical trauma and its impact on the Aboriginal population. This study aims to harness the implications of these factors for social policy and advocacy as well as mental health promotion in Canada and other Anglo-settler nations. This study highlights the need for a sustainable solution to improve the mental health situation in Toronto. It calls for a two-pronged approach, including both prevention and treatment. Preventive measures include addressing the root causes of poor mental health, including the legacy of residential schools, economic disadvantage, and cultural discontinuity, while treatment should aim to provide access to culturally appropriate mental health services and support. By addressing the social determinants of health related to mental health and taking a holistic approach, it is possible to reduce the impact of mental health disorders in Canada and improve the well-being of all Canadians.

Analyzing the Cultural Shift in South India: The Legacy of the East India Company

Presenter: Pungavi Linghan

Faculty supporter: Dr. Robert Hyland, Bader College

Anthropology seeks to understand human cultures and how they develop, to better understand the reasons behind cultural and value shifts in addition to realizing the diversity of societies both pre and post colonialism. This project aims to analyze the legacy of the East India Company in Southern India based on comparing evidence found prior to and after colonialism. The evidence includes ancient literature and artifacts, laws and archives from the colonial period, and modern societal rules and expectations. The main focuses of the research are (1) perspectives on sexuality and sexual orientation, (2) standards for modesty, and (3) the shift in the beauty standard. Utilizing the evidence, the presentation will compare and contrast society both before and after the colonial period to determine cause and consequences from the East India Company. The end goal of the project is to reveal the negative legacy of the East India Company, and how many aspects of South Indian Hinduism stem from values imposed onto society by the British. This project serves a larger goal to decolonize Hinduism and the view of Hinduism utilizing Orientalism by Edward Said. In the present day, many view South Indian culture as restrictive and conservative. The project aims to change this perspective, to demonstrate the versatility and liberal nature of South Indian Hinduism prior to colonialism.

Addressing Financial Barriers to Higher-Education

Presenter: Floor Nusselder, Adrianna Armstrong, Alyssa Giovannangeli, Hannah Burrows, Yanxin Xu

Faculty Supporter: Dr. Meghan Norris, Department of Psychology

Many students choose not to pursue higher education due to its financial burden and the looming threat of debt that follows. However, 10 million dollars of scholarship money in Canada goes unclaimed each year due to a lack of applicants (Griffiths, 2022). Students who require financial assistance for higher education can only capitalize on the available scholarship money if they have the necessary skills to create successful applications (Hoff, 2013). Furthermore, the low-income students who will benefit the most from access to these resources often have to work part-time jobs after school, so they are unable to devote the necessary time to this process (Singh, 1998). To address this barrier, we have developed an equitable, accessible module-based program that strives to connect the surplus of untapped scholarship money each year with students who desire to fund their pursuit of higher education. These modules will facilitate equitable access to higher education by fostering students' skills related to budgeting, financial planning, scholarship searching, and application writing and will

be implemented directly in the high school curriculum. To facilitate their implementation and avoid any potential pitfalls, the modules would decrease the burden on educators, be accessible to students with disabilities, and include content-related to cybersecurity. By helping foster students' self-efficacy and confidence in their knowledge and skills so they can apply for funding, we aim to increase the number of people applying for scholarships so that financial resources are no longer a significant barrier to higher education.

Griffiths, A. (2022, January 8). *Canadian scholarships by province*. GrantMe. <https://grantme.ca/canadian-scholarships-by-province/>

Hoff, E. (2013). Interpreting the early language trajectories of children from low-SES and language minority homes: Implications for closing achievement gaps. *Developmental Psychology*, 49(1), 4–14. <https://doi.org/10.1037/a0027238>

Singh, K. (1998). Part-Time Employment in High School and Its Effect on Academic Achievement. *The Journal of Educational Research*, 91(3), 131–139. <https://doi.org/10.1080/00220679809597533>

Panel Session B: Principal's Undergraduate Research Leaders (PURLs)

Room 014, Stauffer Library

Friday, March 10, 1:00 -2:00

Moderator: Katrina Carbone, PhD Student, Faculty of Education

The Principal's Undergraduate Research Leaders, or PURLs, serve a central role in facilitating research experiences for students through advising on research, and increasing the awareness of and participation in research. They also take a leadership role in supporting student-led research initiatives and engaging in knowledge mobilization. In 2023, there are six PURLs, all of which will join this panel to talk about their experiences with the program, and to provide advice to any undergraduates who may wish to apply to the program in the future. The 2023 PURLs who will be joining us for this panel session are:

- Sylvie Garabedian, Smith School of Business
- Hayley Galsworthy, Faculty of Engineering
- Melody Garas, Faculty of Arts and Science
- Sanchit Kaushal, Faculty of Health Sciences
- Lisa Lavalle, Faculty of Health Sciences
- Victoria Yu, Faculty of Education

For more information about the program and to apply, please see the following website:
<https://www.queensu.ca/principal/funding/principals-undergraduate-research-leaders>.

Presentation Session E: Science @ Work

Room 014, Stauffer Library

Friday, March 10, 2:15-3:30

Moderator: Victoria Yu, Principal's Undergraduate Research Leader, Faculty of Education

A Review on the Appropriate Dosage of Aspirin as a Prophylactic Agent Against Deep Vein Thrombosis Following Total Knee Arthroplasties

Presenter: Fawwaz Khan

Co-Author: Khulood Alhasan

Supporter: Dr. Fahad Al-Khalaf, Al-Razi Orthopedic Hospital

Deep vein thrombosis (DVT) generally occurs due to the formation of a blood clot in the deep veins of the body.¹ Generally, those over the age of 60 are at high risk for the ailment, while remaining sedentary for long periods of time can also cause DVT.¹ In the world of orthopedics, the manifestation of DVT generally occurs postoperatively. Aspirin has been seen as a major prophylactic agent in the treatment of DVT due to its role as an anticoagulant and antiaggregant.² Guidelines regarding Deep Vein Thrombosis prophylaxis following total knee arthroplasties have had conflicting information regarding the use of aspirin as a prophylactic agent in recent years. The National Institute for Clinical Excellence refrains from listing the drug in its guidelines while the American College of Chest Physicians advocates for the drug.^{3, 4} Despite the conflicting guidelines, physicians have favored the drug in recent years, with many utilizing it as a prophylactic agent in total knee arthroplasties. Although a consensus may have been reached by physicians regarding the use of the drug, a consensus has not been reached regarding the preferred dosage. Generally, blood clots form through the accumulation and binding of platelets. With aspirin, this is prevented through a series of inhibitions on the molecular level.² With this in mind, it can be clear to see why aspirin is a favored prophylactic agent. As such, this review aims to assess the ideal dosage of aspirin as a prophylactic agent amongst total knee arthroplasties.

¹Mayo Foundation for Medical Education and Research. (2022, June 11). Deep vein thrombosis (DVT). Mayo Clinic. Retrieved August 2, 2022, from <https://www.mayoclinic.org/diseases-conditions/deep-vein-thrombosis/symptoms-causes/syc-20352557>

²Mekaj, A., Mekaj, Y., Daci, F. (2015). New insights into the mechanisms of action of aspirin and its use in the prevention and treatment of arterial and venous thromboembolism. *Therapeutics and Clinical Risk Management*, 1449. <https://doi.org/10.2147/tcrm.s92222>

³Stewart, D. W., Freshour, J. E. (2013). Aspirin for the prophylaxis of venous thromboembolic events in orthopedic surgery patients: A comparison of the AAOS and ACCP guidelines with review of the evidence. *Annals of Pharmacotherapy*, 47(1), 63–74. <https://doi.org/10.1345/aph.1r331>

⁴STRIJK-MULDER, M. C., ETTEMA, H. B., VERHEYEN, C. C., BÜLLER, H. R. (2010). Comparing consensus guidelines on thromboprophylaxis in orthopedic surgery. *Journal of Thrombosis and Haemostasis*, 8(4), 678–683. <https://doi.org/10.1111/j.1538-7836.2009.03728.x>

Building Transferable Potential Energy Surfaces with Machine Learning

Presenter: Maximilian van Zyl

Co-Author: Leila Pujal

Faculty Supporter: Dr. Farnaz Heidar-Zadeh, Department of Chemistry

Discovering and characterizing novel compounds to serve society is the overarching goal of chemical sciences. Nowadays, experimental and computational methods provide complementary approaches for navigating the vast diversity of chemical space to identify suitable compounds for a given task. A key component of many computational methods is accurate and efficient mapping of the potential energy surface (PES), which relates the geometry to the energy of a chemical system.¹ From a quantum mechanical perspective, the PES can be accurately computed; however, existing methods are infeasible for large systems (e.g., proteins) because their computational cost grows explosively with the size of the system. For this reason, machine learning (ML) approaches are used to circumvent direct computation of the PES of various chemical systems.²

To obtain ML potentials, a supervised algorithm is trained to establish a relationship between the structure of a chemical system, such as a molecule or crystal, and an output, like the system's total energy and the forces acting on each atom. Even though existing ML potentials can reach excellent accuracy when applied to structures within the training domain (i.e., interpolation), they typically have poor performance for structures outside their applicability domain (i.e., extrapolation). To overcome this, we train *NewtonNet*,³ a message-passing network for deep learning of interatomic potentials, with more chemically-inspired data to the ML algorithm than has been traditionally used. Our goal is to allow this ML potential to learn transferable chemical properties and test its performance when applied to systems beyond the scope of the training set.

¹*Journal of Computational Chemistry*, 2003, **24**, 1514-1527.

²*Chemical Reviews*, 2021, **121**, 9816-9872.

³*Digital Discovery*, 2022, **1**, 333-343.

Speckle pattern improvements for digital image correlation to capture small strains in tensile tests on rock

Presenter: Samuel Woodland

Co-Authors: Émelie Gagnon, Timothy Packulak, Agatha Dobosz

Faculty Supporter: Dr. Jennifer Day, Department of Geological Sciences and Geological Engineering

Digital image correlation (DIC) is a popular optical strain measurement technology for deformation analysis in rock mechanics laboratory testing. Although reliable and repeatable, traditional strain gauge and extensometer measurement techniques have drawbacks including high recurring cost and limited spatial distribution of data. DIC utilizes continuous photography and computer software to track paint speckle pixel displacements of a material deforming under load, producing a full-field strain map for each recorded increment. Although DIC presents an opportunity to overcome the limitations of traditional methods, significant precision and care is required to track typical total displacements of 0.005 mm (0.01% strain) in Brazilian tensile stress (BTS) tests of igneous and sedimentary specimens measuring 47.6 mm diameter. For computer algorithms to precisely track individual pixels between frames, it is often necessary to apply a unique speckle pattern conforming to several criteria to the rock specimen. A variety of speckle application techniques have been reported in rock mechanics literature; however, the importance of a high-quality speckle pattern and resulting influence on the accuracy of DIC results is frequently overlooked. The laboratory testing program in this research utilized 2-Dimensional DIC on BTS tests to investigate the cost, efficiency, ease of application, and effectiveness for several speckle application methods. In addition to testing traditional spraypaint, airbrush, and stamp application methods, an innovative laser engraving speckle application technique was developed in this research that provides more reliable DIC results. This research provides practical speckle pattern application recommendations for small strain 2D DIC measurements.

End of Day 2

Acknowledgements

On behalf of the 2023 Inquiry@Queen's Planning Committee, we'd like to sincerely thank the following departments, groups, and individuals for their invaluable help and support in the planning and execution of the conference.

- Office of the Vice Provost and University Librarian
- Queen's University Library staff, specifically Shaun Baddeley, Kim Dixon, Grant Jackson, Catherine Landon, Joseph Lee, Doug Ottney, Ken Pearce, Nancy Petri, Jane Reeves, Jack Seymour, Natasha Watt, Scott Woods, and Emily Xu, as well as our student assistants.
- Our session moderators: Katrina Carbone, Sylvie Garabedian, Melody Garas, Sanchit Kaushal, Nasser Salah, Nisha Simon, and Victoria Yu.
- School of Graduate Studies and Postdoctoral Affairs, specifically Collette Steer
- CFRC 101.9fm, specifically Dinah Jansen and Erika Singh
- Queen's University Bookstore, specifically Lisa MacGregor
- Alumni Services, Office of Advancement, specifically Kim Day and Pavel Civin
- Student Affairs, Housing and Ancillary Services, specifically Amanda Keenan
- Queen's Hospitality Services and Gino's Pizza
- Centre for Teaching and Learning
- Student Academic Success Services

Thank You!

We also want to send a very special THANK YOU to the folks at [Gilmour Reproductions](#) in Kingston! They really stepped up to help us get all of the posters printed when we ran into a very last minute issue. Not only did Gilmour's get all the posters printed in time, they ensured they were all properly formatted AND delivered them directly to us! Thank You Gilmour Reproductions for going above and beyond for us!