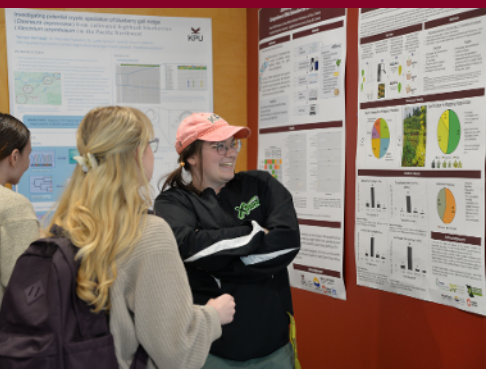# RESEARCH SHOWCASE 2025

CONFERENCE PROCEEDING BOOKLET

KWANTLEN POLYTECHNIC UNIVERSITY

RESEARCH SHOWCASE 2025

The Office of AVP Research and Innovation held its second Research Showcase event at the Kwantlen Polytechnic University (KPU) Surrey Conference Centre on May 13th, 2025.

A successful 2025 showcase

There was an outstanding attendance from across KPU, consisting of students, faculty, and staff. During the all-day event, there were numerous engaging presentations and lots of networking opportunities.

The theme was Generative AI in Research, and we were honoured to have Dr. Mohammad Keyhani from the University of Calgary present an insightful keynote presentation. The following panel with KPU faculty members broadened the conversation to AI in research, scholarship, and teaching - bringing a valuable breadth of perspectives from across departments.

Midday, we had over 25 student posters displayed, and attendees circulated to chat with the students about their great work. In the afternoon, there were ten Lightning Talks from across faculties, demonstrating the breadth of research at KPU. Near the end of the day we had networking game and hosted several departmental booths to deepen knowledge and resource sharing.

This was truly a team effort - we'd like to thank all the folks that made it happen. This is a major forum for KPU to increase internal awareness about research and innovation activities, and foster future collaborations and scholarship. See you next year!

AT-A-GLANCE

"It was great to learn more about the diversity of research happening at KPU!"

- ▶ **10** Lightning talks
- ▶ **26** Student posters
- ▶ **120** attendees

Organizing Committee: Amit Shukla, Cathy Parlee, Karen Meijer, Mariko Itano, Marina Miller, Tara Lyons, Triona King

Office of Research Services: Amit Shukla, Cathy Parlee, Cece Lee, Damaris Muganda, Deepak Gupta, Jackie Au, Keith Leung, Mariko Itano, Marina Miller, Taranum Sultana

This event took place at KPU, whose campuses are in a region that overlaps with the unceded, traditional and ancestral territories of the Musqueam, Katzie, Semiahmoo, Tsawwassen, Qayqayt, Kwikwetlem, and Kwantlen First Nation.

KEYNOTE

About the talk.

In this presentation Dr. Keyhani discussed the various ways in which generative AI technology, with the advent of Large Language Models (LLMs), is changing us as humans and as scholars. We considered the significance of LLMs as a technology of thought and knowledge accumulation. He reviewed a variety of AI-powered tools that have recently become available to researchers, and showcase a number of research projects that have taken advantage of recent AI advances at the leading edge.

About the speaker

Mohammad Keyhani is an Associate Professor at the Haskayne School of Business, University of Calgary, where he directs the DBA program and teaches courses on generative AI and no-code technology for entrepreneurs. Mohammad's research has been published in leading journals and presented in international conferences where he has received multiple best paper and best reviewer awards. Mohammad is co-founder of HoneybeeLogic.com, maker of Lstr.cc, advisor to multiple startups, and has held roles as Lab Strategist at the Creative Destruction Lab Rockies, and David Rockefeller Fellow at the Trilateral Commission. He holds a doctorate in strategic management from York University, and M.Sc. and B.Sc. degrees from the University of Tehran. His blog and projects can be found at DigitVibe.com.

AI IN RESEARCH AND PRACTICE: FROM COMPUTATION TO CREATIVITY

Panelists

Zahia Marzouk, Educational Studies

Dr. Zahia Marzouk is Chair and faculty member in the Educational Studies Department at KPU. Her research focuses on learning strategies, motivation, and the development of cognitive and metacognitive scaffolds to support student learning. She currently leads a SSHRC-funded project examining the dynamic interplay between motivation, cognition, and metacognition, as well as how learners engage in hybrid regulation by using AI to support their learning. Dr. Marzouk's work combines real-time data tracking, surveys, and AI-driven coaching to better understand and enhance self-regulated learning, with the goal of improving online learning experiences for students and educators worldwide.

Carley Hodgkinson, Graphic Design for Marketing

Carley Hodgkinson has chaired and taught studio and technology ethics courses in the Graphic Design for Marketing program at the Wilson School of Design since 2017. In her industry practice, Carley worked in agency, inhouse, and publication positions, and ran her own business, focusing on book design in the cultural sector. She moved into user experience design, working as a senior visual designer on business intelligence software and big data collection. As co-founder of Big Pictures Lab, Carley has run two WSD conferences looking at visual imagery in urban settings, including digital and interactive installations, and continues to look at the intersection of technology and community-building in creative research.

AI IN RESEARCH AND PRACTICE: FROM COMPUTATION TO CREATIVITY

Panelists (cont'd)

Daniel Anvari, Mathematics

Dr. Daniel Anvari is an expert in System Dynamic Modeling, with extensive academic training and a strong background in Predictive Data Analytics, Business Intelligence, and Machine Learning. His research spans various domains, including public health, business, and criminology, where he has successfully applied big data methodologies. He played a pivotal role in establishing the Saskatchewan Police Predictive Analytics Lab and has a thorough understanding of public data security processes. Throughout his academic journey, Dr. Anvari has contributed to institutions like York University in Toronto, the University of Saskatchewan, Saskatchewan Polytechnic, BCIT and currently he is a faculty member at KPU.

Moderator: Deepak Gupta, Associate Vice President for Research and Innovation

Dr. Deepak Gupta has led research, innovation, productivity, and entrepreneurial initiatives over an impactful career involving five academic institutions and four businesses. He has more than a dozen awards and honours for his contributions as a distinguished leader, engineering researcher, and published scholar. A global citizen, he has lived in ten provinces or states and speaks four languages. Deepak received his engineering doctorate from Washington University in St. Louis. He has a Bachelor of Technology (Honors) degree from the Indian Institute of Technology, Kharagpur, India.

LIGHTNING TALKS

Watershed Toxicity Testing in Coquitlam River - Partnership with kʷikʷəƛ̓əm First Nation

Presenter: Layne Myhre, Biology

A collaborative pilot project was undertaken between kʷikʷəƛ̓ əm First Nation and KPU Faculty and students in 2024 to analyze water quality and general toxicity at selected sites along the culturally significant Coquitlam River. Salmon stocks in these waters have been heavily impacted by human activities and urban development, including the building of Coquitlam Dam. The project resulted in data that will inform future remediation efforts and additional research projects at KPU to help protect local urbanized watersheds.

KPU's Applied Genomics Centre: Faculty and Student Engagement in Driving Innovation in BC's Agriculture and Biotech Sectors

Presenters: Paul Adams & Taylor Chin, Applied Genomics Centre

Designed to be accessible to both specialists and non-specialists alike, this talk introduced the core technologies behind our applied research. It also highlighted specific case studies that illustrate how our partnerships have led to tangible improvements in industry practices and outcomes. Whether you're a faculty member, staff, or student—scientist or not—this presentation offered a glimpse into how applied research at KPU is making a difference.

LIGHTNING TALKS

Harnessing Genomic Toolkits for Accurate Pathogen Detection in Salmon

Presenter: Abhinaya Venkatesan, Applied Genomics Centre

This research explores the use of various genomic techniques to develop practical diagnostic tools for the routine detection and monitoring of economically significant pathogens. While this presentation focused specifically on fish pathogens, these techniques can be broadly applied across multiple sectors.

Resilient and Thriving, Vancouver Island Food Future

Presenter: Victor Martinez, Product Design

This is a two-year initiative that will advance Vancouver Island's food system by focusing on actionable strategies that build on foundational work. The goal is to collaboratively strengthen the island's food systems to ensure they are resilient, sustainable, and community-driven.

VFX & Animation Sustainability Project: Project Shadow

Presenters: Diego De la Rocha, Varsha Vijayakumar, Jonathan Estrella Vazquez

At Entertainment Arts (ENTA) we know how powerful the mediums of VFX & Animation are, we wanted to tell a story with the KPU Community. So we set out to find Indigenous and Scientists Voices to listen and learn from.

Together, ENTA students, alumni, staff, faculty, industry partners, museum partner, community partners, and KPU community worked with our Alumni Artists in Residence in addition to our SRIG Research Assistants to plan and come up with a recipe of how to visually tell a story of environmental animation that hopefully addresses the gap on positive framing of environmental animation instead of fear-based motivators, while focusing on localized impacts and solutions to hopefully engage the next generations and their parents/guardians to take on climate action.

LIGHTNING TALKS

Wildfire Suppression: From Machine Learning Prediction of Behavior to Efficient Targeting of Fire Suppression

Presenter: Kianoosh Tahani, Physics

We use artificial intelligence to predict wildfire behavior. In Canada, developing effective wildfire suppression strategies is crucial due to the significant threat wildfires pose. This project aims to detect and predict wildfires early to enable efficient suppression.

Rapid detection of specific bacteria in drinking water using surface imprinted polymers and surface plasmons

Presenter: James Hoyland, Physics

Drinking water contamination is a major problem in many communities both in Canada and around the world. We use thin polymer films bearing the impression of a target organism, we can trap bacteria with a high degree of specificity and detect their presence with a laser. (cont'd)

Using this approach we hope to develop a sensor capable of quickly quantifying and identifying bacteria in water sources.

The Smart Greenhouse of the future

Presenter: Deborah Henderson, Institute for Sustainable Horticulture

Local greenhouse food production is becoming increasingly important due to climate change, tariffs and an increasing population. This industry must pivot to producing year-round food for local consumption. Agri-technology is advancing, data is accumulating faster than the industry can keep up, but AI is helping to create automation platforms to support cost-effectively low carbon-footprint fresh, healthy food.

LIGHTNING TALKS

Ebolavirus evolution and emergence are associated with land use change

Presenter: Christian Lange, Biology

Recurring Ebolavirus outbreaks in the heart of Africa have sparked concerns about emerging diseases decades before COVID-19 and have made their way into pop culture through prominent depictions in literature, film and games. Despite decades of research Ebola has kept many of its mysteries, especially regarding its origins spread dynamics. Using the latest data and modelling techniques we were able to identify human land use as a driver for Ebolavirus evolution with colonial schemes in the mid-20th century at its core.

Like goes with like: Congruency as a source of bias in investigation

Presenter: Carla MacLean, Psychology

Congruence between a stereotype and observed behaviour can bias the evaluation of information related to an event. Presenting data from professional investigators and lay populations, this presentation shares our findings of how the congruence of individual expectations and harassment behaviour shapes investigators' impressions of an accuser's credibility. Research collaborators: Surveer Boparai (KPU Psychology student) and Dr. Carla MacLean (SRIG: #104500).

ADDITIONAL LIGHTNING TALK SUBMISSIONS

British Columbia's Food Supply Chain Analysis

Submitter: Maayan Kreitzman, Institute for Sustainable Food Systems

Food is critical to human life, but it typically hasn't been considered as part of emergency planning. Supply chain disruptions and price volatility from climate and geopolitical events have focused the attention of British Columbians on how our food gets to our plates. This analysis compiles the flow of food in and out of the province and its regions to show the degree of food self-reliance in British Columbia.

Caught in the Middle: Teaching with Integrity in the Age of AI

Submitter: Alym Amlani, Business

ChatGPT and other AI tools have made it easier for students to blur the lines — but not all instructors agree on where those lines are. This talk explores how AI is changing academic integrity and why inconsistent messaging across courses is making it worse. You'll walk away with strategies to prevent cheating, teach students how to use AI ethically, and address misconduct fairly. Whether you're frustrated, unsure, or just curious, this session offers concrete tools and real case examples to help you navigate this new landscape with confidence and clarity.

I knew it! Hindsight bias from preschool to old age

Submitter: Daniel Bernstein, Psychology

Knowing how an event turned out often makes us think that we knew it would turn out that way - hindsight bias. I explore this bias from preschool to old age, and find that young children and older adults show more of this bias than do older children and younger adults.

Sociology on the Rocks

Submitter: Rebecca Yoshizawa , Sociology

This talk will highlight the broad relevance and application of sociology by addressing how a sociologist studies rocks and fossils. A broad, non-specialist audience will be interested in the unique interdisciplinary approach.

STUDENT POSTERS

We had over 25 student posters displayed at the event, and lots of great knowledge sharing. Congrats to our competition winners:
- Winner: Emma Juhala
- First runner up: Jackson Kereliuk et al.
- Second runner up: Isbah Mahmood et al.

Alex Thrasher, *Adventures in Multimedia Design for Learning: Do Design Features Interact?*

Arshnoor, *Watching success and failure of video trick shots affects children's and adults confidence in their own ability to complete trick shots*

Ashpreet Kaur, *Effect of Allicin on the SARS-CoV-2 Spike Protein Expression in Human Splenic Microvascular Endothelial and Fibroblast Cells*

Cassidy Gee, *Global Mega-Events as a Rite of Passage for "Developing Countries": Architecture's Role in Nation Branding*

Eddie Han, *Characterization of Vesicles Expression in Human Splenic Fibroblasts During Calcium Phosphate-Based Transfection*

Eileen Faith Biswayan, *Optimizing DNA Extraction for Applied Genomics Research*

Emma Juhala, *How to improve the fit and performance of women's personal protective clothing (PPC) for Adventure Motorcycle Riding?*

Guntas Kochar, *Investigating the toxicity of antimicrobial compounds found in personal care products using zebrafish (Danio rerio) embryos*

Isbah Mahmood, *Understanding how cells recover from periods of high stress using the model organism C. elegans*

Ishan Vashishat, *COVID-19 in Space: Possible Risks and Preparedness*

STUDENT POSTERS

Jackson Kereliuk, *Genomic Tools for Analyzing the Antibacterial Properties of Hop Extracts in Bee Colony Health*

Jasleen Randhawa, *Understanding how cellular stress adaptation collapses with age*

Jasmeen Kaur, *Navigating Online Hate: The experiences of Indian International Students in Lower Mainland, BC, Canada*

Jayce Iberg Weston, *Breast Cancer Diagnostic Processes and AI*

Jazreet Bedhesha, *Determining the Disease Burden of Canine Papillomatosis*

Katie Heron, *NextGen Hops: A Canadian Hops Variety Development Program*

Katie Schmidt, *Enhancing Online Learning: The role of instructor presence and multimedia design*

Kuldeep Singh, *Thy-1 Expression and Potential Correlation with the SARS-CoV-2 Spike Protein in Human Splenic Fibroblasts*

Lulu Sukawati, *Pilot Study: Investigating growth traits of ornamental Hydrangea arborescens following oryzalin treatment to induce polyploidy*

Manav Garg, *Characterization of a novel mutation in the zebrafish PI15a gene demonstrates craniofacial and limb defects*

Maria Uribe Parra, *Comparative Analysis of the Effect of Exercise on Neurodegenerative Disease-Related Gene Expression in Young and Old Danio rerio*

Marika Lopez, *Welcome to the (Facebook) Neighbourhood: Exploring How Community Residents Use Facebook Groups to Address Crime*

STUDENT POSTERS

Namrit Gill, *The Support of Brazilian Traction (now Brookfield) to the 1964 Business-Military Coup in Brazil*

Razeen Muhajireen, *Assessing the Impact of Back-Floating on Executive Functioning in Children with Sensory Processing Challenges*

Razeen Muhajireen, *Salicornia in Canada: Uncovering Its Economic Potential*

Sofia Yaron, *Waiting Animation Research*

Tamryn Kennedy, *Investigating potential cryptic speciation of blueberry gall midge (Dasineura oxycoccana) from cultivated highbush blueberries (Vaccinium corymbosum) in the Pacific Northwest*

![KPU logo]

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