



# BIOMEDICAL ENGINEERING & HEALTH TECHNOLOGY SHOWCASE

NOVEMBER 17, 2023, 9 am - 4 pm  
Michele Pujol Room, UVic



**University  
of Victoria**  
Biomedical  
Engineering



**University  
of Victoria**  
Engineering and  
Computer Science



**University  
of Victoria**  
Research  
Partnerships &  
Knowledge  
Mobilization



**University  
of Victoria**  
Research &  
Innovation

## WELCOME MESSAGE

Dear Attendees:

On behalf of the organizing team for this year's Biomedical Engineering (BME) Health and Technology Showcase, please accept our warm welcome and thanks for supporting this event!

In 2022, we celebrated the 10-year anniversary of BME at UVic. The event was a celebration of current and past students and initiatives. Our alumni featured as a large part of the event and showcased career paths in engineering, clinical areas, and several areas of R&D. Building on these stories of how BME played a role in shaping the future of alumni, this year we are focusing the agenda on the future of BME at UVic!

Wendy Hurlburt, President and CEO of Life Sciences BC will start the presentations and discuss the landscape of Life Sciences and future directions for British Columbia. Building on the theme of future directions, Jessica Vandenberghe will discuss the importance of engaging with Indigenous communities and ways to engage community stakeholders that respect their history and future. We will also feature speakers in key arenas where BME at UVic continues to grow! Dr. Josh Giles will present on biomechanical diversity and use of statistics in modeling, Dr. Karolina Valente will speak about her cutting-edge research and entrepreneurial endeavours in tissue models, Zen Tharani, CEO & Founder of Xenex Consulting, will talk about the ever-changing landscape of Digital Health, and Dr. Manu Madhav from the UBC School of Biomedical Engineering will present on geometric analysis of neural representations.

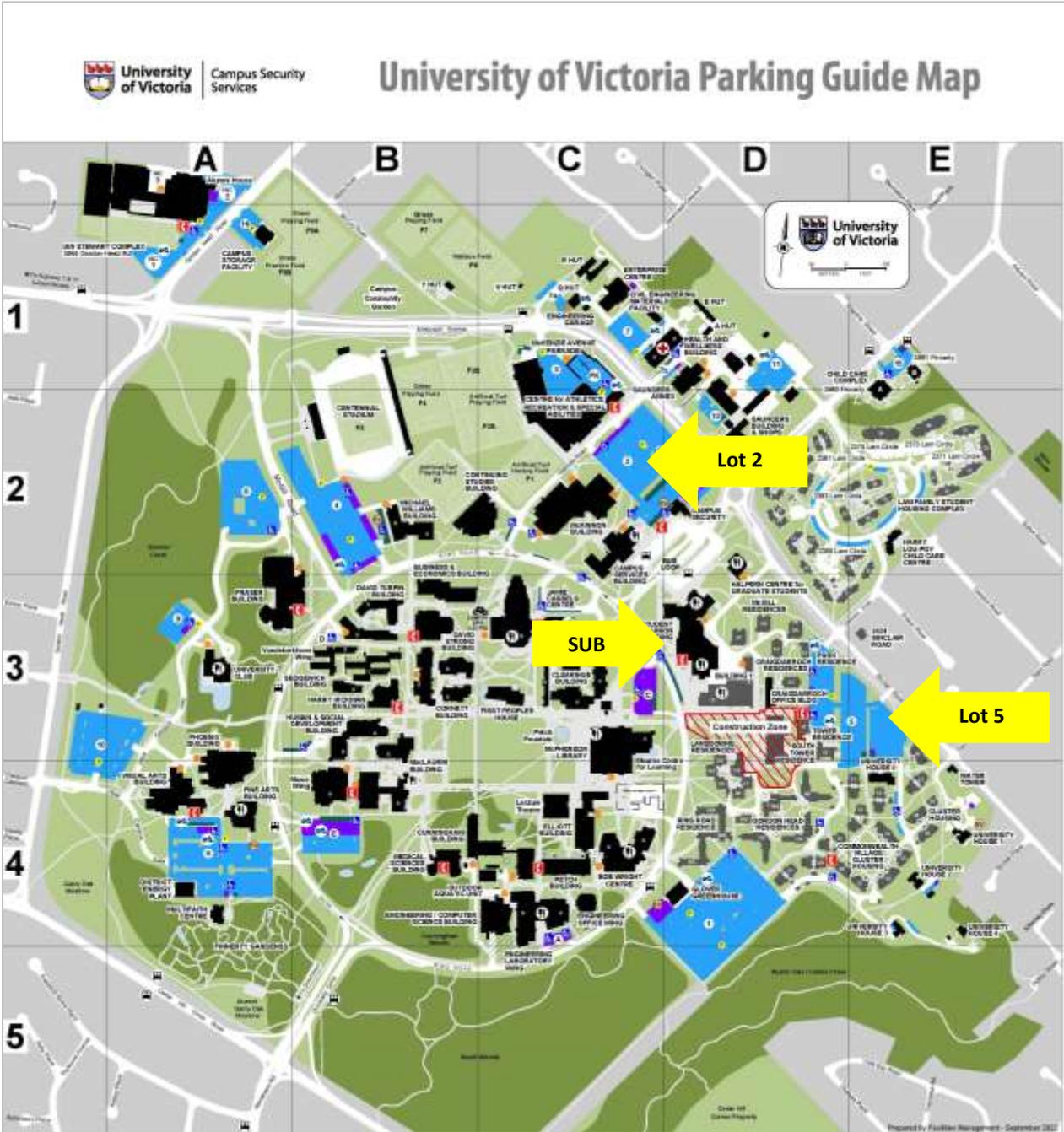
The Coast Capital Innovation Centre will also return this year and support the BioInnovate Pitch Challenge!

On behalf of the organizing team, our UVic Partners and our roster of presenters, I look forward to welcoming you on November 17<sup>th</sup>!

Christopher Dennison  
Director of Biomedical Engineering  
Faculty of Engineering and Computer Science  
University of Victoria

# MAP AND PARKING INFORMATION

Please refer to UVic Parking Services for a parking [map](#) and [rates](#). We recommend parking in Lot 2 or Lot 5 for proximity to the Student Union Building.



## AGENDA

- 9:30 Welcome Remarks  
Dr. Christopher Dennison, Director of Biomedical Engineering, UVic
- 9:45 "Overview of the Life Sciences Sector"  
Wendy Hurlburt, President & CEO, Life Sciences BC
- 10:15 "Considerations for when Partnering with Indigenous Peoples for Biomedical Engineering Research"  
Jessica Vandenberghe, Assistant Dean of Community and Culture, Engineering and Computer Science, UVic
- 10:45 Break
- 11:00 "From Pixels to Patients: Navigating Digital Health's Ever-Changing Landscape"  
Zen Tharani, CEO & Founder, Xenex Consulting
- 11:30 Showcase
- 12:00 Lunch
- 1:00 "Understanding Biomechanical Diversity Through Statistically-Derived Computational Modeling"  
Dr Josh Giles, Department of Mechanical Engineering, UVic

- 1:30 "Geometric analysis of neural representations underlying spatial navigation"  
Dr Manu Madhav, School of Biomedical Engineering, UBC
- 2:00 Break
- 2:15 "VoxCell BioInnovation: Human-like Cancer Tissue Models"  
Dr Karolina Valente, Department of Mechanical Engineering, UVic
- 2:45 BioInnovate Pitch Challenge
- 4:00 Closing remarks and presentation of prizes  
Dr. Chris Dennison

## Meet the Speakers



[Dr. Chris Dennison](#) is an Associate Professor in the Department of Mechanical Engineering and Director of Biomedical Engineering at UVic. Dr. Dennison's research is in the area of biomechanics and biomedical instrumentation and focuses on understanding mechanisms of traumatic injury in contexts spanning civilian life, sports and defence. The application areas for this work are protection devices including headgear and body armour. His group collaborates with professional sport leagues, protection equipment manufacturers, and defence scientists. Dr. Dennison is active in North American and International standards organizations that focus on engineered testing approaches for protective gear. Dr. Dennison is a member of the scientific review committee of the International Research Council on the Biomechanics of Injury. His group applies in vivo, ex vivo, in vitro and in silico approaches.



**Wendy Hurlburt** is a passionate promoter and advocate for the life sciences and technology sectors, drawing on her extensive experience across Canada, the United States, Europe and Asia. As President and CEO of Life Sciences BC, Wendy is a key leader in British Columbia's dynamic life sciences ecosystem. She emphasizes collaboration among local SMEs, educational institutions, global partners and government agencies. Wendy is also a highly influential spokesperson for the sector, both nationally and globally, recognized for raising awareness, nurturing economic development, facilitating investment, and fostering new partnerships to fuel the growth of B.C.'s world-class life sciences sector.

Before joining Life Sciences BC in 2019, Wendy held multiple leadership roles with Johnson & Johnson in strategic and business planning, finance, partnerships and business development, operational transformation and quality and regulatory compliance. Prior to J&J, she held Chief Financial Officer roles for the Heart and Stroke Foundation of Ontario and Lexmark International in its Canadian and South Asian divisions.

Wendy is passionate about volunteerism and seeks out tangible ways to give back. She is a member of the Government, Budget, and Finance Committee for the Greater Vancouver Board of Trade; the Clinical Trials BC Advisory Council, Michael Smith Health Research BC; the external advisory committee of the Centre for Health Evaluation and Outcomes; and a data governance advisor to the Association of Privacy Professions Vancouver Chapter. She is also a Canadian Chamber of Commerce Life Sciences Strategy Council committee member and a board member with Invest Vancouver and Science World.

Previously, Wendy served on the Centre for Research and Drug Discovery Board (adMare BioInnovations), chaired CDRD's Finance & Audit Committee, and co-chaired the International Association of Privacy Professionals Vancouver Chapter.

Wendy holds an MBA in International Business & Finance from Queen's University and a B.A. in Finance & Economics from Western University. She also has a certificate in Strategic Leadership from the University of British Columbia's Sauder School of Business and is a certified Privacy Professional (CIPP).

Wendy and her family reside in North Vancouver, where she regularly enjoys the beauty of nature as an avid hiker, skier and kayaker.



**Jessica Vandenberghe**, P.Eng., FEC, FGC (Hon.) is born of the Dene Thá First Nation, is a sixties scoop survivor and raised in an inclusive German farming family in northern Alberta. Her exceptional career is based on two engineering degrees from the University of Alberta. She has worked in the oil sands, mining, regulatory, infrastructure, consulting industries and academia. She is the Assistant Dean, Community and Culture with the Faculty of Engineering and Computer Science at the University of Victoria. She is a mother of two and at the intersection of two equity deserving groups in the Engineering Profession, which drives her passion for equity, diversity and inclusion. Her lived experience allows her to contribute significantly to Truth and Reconciliation to build strong, healthy relationships with Indigenous Communities and to build safe, brave places where

we can be our authentic selves. Her approach, knowledge, and expertise bring value in terms of healing, instilling ethical behaviour, introducing two-eyed seeing and integration of Indigenous ways, inclusive leadership practice, and setting organizations and institutions on a strategic path to ensure community is built.



**Zen Tharani** ([www.linkedin.com/in/ztharani](http://www.linkedin.com/in/ztharani)) is a seasoned leader and management consultant with a remarkable career spanning over 25 years. As the CEO and Founder of Xenex Consulting Inc. ([xenexconsulting.com](http://xenexconsulting.com)), a respected consultancy based in Canada, Zen provides tailored services to global public and private organizations, with a specific focus on digital health and informatics.

Zen's educational background includes a BSc in Health Information Science and an MSc in Health Informatics, highlighting his commitment to staying at the forefront of healthcare innovation.

In addition to his consulting role, Zen is an IVEY-certified Executive Coach and shares his industry insights as an Adjunct Professor at prestigious institutions like the University of Victoria and the University of Toronto. He also serves as an Executive Fellow with Woxsen University in India, contributing to the development of future leaders and fostering innovation within organizations.

Zen's contributions to digital health are noteworthy. He served as an outgoing board member of Digital Health Canada and as the former Executive Director of Digital Health Strategic Initiatives for the British Columbia Ministry of Health, serving a population of over 4 million. His ability to bridge the gap between theory and practice has been instrumental in advancing digital health initiatives.

Zen has received accolades such as the Top 25 Canadian Immigrant Award, recognizing his influence in Canada and his

significant contributions to the digital health sector. Additionally, he was invited as a speaker and thought leader at the Digital Health Symposium at the UN General Assembly 78 in New York, where he shared his insights with global stakeholders.

Zen Tharani continues to be a driving force in the healthcare industry, both in Canada and on the global stage, through his leadership, expertise, and dedication to innovation in digital health.



**Dr. Josh Giles** completed his doctoral studies in Biomedical Engineering at Western University (London, Canada) in the Hand and Upper Limb Center where he focused on developing a hybrid cadaveric-mechatronic shoulder testing system that allowed him and his surgical partners to answer critical clinical questions. After completing his PhD, Dr. Giles moved to Imperial College London (London, UK) to complete his post-doctoral research (2014-2017). There, Dr. Giles developed and patented a novel method to conduct minimally invasive shoulder replacement surgery. Since 2017, Dr. Giles has been an Assistant Professor in the Department of Mechanical Engineering at the University of Victoria (Victoria, Canada) where he established the Orthopaedic Technologies and Biomechanics lab. Dr. Giles currently holds a 5-year Scholar Award from Michael Smith Health Research BC. Dr. Giles' lab has two main goals: to shed new light on foundational principles in orthopaedic biomechanics and to apply this knowledge to developing novel medical technologies for clinician training, quantitative patient assessment, and improving surgical planning through the use of patient-specific functional & biomechanical modelling data. A particular focus of the lab's work is improving the understanding of the diversity that exists in human biomechanics and how this can affect clinical outcomes when people undergoing musculoskeletal and orthopaedic treatment.



**Dr. Manu Madhav** is an Assistant Professor in the School of Biomedical Engineering and the Djavad Mowafaghian Centre for Brain Health at UBC, the Tier 2 Canada Research Chair in Neural Circuits of Cognition and Control, and a Michael Smith Health Research BC Scholar. He is an engineer turned neuroscientist, whose research program investigates how the brains of animals including humans construct representations of their environment using all available senses and use these 'cognitive maps' to perform flexible behaviours. Using virtual reality and closed-loop experiments in animals and humans, the NC4 lab seeks to understand how neural representations aid in navigation and planning, and how they are impaired by neurodegenerative dementias such as Alzheimer's Disease.



**Dr. Karolina Papera Valente** is the CEO & CSO at VoxCell BioInnovation. Karolina is also an Assistant Teaching Professor in the Mechanical Engineering Department at the University of Victoria. She has a B.Sc. and M.Sc. in Chemical Engineering and a Ph.D. in Mechanical Engineering. Her Ph.D. was focused on engineering breast cancer tissue models and on the development of targeted delivery systems to the tumor area. Dr. Valente has extensive experience in tissue engineering, drug delivery systems, 3D bioprinting, and in vitro models. She is also passionate about research, teaching, and science. She is a strong advocate for gender equity and women in STEM. Karolina passed on postdoc offers from the Mayo Clinic and Stanford to start VoxCell.

## Trade Fair Presenters

Apricell Biotechnology Inc

Axolotl Biosciences

UVic BMED

UVic Biomechanics and Instrumentation Lab (BALL)

UVic Centre for Advanced Materials and Related Technology (CAMTEC)

CanAssist

Coast Capital Innovation Centre

Island Health

Procurement Assistance Canada

Redlen Technologies

UVic Research Partnerships Office

Victoria Hand Project

VoxCell BioInnovation



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