THE SECOND ANNUAL

CANADIAN UNDERGRADUATE BIOMEDICAL ENGINEERING CONFERENCE

NOVEMBER 2021
CONFERENCE PACKAGE

UBEC

TABLE OF CONTENTS

WELCOME MESSAGE FROM THE CUBEC TEAM

Welcome to CUBEC 2021!

On behalf of our entire CUBEC Team, we are pleased to welcome you to the 2nd annual Canadian Undergraduate Biomedical Engineering Conference (CUBEC). If you attended the conference last year, then welcome back, and thank you for your support! If you are new, then welcome to CUBEC!

We are excited to share with you CUBEC 2021, the first large-scale event dedicated to connecting undergraduate biomedical engineering students across Canada. The goal of CUBEC is to provide undergraduate students with many opportunities to learn from professionals and academics from around the country about biomedical engineering as it is now, and where it will go in the future! In addition, CUBEC is an excellent opportunity for students to interact with other undergraduates from universities across Canada and meet individuals with likeminded interests! CUBEC is back with new events, as well as many new panelists and companies to learn from, so we hope you enjoy this informative weekend.

The biomedical engineering discipline is a relatively new field that is full of exciting opportunities and boasts a large variety of career options in academia and industry, which can lead students to feel overwhelmed and uncertain about their future careers. Last year, CUBEC 2020 provided a platform for various academic research groups, industry leaders, and start-up companies to highlight what they do, providing our attendees with the opportunity to learn more about potential career paths. We are aiming to achieve the same goal this year by providing a platform for various academic research groups, industry leaders, start-up companies, and others to highlight what they do. Ideally, this will allow undergraduate students to gain more clarity and make decisions about your potential career path.

This weekend we hope you are able to learn all about the field of biomedical engineering and end the day Sunday feeling more prepared to take on your future. We have been working hard planning CUBEC for many months now and are excited you have chosen to join us this weekend. Have a wonderful weekend, learn lots, and have some fun!

CUBEC 2021 Team

OUR MISSION

Our mission focuses on 2 key pillars:

To expose and inform undergraduate biomedical engineering students about internship and post-graduate options across Canada

- Showcase the careers and companies in various areas of industry (ex. biotechnology, pharmaceuticals, etc.)
- Increase awareness regarding graduate programs and explore different research areas pertaining biomedical engineering across Canada
- Showing students the possibilities within an entrepreneurial setting

To provide a platform for students to network and build meaningful connections

- Allow students from different universities studying disciplines related to biomedical engineering to network and connect with one another
- Expose students to the different initiatives and paths taken by their peers to incite new ideas for themselves
- Encourage connections between undergraduate students and biomedical engineering professionals

THE IMPACTS OF COVID-19 ON CUBEC 2021

Given the success of CUBEC 2020 piloting its inaugural conference last year, CUBEC 2021 will be a virtual experience that we hope will allow a greater number of students to participate given the remote-nature of the conference. We still aim to ensure that this event is of the highest quality and to recreate an in-person conference experience to the best of our abilities.

DAY 1: SATURDAY NOV 20

10:00 AM - 10:30 AM (PST)
1:00 PM - 1:30 PM (EST)

Opening Remarks

10:30 AM - 11:30 AM (PST)
1:30 PM - 2:30 PM (EST)

Keynote 1 - Doug Goertzen

Come hear from Doug Goertzen, the President and COO of Kardium Inc.

11:30 AM - 12:30 PM (PST)
2:30 PM - 3:30 PM (EST)

Academic Research Panels

Come and listen to various professors discuss their research and experience in academia.

12:30 PM - 1:00 PM (PST)
3:30 PM - 4:00 PM (EST)

Break

1:00 PM - 2:00 PM (PST)
4:00 PM - 5:00 PM (EST)

STREAM A ## Graduate Student Panel

Looking for insights on student life after post-secondary? Come join our Graduate Student Panel to learn more!

STREAM B ## Resume 101: Workshop

Need a quick review of your resume? Stop by our Resume 101: Workshop and get insider information on what companies look for!

2:00 PM - 3:00 PM (PST)
5:00 PM -6:00 PM (EST)

STREAM A ## Start-Up Panel

Want to know more about how to start your own biomedical enterprise? Come see entrepreneurs in our Start-up Panel!

STREAM B ## Top 10 Research Papers

Interested in the recent breakthroughs in biomedical engineering? Join us to learn about the Top 10 Research Papers published in the field last year.

3:00 PM - 3:15 PM (PST)
6:00 PM - 6:15 PM (EST)

Closing Remarks

3:30 PM - 5:00 PM (PST)
6:30 PM - 8:00 PM (EST)

Student Networking

A chance to meet the other attendees at the conference! Will be held on Gather Town:
https://tinyurl.com/CUBEC2021StudentNetworking

DAY 2: SUNDAY NOV 21

10:00 AM - 10:30 AM (PST)
1:00 PM - 1:30 PM (EST)

Opening Remarks

10:30 AM - 11:30 AM (PST)
1:30 PM - 2:30 PM (EST)

Keynote 2 - Ananth Ravi

Come hear from Ananth Ravi, co-founder and Chief Science & Clinical Officer of MOLLI Surgical.

11:30 AM - 12:30 PM (PST)
2:30 PM - 3:30 PM (EST)

STREAM A ## Consulting Panel

Fascinated with how consulting companies give expert advice to other industries and enterprises? Come join our Consulting Panel to hear from consulting firm representatives!

STREAM B ## Sustainability in Biotech

Ever interested in how sustainability is incorporated into the design of biomedical systems? Rashmi Prakash will talk about how the field of biomedical engineering can benefit from sustainability principles.

12:30 PM - 1:00 PM (PST)
3:30 PM - 4:00 PM (EST)

Break

1:00 PM - 2:00 PM (PST)
4:00 PM - 5:00 PM (EST)

Industry Panels

Interested in learning more about industry opportunities? Join us to hear from panelists representing companies from across Canada.

2:00 PM - 3:00 PM (PST)
5:00 PM -6:00 PM (EST)

Poster Session

Come and learn more about research being done by undergraduate biomedical engineering students from universities across Canada.

3:00 PM - 3:30 PM (PST)
6:00 PM - 6:30 PM (EST)

Closing Remarks

Zoom link for Day 1 & Day 2:
https://tinyurl.com/CUBEC2021ZoomLink

KEYNOTE SPEAKER

DAY 1
Nov 20

10:30 AM - 11:30 AM (PST)
1:30 PM - 2:30 PM (EST)

DOUG GOERTZEN

PRESIDENT,
CHIEF OPERATING OFFICER,
KARDIUM INC.

Kardium

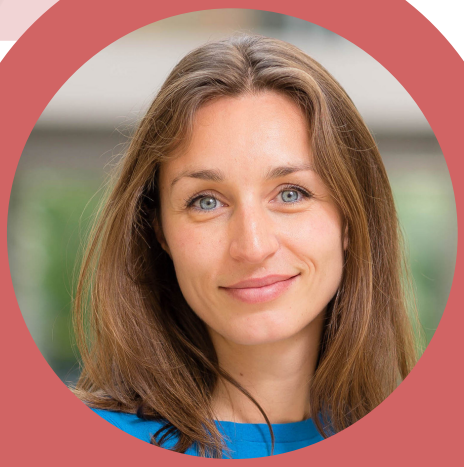
Doug Goertzen is the President and COO of Kardium Inc., a Vancouver based company revolutionizing the treatment of atrial fibrillation. The Kardium team has developed and commercialized one of the most sophisticated medical devices ever to be deployed percutaneously into the human body. Doug co-founded Kardium in 2007 and led the company as CEO for the first 13 years. He currently provides overall management of the engineering, manufacturing, quality, regulatory and intellectual property teams. Doug has extensive experience in the journey of taking a medical device from concept to clinical testing, and then through regulatory approval to commercial launch. He has focused on building a company that has extremely talented team members working in a collaborative culture to deliver a market leading product.

Prior to Kardium, Doug held the position of General Manager, Proofing and Color at Eastman Kodak Company, and was responsible for the $55M worldwide proofing and colour business and a 130-person team. He held senior positions in service, development, and management during his 12 years at Kodak and Creo Inc. (acquired by Kodak in 2005). He graduated with a B.A.Sc. in Electrical Engineering from Simon Fraser University.

ACADEMIC RESEARCH PANEL A

DAY 1
Nov 20

11:30 AM - 12:30 PM (PST)
2:30 PM - 3:30 PM (EST)



DR. CAROLINA TROPINI

UNIVERSITY OF BRITISH COLUMBIA

Dr. Carolina Tropini is an Assistant Professor at the University of British Columbia in the Department of Microbiology and Immunology and the School of Biomedical Engineering. She is a Paul Allen Distinguished Investigator and in 2020 she was the first Canadian to be awarded the Johnson & Johnson Women in STEM2D Scholar in the field of Engineering. Dr. Tropini received her B.Sc. in biophysics with honours and conducted her Ph.D. in Biophysics at Stanford University. She did her postdoc in Microbiology at Stanford. The Tropini lab is a cross-disciplinary group that incorporates techniques from diverse disciplines to engineer microbes and improve human health.

DR. KYLA SASK

MCMASTER UNIVERSITY

Dr. Kyla Sask is an Assistant Professor in the Department of Materials Science and Engineering and an associate member of the School of Biomedical Engineering at McMaster University. She received her BSc in Chemical Engineering from Queen's University, PhD in Biomedical Engineering from McMaster and a Postdoc in the Advanced Biomaterials Lab at Queen's. Dr. Sask worked at Interface Biologics Inc. (IBI) in Toronto for several years as an Associate Research Engineer where she contributed to the development of Endexo™, an antithrombogenic technology (acquired by Evonik) and utilized in various medical devices. Her research focuses on blood contacting biomaterials, protein and cell interactions, surface modification and characterization, biosensors, and nanomaterials.

ACADEMIC RESEARCH PANEL A

DAY 1
Nov 20

11:30 AM - 12:30 PM (PST)
2:30 PM - 3:30 PM (EST)

DR. LEO CHOU

UNIVERSITY OF TORONTO

Dr. Leo Chou is currently an assistant professor in the Institute of Biomedical Engineering at the University of Toronto. He is also one of fifteen Principal Investigators funded by the Medicine by Design initiative. Dr. Chou's research focuses on the development of programmable nucleic acid nanotechnology for therapeutic applications. Prior to his independent career, Dr. Chou was a Banting postdoctoral fellow at the Dana-Farber Cancer Institute, the Wyss Institute, and the Biological Chemistry and Molecular Pharmacology department within Harvard Medical School in Boston, MA. Dr. Chou obtained his PhD in Biomedical Engineering at the University of Toronto in 2014.

DR. ALLEN EHRLICHER

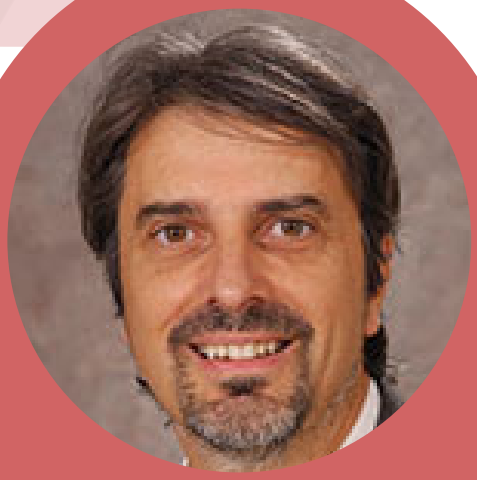
MCGILL UNIVERSITY

Dr. Allen Ehrlicher is an Associate Professor of Bioengineering and a Canada Research Chair in Active Biological Mechanics. He received his B.S. in Physics from UT Austin and his MSc and PhD in Physics from the University of Leipzig working with Josef Käs. He was then a postdoctoral researcher at Harvard University and Medical School. Dr. Ehrlicher joined the faculty of McGill in 2013 in the newly formed Department of Bioengineering. For the last two decades, he has studied active mechanics in biology; how these systems generate, respond to, and resist forces. The applications range from human health and pathology to bioinspired strong composites.

ACADEMIC RESEARCH PANEL B

DAY 1
Nov 20

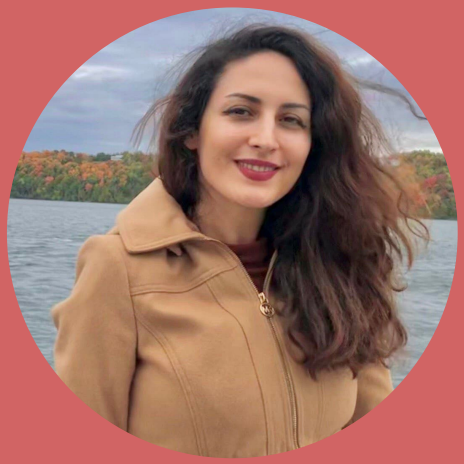
11:30 AM - 12:30 PM (PST)
2:30 PM - 3:30 PM (EST)



DR. SEBASTIAN WACHSMANN-HOGIU

MCGILL UNIVERSITY

Dr. Sebastian Wachsmann-Hogiu received his PhD in Physics from Humboldt University, Berlin. He held research and academic positions at Carnegie-Mellon University, Cedars-Sinai Medical Center, University of California Davis, and Intellectual Ventures Laboratory. Since 2017 he is Professor of Bioengineering at McGill University, where he explores optical and electrical properties of biomaterials and is interested in global health and global development problems.



DR. GELAREH HAJIAN

QUEENS UNIVERSITY

Dr. Gelareh Hajian has held the position of Postdoctoral Research Fellow in the Department of Electrical and Computer Engineering at Queen's University since February 2021. She received her Ph.D. in Biomedical Engineering from Queen's University, Kingston, Ontario (2020). Her research focuses on physiological signal processing, and upper arm end-point force/torque and movement modelling. She has developed algorithms to accurately model the exerted force under various experimental conditions. Her work resulted in a novel approach that incorporated high density EMG data and kinematic information to improve the performance of force modelling, which significantly outperformed other methods in the literature.

ACADEMIC RESEARCH PANEL B

DAY 1
Nov 20

11:30 AM - 12:30 PM (PST)
2:30 PM - 3:30 PM (EST)

DR. MICHAEL KALLOS

UNIVERSITY OF CALGARY

Dr. Michael Kallos is a Professor in the Department of Chemical and Petroleum Engineering, an Adjunct in the Department of Cell Biology and Anatomy, and the Associate Director of the Pharmaceutical Production Research Facility, all at the University of Calgary. He is the Director of the Biomedical Engineering Calgary Initiative, Interim Department Head for Biomedical Engineering, as well as a member of the McCaig Institute for Bone and Joint Health. A chemical engineer by training, Dr. Kallos performs research in stem cell bioprocess engineering - a key element in the clinical implementation of regenerative medicine and cell therapies. His research includes working with mouse, equine and human cells including pluripotent, mesenchymal and neural stem cells. His work is key to the industrial/clinical scale-up and production of cell and biomaterial therapies.

DR. MATTHIAS GORGES

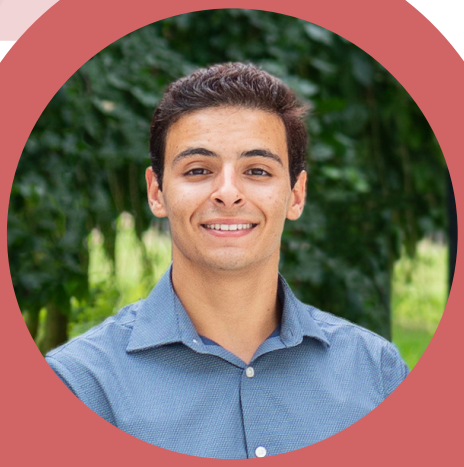
BC CHILDREN'S HOSPITAL RESEARCH INSTITUTE

Matthias Görges is a Scientist at the Research Institute, BC Children's Hospital, and an Assistant Professor (Partner) in the Department of Anesthesiology, Pharmacology & Therapeutics at the University of British Columbia in Vancouver, Canada. Matthias holds an MSc in biomedical engineering from the Hochschule für Angewandte Wissenschaften Hamburg, Germany, and a Ph.D. in bioengineering from the University of Utah, USA. Part of trans-disciplinary research teams in both pediatric anesthesia and digital health innovation, his research focuses on the development and evaluation of predictive analytics algorithms, mobile health interventions, and clinical informatics platforms to leverage clinical and patient-provided data.

GRADUATE STUDENT PANEL

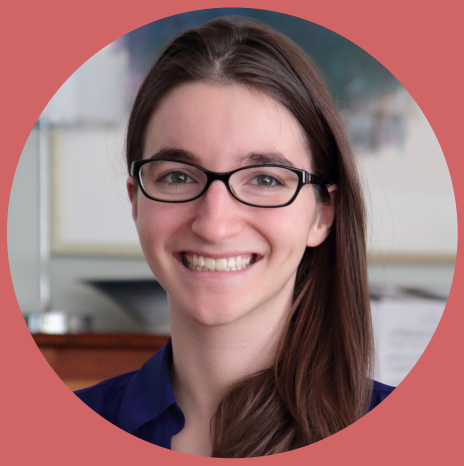
DAY 1
Nov 20

1:00 PM - 1:45 PM (PST)
4:00 PM - 4:45 PM (EST)



ANDREW D'ELIA
MD. UNIVERSITY OF TORONTO

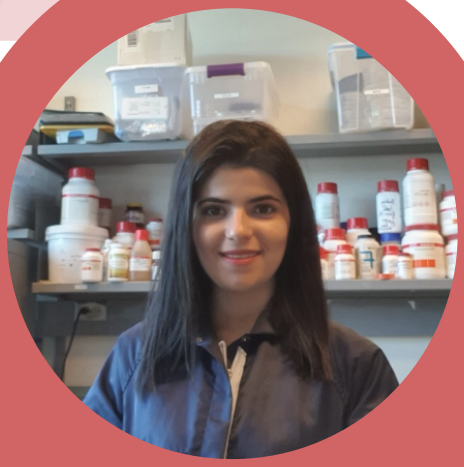
Andrew D'Elia is a first-year medical student at the University of Toronto. He is a published student researcher and aspires to contribute to the development of novel medical technologies and therapeutics. Before going into medicine, Andrew completed his Bachelor of Applied Science in Materials and Biomedical Engineering as part of the Integrated Biomedical Engineering and Health Sciences (iBioMed) Program at McMaster University. Throughout his educational career, Andrew has been highly involved in his community and enjoys teaching/mentorship opportunities. After completing his medical degree, he hopes to train as a surgeon/physician-scientist. At present, he is particularly interested in specializing in emergency medicine, orthopedic surgery, and surgical oncology.



NATALIE LANDON-BRACE
MD./PH.D UNIVERSITY OF TORONTO

Natalie Landon-Brace is a Class of 2017 graduate of the Engineering Science program (Biomedical Engineering Major) at the University of Toronto. During the course of her undergraduate degree, she worked in a number of different research areas from vision science to cancer genetics to regenerative medicine. Fascinated with scientific discovery and its implications for medicine, she decided to pursue a career at the intersection of these two worlds, which led her to the MD/PhD program at U of T. Her PhD work focuses on building 3D *in vitro* models to better recapitulate the tumor microenvironment and using these models to identify novel aspects of cancer biology.

GRADUATE STUDENT PANEL



BISAN SAMARA

MASTER'S MCGILL UNIVERSITY

DAY 1
Nov 20

1:00 PM - 1:45 PM (PST)
4:00 PM - 4:45 PM (EST)

Bisan Samara is a biomedical researcher & engineer with 4+ years of experience in academic research. She is currently doing her master's in Biological and Biomedical Engineering at McGill University (Micro and Nanobioengineering Lab – PI: Dr. David Juncker). Samara's research interests include microfluidics, three-dimensional cell culture, and biomimetics. Prior to McGill, Samara worked at New York University Abu Dhabi on the development of a paper-based platform for the aggregation and cryopreservation of mammalian cells for drug testing applications. Her projects collectively resulted in a patent filing, 7 journal/conference papers, and ~CAD$160k commercialization/R&D grants.

RESUME 101: WORKSHOP

DAY 1
Nov 20

1:00 PM - 1:45 PM (PST)
4:00 PM - 4:45 PM (EST)

TIFFANY DINH
PROGRAM ASSOCIATE, CAMPUS RECRUITMENT
STEMCELL TECHNOLOGIES

Tiffany Dinh graduated from the University of British Columbia with a BSc. Food, Nutrition & Health and Minor in Commerce. Shortly after graduating, she began her human resources career across a number of industries but her "aha" moment came when managing the co-op program at a local biotech company prior to joining STEMCELL. As Program Associate, Campus Recruitment, Tiffany is passionate about supporting young, emerging talent as they develop their own career journey at STEMCELL.

DR. LAURA MCKIEL
RECRUITMENT TEAM LEAD
STEMCELL TECHNOLOGIES

Laura McKiel joined STEMCELL Technologies as a Scientific Recruiter in January 2021 after completing her PhD in Biomedical Engineering at Queen's University, and has recently become a Recruitment Team Lead. Laura's PhD research studied the contribution of different immune cell signalling pathways to the body's response to implanted biomedical materials. During graduate school Laura developed a keen interest in helping graduate students transition from academia into industry careers, and gained experience organizing and leading a variety of professional development seminars and workshops. Now, Laura uses her skills from this experience and her passion for science to help STEMCELL hire talented scientists.

START-UP PANEL

DAY 1
Nov 20

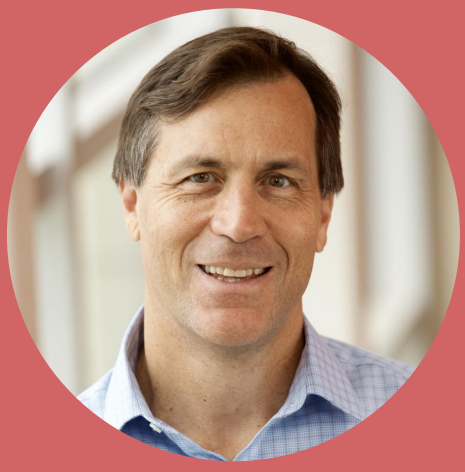
2:00 PM - 3:00 PM (PST)
5:00 PM - 6:00 PM (EST)

DR. COLIN DALTON

CO-FOUNDER/CTO
NEURAURA BIOTECH

Colin is an Assistant Professor at the University of Calgary and the Director of the Universities' Microsystems Hub, a multiuser micro-fabrication research facility for both academic and Industrial users. His research interests include electrokinetic fluid manipulation in microfluidic systems, microneedle arrays for painless drug delivery and brain-machine interfaces. He is also the Co-Founder and CTO of spin out company Neuraura Biotech, based on his research with his co-founder, Pierre Wijdenes. Neuraura's mission is to unlock safe and effective treatments for brain-related disorders using its proprietary miniaturized sensing technology to understand the electrical workings of the brain.

Neuraura



DR. MARTIN BROUILLETTE

FOUNDER, CHIEF TECHNOLOGY OFFICER
SOUNDBITE MEDICAL

Martin Brouillette holds a B. Eng. from McGill University and both a Master's and a Doctorate in Aeronautics from the California Institute of Technology. Dr. Brouillette is currently Professor in the Mechanical Engineering Department at the Université de Sherbrooke in Canada where he heads the Shock Wave Research Laboratory. He is the originator of several technology development projects in bio-engineering and micro-engineering, based on gas dynamics and shock wave physics. He is the holder of numerous patents for biomedical devices and sensor systems for aerospace applications and at the origin of three start-ups exploiting these technologies.

SoundBITE MEDICAL SOLUTIONS

START-UP PANEL

DAY 1
Nov 20

2:00 PM - 3:00 PM (PST)
5:00 PM - 6:00 PM (EST)

DR. HEATHER SHEARDOWN
SCIENTIFIC DIRECTOR
20/20 OPTIMEYES TECHNOLOGIES

Heather Sheardown is a Professor in the Department of Chemical Engineering with a cross appointment to the Department of Pathology and Molecular Medicine and an adjunct appointment with the School of Optometry at the University of Waterloo. She holds a two term Tier 1 Canada Research Chair in Ophthalmic Biomaterials and Drug Delivery and has published more than 150 peer reviewed papers on this subject. She is currently the Scientific Director of C20/20, an ORF funded incubator aimed at the commercialization of ophthalmic biotechnologies, and the Chief Scientific Officer of 20/20 OptimEyes, a McMaster based company focused on developing and commercializing a micelle based technology.

JULIAN MULIA
CO-FOUNDER
NANOTESS

Julian Mulia co-founded NanoTess with the vision to avoid unnecessary suffering through nanotechnology innovation starting with chronic wounds. Within one year NanoTess graduated from CDL-Rockies oversubscribed their financing round and won provincial, federal and military funding. Julian is a double graduate from the University of Calgary (Software and Chemical Engineering, M.Eng.). Prior to NanoTess, Julian worked as a management consultant, advising Fortune 500 C-Suite clients on Strategy, Operations, and establishing their innovation ecosystems and intrapreneurship practices. He has lived, worked or travelled to more than 42 countries so far, loving what life has to offer. Julian strongly believes that “Life begins and the end of your comfort zone.”

TOP 10 RESEARCH PAPERS

DAY 1
Nov 20

2:00 PM - 3:00 PM (PST)
5:00 PM - 6:00 PM (EST)

EMILY BLIVIN

UBC, CRIPTON LAB

Emily is a California native who earned a B.S. in Mechanical Engineering and M.Eng in Biomedical Engineering from the University of Portland in Oregon. She worked in fracture plating and bicycle helmet R&D before moving to Germany in 2017 to conduct research in the Institute for Biomechanics at BG Unfallklinik Murnau. Emily began her PhD studies in 2019 at UBC Vancouver in the Orthopaedics and Injury Biomechanics Group. Her thesis work concerns femoral augmentation to prevent hip fracture and uses a dual experimental-computational set-up to simulate a sideways fall impact, which will be captured using high speed x-ray.

LAURA STANKIEWICZ

UBC, ROSSI & ZANDSTRA LAB

Laura is currently completing her PhD in Biomedical Engineering at UBC. In her research, Laura uses emerging multi-omic sequencing and imaging techniques to learn about T cell development in the thymus. She uses these insights to guide the development of an in vitro stem cell-to-T cell differentiation platform that can serve as a cell source for immunotherapies.

KEYNOTE SPEAKER

DAY 2
Nov 21

10:30 AM - 11:30 AM (PST)
1:30 PM - 2:30 PM (EST)

DR. ANANTH RAVI

CO-FOUNDER AND CHIEF SCIENCE & CLINICAL OFFICER, MOLLI SURGICAL

molli
precision surgery made simpler™

Throughout his career, Dr. Ravi has sought to improve the patient experience. He is the only medical physicist ever to win the Human Touch Award, which recognizes a passion for improving the quality of care for cancer patients within Ontario.

Dr. Ravi has a history of peer-reviewed research focused on improving image guidance for medical procedures ranging from radiation to surgical oncology techniques. His primary focus has been on making precision surgery simpler through targeted innovation and increasing access to high-quality care. Dr. Ravi is co-inventor on numerous patents and has garnered several grants for medical device innovations.

Dr. Ravi's commitment to improving the treatment process for patients inspired him to develop the magnetic tracking technology that resulted in the creation of MOLLI Surgical. Prior to co-founding the company, he was a certified medical physicist at Sunnybrook Odette Cancer Centre and clinical operations lead, brachytherapy. Under Dr. Ravi's leadership, Sunnybrook's brachytherapy program became one of the highest performing in the world.

Dr. Ravi completed his doctoral studies at the University of Toronto. He has held faculty appointments at Sunnybrook Research Institute, the University of Toronto and Ryerson University.

CONSULTING PANEL

DAY 2
Nov 21

11:30 AM - 12:30 PM (PST)
2:30 PM - 3:30 PM (EST)

MARK DRLIK
DIRECTOR OF PROGRAM DESIGN
STARFISH MEDICAL

Mark Drlik is the Director of Program Design at StarFish Medical, a biomedical consulting firm located in Victoria, BC. As a graduate of Mechanical Engineering at UBC, Mark has found his passion in biomedical design and has spent almost 20 years in the industry thus far. StarFish Medical is Canada's largest medical device design, development, and contract manufacturing company offering services ranging from infectious disease diagnostics to automated lab equipment.

HARPREET CHATTHA
TALENT MANAGER
ISAAC OPERATIONS

Harpreet Chattha is the talent manager at Isaac Operations. He is in charge of recruitment, training and development, where he has helped the company grow 25% year on year. Prior to this, he worked for 4 years as an operations consultant. Whilst working as a consultant Harpreet worked across the food and beverage sector, in healthcare and in the marine industry. Collectively Harpreet oversaw and delivered bottom line improvements totalling more than $10m. His background is in Aeronautical Engineering from Imperial College London.

CONSULTING PANEL

DAY 2
Nov 21

11:30 AM - 12:30 PM (PST)
2:30 PM - 3:30 PM (EST)

MICHAEL PHELAN
TECHNOLOGY ANALYST
PSP INVESTMENTS

Michael Phelan is a consultant, bioengineer and McGill Bioengineering alum (M.Eng 21', B.Eng 20'). He has worked in numerous roles in AI and the startup ecosystem, including as an Artificial Intelligence Consultant at Deloitte Canada and Cofounder/COO at LFAnt Medical. Most recently, Michael began a role as a Technology Analyst at PSP Investments, one of Canada's largest investment managers. Michael's main interests are in technology, innovation & startups and he is always keen on hearing about new ideas and projects.

KIERAN GUINAN
SR&ED CONSULTANT
LEYTON

Kieran Guinan is a recent graduate of McGill Bioengineering. He has extensive experience in bioengineering labs, including projects that designed self-healing polymers and modelled cellular response through mechanotransduction. After graduation, he started working as a SR&ED consultant at Leyton, a global consultancy firm dedicated to helping companies of all sizes improve their business performance.

SUSTAINABILITY IN BIOTECH

DAY 2
Nov 21

11:30 AM - 12:30 PM (PST)
2:30 PM - 3:30 PM (EST)

RASHMI PRAKASH

CO-FOUNDER

ARUNA REVOLUTION HEALTH, INC.

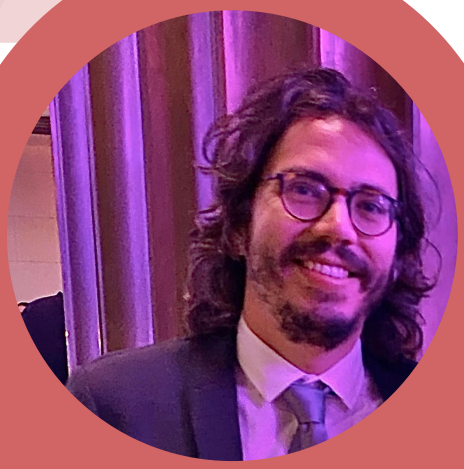
Rashmi Prakash is an Electrical Biomedical Engineer with a passion to sustainably integrate technology and biology to enhance the quality of life. She completed her Bachelor's degree in Electrical Engineering (Biomedical Option) and her Masters of Biomedical Engineering degree at UBC, and is now an Adjunct Professor with the UBC School of Biomedical Engineering. She has been fortunate to have the opportunity to work at a wide range of companies within the biomedical industry, including a biomedical non-profit, a for-profit medical device company, and as a clinical engineer at Vancouver's local health authorities. Most recently, Rashmi holds an integral role at a medical device start-up company. She is developing her own transformative health products, including a fetal health monitor and compostable menstrual products.

ARUNA
REVOLUTION

INDUSTRY PANEL A

DAY 2
Nov 21

1:00 PM - 2:00 PM (PST)
4:00 PM - 5:00 PM (EST)



MARC OUELLETTE

SENIOR SCIENTIFIC ASSOCIATE

NOTCH THERAPEUTICS

Marc Ouellette graduated with a M.Sc from the Physiology department at McGill in 2016. He has experience working on production clinical trials in T cell autologous therapy at the Princess Margaret Cancer Centre and process development for autologous T cell projects at GE Healthcare (later Cytiva). Most recently, he moved to Notch Therapeutics, a new startup company in Vancouver, as a Senior Scientific Associate in T cell immunology, where he have been researching allogeneic T cell therapies starting from induced pluripotent stem cells and maturing them in an artificial thymic environment with the goal of generating a product that is widely available to patients.

DR. DAVID JUNCKER

CO-FOUNDER

NPLEX BIOSCIENCES

David Juncker, PhD, holds a Canada Research Chair in Bioengineering, and is a Professor and the Department Chair of Biomedical Engineering at McGill University. David's research is founded on the belief that human ingenuity can improve health and well-being. His lab is inventing and developing novel micro and nanobioengineering technologies. The lab has been interested in three main areas, including multiplexed biomolecular analysis of proteins in (i) solution, (ii) (single) extracellular vesicles, and (iii) single cells (notably circulating tumor cells); building organ-on-a-chip systems; microfluidic rapid tests for disease diagnosis. Three start-ups spun-off from his lab, Sensoreal, Parallex Bioassays and one he co-founded, nplex biosciences.

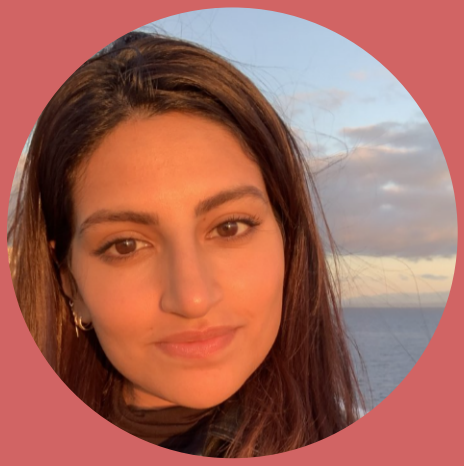
INDUSTRY PANEL A

DAY 2
Nov 21

1:00 PM - 2:00 PM (PST)
4:00 PM - 5:00 PM (EST)

DR. MAGALI SOUMILLON
CO-FOUNDER
FLEXOMICS

Magali Soumillon holds a master's degree in biotechnology from France, and a PhD from the University of Lausanne, Switzerland. She has developed various novel genomic approaches including for the analysis of single cells, first as a postdoctoral fellow at Harvard University and the Broad Institute, then as a scientist and team leader in several startups in the Boston and San Francisco areas where she helped develop novel instruments and devices for research and diagnostic purposes. Magali recently co-founded Flexomics, a Boston based startup developing an innovative screening platform capable of analyzing millions of cell-to-cell interactions to guide the development of immunotherapies.



RAEESA MATADAR
DEVELOPMENT ASSOCIATE
CCRM

Raeesa Matadar is a Development Associate at the Centre for Commercialization of Regenerative Medicine (CCRM), a leader in addressing the challenges involved with commercializing cell and gene-based therapies. She works in the process development lab, a state-of-the-art space designed to facilitate the optimization of any biological workflow that helps to bring new therapies, devices and diagnostics to market, predominantly in the viral vector and immunotherapy manufacturing spaces. Previously, she worked at Mount Sinai Hospital where she completed her Master of Applied Science in Biomedical Engineering from the University of Toronto, specializing in tissue engineering and regenerative medicine.

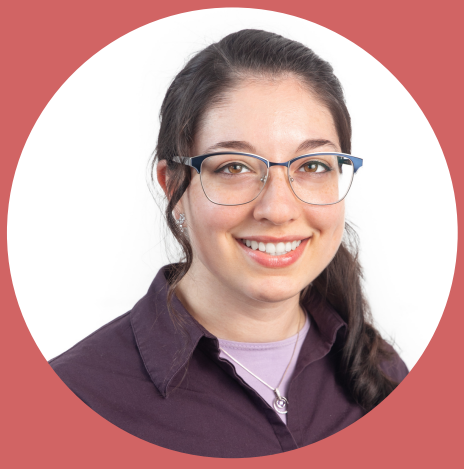
INDUSTRY PANEL B

DAY 2
Nov 21

1:00 PM - 2:00 PM (PST)
4:00 PM - 5:00 PM (EST)

DR. BECHARA SAAB
CEO
MOBIO INTERACTIVE

As CEO of MI, Bechara Saab is committed to supporting his team in building digital tools that empower better living and faster healing. They blend science and design with internally developed technology that remotely and objectively measures mind and body data (typically via computer vision enabled psychobiometrics). By partnering with medical and academic institutions around the world, they rigorously interrogate the efficacy of our products through clinical trials. Until 2017, Bechara was a Principal Investigator of the Zurich Neuroscience Centre where his laboratory at the Psychiatry Hospital focused on understanding molecules and neural circuits that give rise to the motivation to explore.



ORA COHEN
APPLICATION SPECIALIST
SENSOREAL

Ora Cohen received her B.Eng. in bioengineering from McGill in 2021. Over the course of her undergrad, she held internships working in regulatory compliance, telehealth, and cell research, and during her last year at McGill developed a growing interest in diagnostics and biosensing. She currently works at Sensoreal, a biotech start-up developing point-of-care diagnostic tests. Her role includes designing microfluidic platforms to run rapid biological assays and optimizing the algorithms which interpret the results.

INDUSTRY PANEL B

DAY 2
Nov 21

1:00 PM - 2:00 PM (PST)
4:00 PM - 5:00 PM (EST)

DR. SABINA BRUEHLMANN
CO-FOUNDER
NIMBLE SCIENCE

Sabina Bruehlmann has been bringing new health technologies to life for over 15 years. First, as co-founder of Zephyr Sleep Technologies, Sabina led the R&D team in the integration of innovative AI based approaches in sleep and dental medicine. Now, as co-founder of Nimble Science, Sabina and her team are leading the introduction of novel in vivo sampling technologies to unleash the potential of the gut microbiome. Sabina's core specializations are intellectual property and strategic positioning, regulatory, clinical and quality affairs. Sabina holds a BSc in Mechanical Engineering from Queen's University and a PhD in Biomedical Engineering from the University of Calgary.

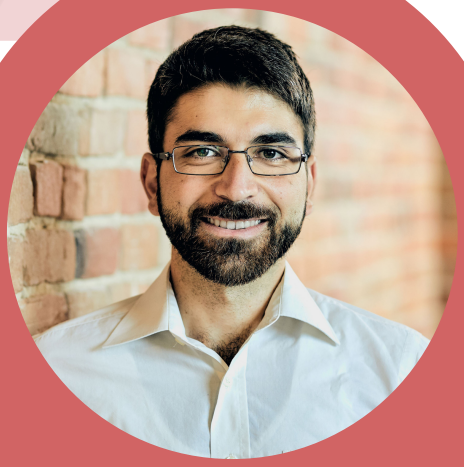
DOMENICO LOPEZ
CHIEF MARKETING OFFICER
MINUTEFLUIDICS

Domenico is a newly-graduated Bioengineering student from McGill University with a specialty in diagnostics and high-throughput screening, and is currently pursuing a Master's degree at Concordia University in Computer Science. He has worked in biology and bioengineering labs for three years. Additionally, he has a good background in marketing courses, including practical experience, which help him in his position of Chief Marketing Officer at MinuteFluidics.

INDUSTRY PANEL C

DAY 2
Nov 21

1:00 PM - 2:00 PM (PST)
4:00 PM - 5:00 PM (EST)



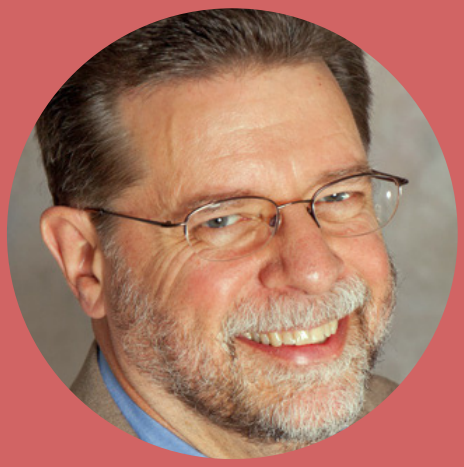
NIZAR KEZZO

LEAD HARDWARE DEVELOPER

MY01

Nizar Kezzo is a lead hardware developer at MY01. He studied electrical engineering at McGill University and joined MY01 as an undergraduate, and has seen the company grow from 3 employees to more than 60. MY01 specializes in advanced sensing of intra-compartmental muscle pressure to aid in diagnosing cases such as Acute Compartment Syndrome. At MY01, Nizar has worked in electrical and mechanical design, device safety, bio-compatibility, and regulatory approvals. He also worked on medical devices manufacturing and quality control. Through this, he has gained a deep insight into the medical device industry norms and methods.

MY01



DR. MATTHEW F. BARETICH

DIRECTOR OF BIOMEDICAL ENGINEERING

VANCOUVER COASTAL HEALTH

Matthew Baretich is a director of biomedical engineering for Vancouver Coastal Health and an advisor to Lower Mainland Biomedical Engineering. Before moving to Vancouver in June, he had accumulated more than 40 years of experience in clinical engineering practice in the United States. Matt is a founder, past-president, and fellow of the American College of Clinical Engineering. He is a certified professional in patient safety and a certified professional in healthcare risk management.

Vancouver CoastalHealth

INDUSTRY PANEL C

DAY 2
Nov 21

1:00 PM - 2:00 PM (PST)
4:00 PM - 5:00 PM (EST)

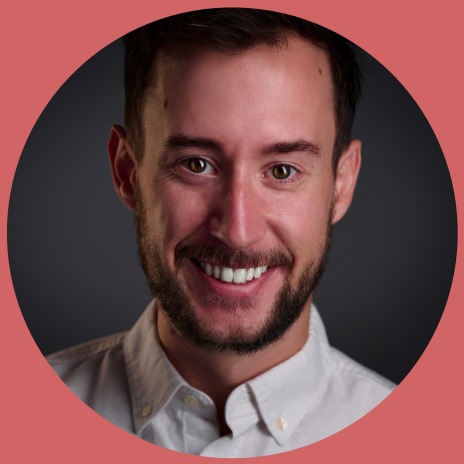
KEVIN CHAPLIN

CEO

KARDIUM

Kevin Chaplin joined Kardium in 2008. He has been active in many areas at Kardium, including product development, marketing, clinical development, business development and financing. Currently, he is the CEO of Kardium. Prior to Kardium, Kevin held product management, marketing and technical positions at Kodak, Sierra Wireless and Accenture. He started his career working as an engineer at the deepest gold mine in the world. Kevin has a B.Sc. in Chemical Engineering from the University of Cape Town.

Kardium



MARK SEMPLE

SENIOR R&D ENGINEER

MOLLI SURGICAL

Mark Semple is the Senior Research and Development Engineer at the Toronto-based medical device startup, MOLLI Surgical. Mark graduated from the Mechanical Engineering program at Queen's University in 2012, and went on to earn a Master's in Biomedical Engineering from UBC in 2015. Mark's work has brought him to several major Canadian hospitals in both BC and Ontario, where he has co-invented and patented a number of new technologies. He developed "smart" injury prevention wearables at UHN, radiotherapy guidance systems at Sunnybrook's cancer centre, and now Mark leads software and architecture development for future products at MOLLI Surgical.

molli
precision surgery made simpler™

POSTER SESSION

DAY 2
Nov 21

2:00 PM - 3:00 PM (PST)
5:00 PM - 6:00 PM (EST)

CUBEC is proud to present our first annual Virtual Poster Session! Undergraduate students from across Canada have submitted abstracts and video posters showcasing their work. Please visit our website (https://www.cubec.info/abstractcompetition) to see all the submissions. We invite you to attend the live poster session to meet the authors and ask questions.

JUDGING AND AWARDS

Video posters accompanying the project abstracts are evaluated by our judging panel to select the top 3 projects. Participants who attend the Virtual Poster Session get the chance to vote for the winner of the People's Choice Award.

Our virtual poster session will be graciously judged by the following representatives:

Doug Goertzen

Michael Giannini

Dr. David Latulippe

Druty Savjani
Alice Yang

Dr. Martin Prusinkiewicz
Dr. Maryam Rahimi Balaei

Dr. Gelareh Hajian

First Place	*$25 per presenter and CUBEC merch*
Second Place	*$20 per presenter and CUBEC merch*
Third Place	*$15 per presenter and CUBEC merch*
People's Choice	*CUBEC merch*

THANK YOU TO OUR

UBEC 2021

SPONSORS FOR THEIR SUPPORT!

Kardium

CELEBRATING 10 YEARS CCRM

molli

precision surgery made simpler™

BC Children's Hospital
Provincial Health Services Authority

StarFish MEDICAL

McMaster University | ENGINEERING

MOBIO INTERACTIVE

OUR SPONSORS

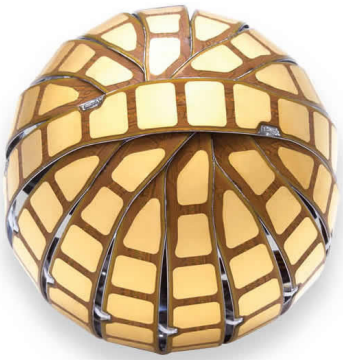
KARDIUM

GOLD SPONSOR

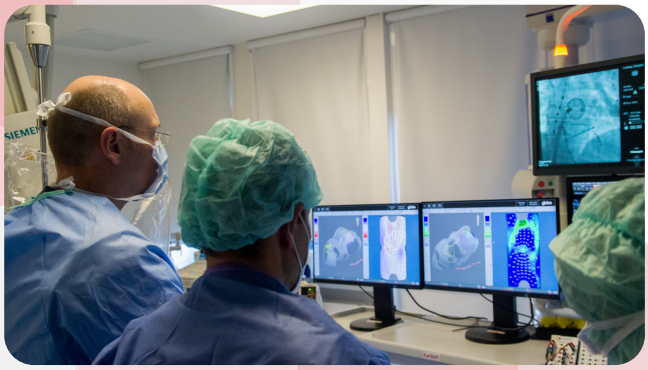
Kardium Inc. is a rapidly growing medical solutions company that has developed an advanced system for the treatment of atrial fibrillation (AF). AF, which affects more than 37 million people worldwide, is an electrical disorder of the upper chambers of the heart (the atria) that causes rapid electrical signals that can exceed one hundred beats per minute. AF can severely impact quality of life and can increase the risk of stroke by 500%.

AF catheter ablation treatment resets the rhythm of the heart by isolating the areas of heart tissue causing the erratic electrical signals. Many catheter ablation systems require multiple catheters to deliver therapy, adding complexity to the procedure. Kardium's Globe® Mapping and Ablation System is the only system to combine rapid pulmonary vein isolation, high-definition mapping, and atrial ablation into a single catheter.

globe



Based on more than a decade of research and development, more than 100 patents, and close collaboration with leading clinical electrophysiologists, the Globe System includes a single spherical catheter with 122 electrodes, software for high-resolution 3D mapping and ablation control, and the ability to deliver both radiofrequency and pulsed field energy for ablation.



Founded in 2007 and headquartered in Vancouver, Canada, Kardium is recognized as a top company to work for and makes a positive impact everyday.

Kardium®

MOLLI SURGICAL

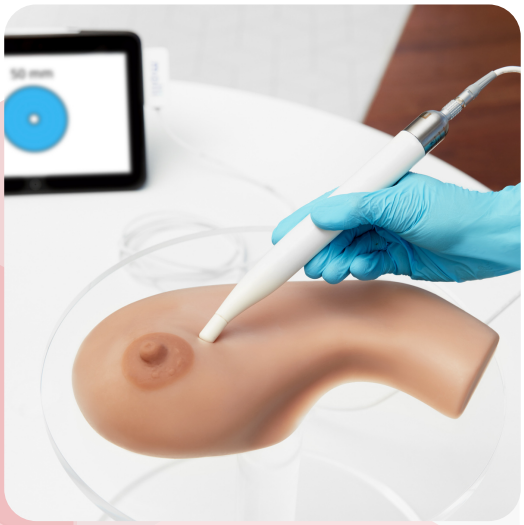
GOLD SPONSOR

Magnets, Microchips, and Lab Fires

The evolution of product development is never a linear process and at MOLLI Surgical it is no different. We started in the operating room nearly a decade ago when we set out to find an alternative to the current method of locating lesions.

At the time, guide wires — and more recently, radioactive localization seeds — were used to help surgeons locate lesions. However, the guide wires are obtrusive and painful for patients and the seeds are not feasible for use by some cancer programs due to administrative costs and processes.

Our team tried a variety of complex ideas — including utilizing stud finders to find implantable gold markers, copper tubing, infrared goggles and microchips — that were unsuccessful. We even caused a few minor lab fires that resulted in no damage before arriving at an unexpected resolution, which was surprising because it was the simplest solution to the problem.



By incorporating magnets and drawing on our previous experiences using stud finders, we created MOLLI®. It is comprised of an introducer needle, wand, magnet, and tablet.

MOLLI works by using the introducer needle to insert a small magnet into a breast lesion. During surgery, the wand is used to locate the magnet. The tablet, which is connected to the wand, reveals the location and depth of the lesion, guiding the surgeon to the location where an incision is made.

After years of research and testing, MOLLI was met with favourable feedback from surgical oncologists, radiologists and pathology staff. I'm proud to report that earlier this year, **we were cleared for approval by the FDA and Health Canada.**

This experience reiterated the age-old lesson for me in that the solution to complex problems are often the simplest ones. By thinking outside the box, we have developed a more efficient and patient-centric process to locate breast lesions.

By Ananth Ravi
Chief Science & Clinical Officer, MOLLI Surgical

molli
precision surgery made simpler™

CENTRE FOR COMMERCIALIZATION OF REGENERATIVE MEDICINE (CCRM)

SILVER SPONSOR

CCRM, a Canadian not-for-profit organization funded by the Government of Canada and leading academic and industry partners, supports the development of regenerative medicines and associated enabling technologies, with a specific focus on cell and gene therapy. A network of academic researchers, leading companies, strategic investors and entrepreneurs, CCRM accelerates the translation of scientific discovery into new companies and marketable products for patients, with specialized teams, funding and infrastructure. CCRM sources and evaluates intellectual property from around the globe, offers various consulting services, conducts development projects with partners, and establishes new companies built around strategic bundles of intellectual property. CCRM has a fully resourced research facility used to both evaluate and advance technologies, a centre for process development and advanced manufacturing, and a GMP facility within a 40,000 square foot space. CCRM is the commercialization partner of the University of Toronto's Medicine by Design. CCRM is hosted by the University of Toronto and was launched in Toronto's Discovery District on June 14, 2011.

Visit us at www.ccrm.ca

MCMASTER UNIVERSITY, FACULTY OF ENGINEERING

SILVER SPONSOR

Ranked among the world's top engineering schools, the Faculty of Engineering plays a significant role in helping McMaster University earn its reputation as one of Canada's most innovative universities. Our focus is on experiential, problem-based learning and our interdisciplinary approach to collaboration results in smarter insights, ground-breaking ideas and greater optimism. This approach is helping us create a Brighter World.
Visit ww.eng.mcmaster.ca/graduate for more information.

Visit www.eng.mcmaster.ca/graduate for more information.

The McMaster School of Biomedical Engineering pushes the boundaries of discovery and improves the lives of future generations. The program has three areas of specialization; biomaterials and devices; imaging, sensing and detection; and therapeutics. We offer reputable graduate and PhD degree programs.

Visit www.eng.mcmaster.ca/msbe for more information.

MOBIO INTERACTIVE

BRONZE SPONSOR

Mobio Interactive is a digital therapeutics company that develops and commercializes clinically validated software to enhance human performance and help prevent, measure and treat mental illness. MI's meditation and psychotherapy programs are distributed to patients via "AmDTx", a digital therapeutic platform with embedded digital biomarkers.

The company is adopting the regulatory-approved and payor-reimbursed pharmaceutical model to digital therapeutics, leading to full integration of software as medicine into the healthcare economy. To date, MI has interventions developed or in development for seven indications: generalized anxiety, chronic stress diagnosis and treatment, mental illness comorbidity with cancer, paediatric traumatic brain injury, paediatric obesity, postpartum depression, and major depression.

MOBIO INTERACTIVE

STARFISH MEDICAL

BRONZE SPONSOR

Empowering Medtech Innovation®

StarFish Medical is Canada's award winning, full service Medical Device Design company providing engineering, design, development, NPI, commercialization and manufacturing services based in Victoria BC and Toronto. Our Pathfinder™ process reduces wasted effort and increases success for medical device product definition, technical engineering, and product development. Prototype and volume production are delivered within an ISO 13485 certified Quality Management System, manufacturing and clean room facilities. Medical and specialty areas include: Bio Services, Microfluidics, Regenerative Medicine, Microbiology, Cardiovascular, Connected Devices, IVD, Ophthalmology, Optics, Point of Care Assays, and Ultrasound.

StarFish MEDICAL

BC CHILDREN'S HOSPITAL

SPONSOR

Researchers at BC Children's Hospital Research Institute save and transform children's lives through discovery, innovation and excellence. Together with our generous and visionary partners, funders and donors, and the families who participate in our research, we are at the forefront of child health.

BC Children's Hospital
Provincial Health Services Authority

EXECUTIVE COMMITTEE

Lena Kozarov
Co-Chair CUBEC 2021
4th Year Bioengineering,
McGill University
cubec.chair@gmail.com

Passionate about utilizing advancements in the biomedical engineering field to help individuals within the communities around us, and excited to educate young bioengineers about these possibilities through CUBEC!

Aditi Sitolay
Co-Chair CUBEC 2021
4th Year Biomedical Engineering,
University of British Columbia
cubec.chair@gmail.com

Interested in product development and commercialization as well as increasing access to quality health care worldwide. Passionate about inclusivity, wellness and helping students navigate their university life and future careers.

Olivia Hetland
Sponsorship Lead CUBEC 2021
4th Year Biomedical Engineering,
University of British Columbia
cubec.sponsorship@gmail.com

Passionate about connecting young biomedical engineers to industry professionals and bridging the gap between students and their potential future career opportunities!

Jasmine Martinez
Marketing Lead CUBEC 2021
2nd Year Chemical Engineering,
University of British Columbia
cubec.marketing@gmail.com

Curious about the design of innovative technologies used to treat and cure disorders, hoping to inspire young individuals to seek industry connections along the way.

Neal Fahey
Finance Lead CUBEC 2021
5th Year Bioengineering,
McGill University
cubec.finance@gmail.com

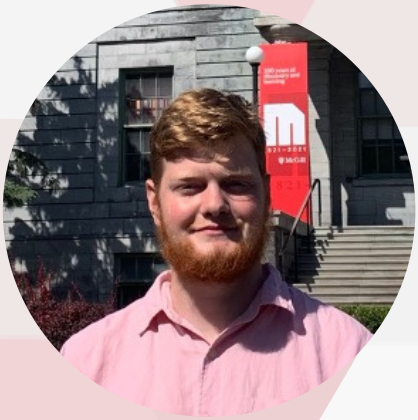
Has an interest in synthetic biology and metabolic engineering and passionate about helping fellow students be confident in their future professional careers.

Beth Cushnie
Events Co-Lead CUBEC 2021
2nd Year Bioengineering,
McGill University
cubec.events@gmail.com

Passionate about helping bioengineering students explore the diverse world of bioengineering, and excited to explore it herself. Particularly interested in stem cell technology and tissue regeneration.

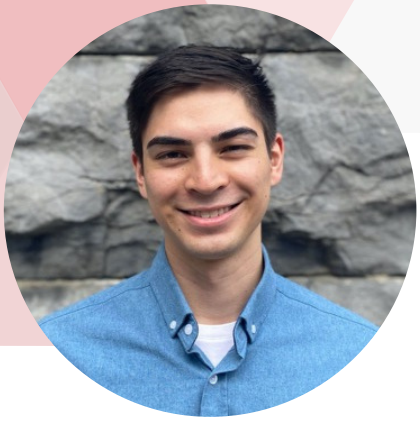
Rigel Tormon
Events Co-Lead CUBEC 2021
3rd Year Chemical Engineering,
University of Calgary
cubec.events@gmail.com

Interested in applying process engineering principles to cellular and tissue engineering. Passionate about making pathways for biomedical engineering clearer to students while fostering a cross-Canada community amongst them.



Michael Parsons
Logistics Co-Lead CUBEC 2021
2nd Year Bioengineering,
McGill University
cubec.logistics@gmail.com

Interested in the medical applications of cellular and tissue engineering, and passionate about helping students find their future.



Samual Lasinski
Logistics Co-Lead CUBEC 2021
5th Year Bioengineering,
McGill University
cubec.logistics@gmail.com

Passionate about interdisciplinary collaboration within bioengineering and driven to provide a fulfilling conference experience to attendees and speakers.

CONTACT US

Get in touch with us to learn how you and your organization can be involved with CUBEC. Any inquiries can be sent to:

cubec.chair@gmail.com