



TORONTO BIOMEDICAL ENGINEERING CONFERENCE

*How Is Biomedical
Engineering Improving Quality
Of Life?*

40th Edition

May 10, 2024

 www.tobeconference.com

 Hart House



ToBE
TORONTO BIOMEDICAL
ENGINEERING CONFERENCE

Cover by:

SleepdB Lab at KITE UHN | Dr. Azadeh Yadollahi

SleepdB is a sound-proof laboratory developed to examine sleep-disordered breathing that leverages novel and non-invasive acoustic monitoring technologies. SleepdB is dedicated to understanding the intricate interplay between sleep, body fluid shifts and respiratory disease, including but not limited to obstructive sleep apnea, asthma, and COPD.

Striving to repair spinal cord damage

Tobias Fuehrmann | Shoichet Lab

Stem cells can be programmed to generate specific cells types. Here cells are differentiated into nerve cells (green) which extend large processes, called axons. The nuclei of all cells are blue.

Modeling the blood vessels

Yih Yang Chen | Chan Lab

Human Umbilical Vein Endothelial Cells (nuclei stained in blue) are grown within a microfluidic channel and subjected to flow shear in order to align their actin fibres (green) in the direction of flow. VE-Cadherin protein expression (red) shows the cell membranes are cross-linked to each other, allowing all of the individual cells to resist being washed away.

Vascular detection in neurosurgery

Shaurya Gupta | Yee and Yang Lab

This is a 3D printed device that surgeons use on clinical cases in the Operating Room. This device allows for accurate tracking of the ultrasound probe (and by extension – ultrasound scans) in 3D space and in relation to the patient's preoperative CT/MRI scans.

Table of CONTENTS

- 04 Message from BME Director
- 05 Welcome address from Conference Co-Chairs
- 06 Meet the Organizers
- 07 A Legacy of Progress: 40th Anniversary
- 08 Program Schedule
- 09 Venue Map
- 10 Keynote Speakers
- 11 Workshop Speakers
- 13 Sponsors
- 14 Student Presentations - Oral
- 15 Student Presentations - Poster

Message from the **DIRECTOR**



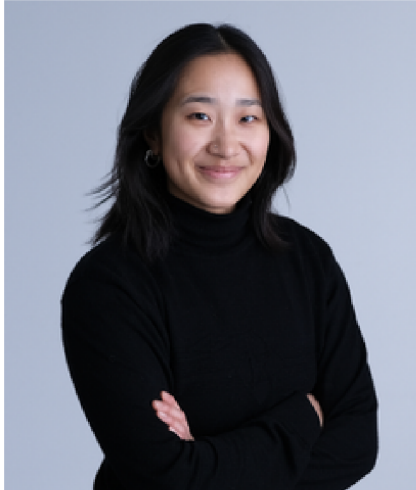
Welcome to the 40th Edition of the Toronto Biomedical Engineering Conference (ToBE), an initiative of the Institute of Biomedical Engineering (BME) at the University of Toronto. This student-led event is a vibrant showcase of groundbreaking research and insightful talks from esteemed institutions worldwide. ToBE serves as a dynamic platform for BME students, staff, and faculty to share innovative ideas, explore career paths, and foster collaborative research endeavors.

Since its establishment in the 1960s, the Institute has evolved into a leading center for multidisciplinary research, spanning from electrical and biological engineering to pioneering projects in artificial organs, diagnostic tools, and assistive technologies. Our collaborations with hospitals and research centers across Toronto drive innovation and impact in the field.

Throughout ToBE, attendees will have the opportunity to engage with live presentations by internationally renowned speakers, participate in workshops, and discover the latest research from our MSc and PhD students. We invite you to join us in celebrating and exploring the exciting world of biomedical engineering collaboration!

Milos Popovic, PhD
Professor and Director

Welcome address from the CONFERENCE CO-CHAIRS



Dear attendees,

It is our greatest pleasure to welcome you to the 40th edition of the Toronto Biomedical Engineering Conference! This event serves as a pivotal platform for trainees, researchers, and industry experts in biomedical engineering to converge, exchange insights, and showcase cutting-edge advancements to improve quality of life. Through a dynamic array of keynote addresses, interactive workshops, and technical sessions, we anticipate a stimulating and enriching experience for you all.

We wish to express our heartfelt gratitude to everyone who contributed to the success of ToBE 2024 – from our distinguished speakers and generous sponsors to our dedicated panelists, facilitators, volunteers, judges, and reviewers. We also extend our appreciation to the esteemed chairs of previous iARC/ToBE conferences, whose commitment has upheld this cherished tradition at the University of Toronto since 1985.

Special thanks are owed to the Institute of Biomedical Engineering team, including Prof. Milos Popovic, Director of BME; Qin Dai, Manager of Scientific Marketing; Barbara Alexander, Manager of Operations; Judy Gilligan, Operations Assistant; and Christopher Ling and Saba Sadatamin, ToBE 2023 Co-chairs, for their steadfast support and invaluable assistance throughout the planning process.

It has been a privilege to curate ToBE 2024 for you over the past year, and we are eager for you to gain value from the program and relish the conference experience. Welcome, and we look forward to fostering meaningful collaborations and discoveries together!

Zi Xuan Zhang and Eileen Zhong

Conference Co-Chairs

On behalf of the ToBE 2024 Organizing Committee

ORGANIZERS



Zi Xuan Zhang
Co-Chair



Eileen Zhong
Co-Chair



Ferdinand Reke Avikpe
Visual & Design



Savina Cammalleri
Visual & Design



Shana Alexander
Publicity & Web



Rachel Lau
Publicity & Web



Emmanuella Akowuah
Program



Sargol Okhovatian
Program



Rida Hasan
Program



Nour Ghanem
Program



Camille Guerin
Workshop



Dianoosh Kalhory
Workshop



Elain Huang
Sponsorship



Amel Sassi
Sponsorship



Tiffany Rodrigues
Demo



Naomi Opia-Evans
Treasurer



Lauren Banh
Publication



Samantha Unger
Publication



Nicholas Yee
Publication



Kousha Kamal
Publication



Jemila Abdulai
Student Volunteer
Leader



Alexandra Jucan
Student Volunteer
Leader

A Legacy of Progress: 40 YEARS OF THE ToBE CONFERENCE

Since its inception in 1985 as “Scientific Day”, the Toronto Biomedical Engineering Conference (ToBE) has served as a beacon of excellence and innovation in the field of biomedical engineering. Over the past nearly four decades, ToBE has evolved from a modest student-organized event into a prestigious gathering that showcases groundbreaking research and fosters collaboration among scholars, students, and industry leaders. Initially conceived as a platform for graduate students and faculty members to present their research through oral and poster presentations, ToBE has consistently adapted to meet the evolving needs of the biomedical engineering community. The conference has remained at the forefront of the discipline, embracing emerging technologies and trends while staying true to its mission of advancing knowledge and fostering interdisciplinary collaboration.

In 2016, under the leadership of co-chairs Ben Ouyang and Wilson Poon, the conference underwent a significant rebranding, emerging as the Institute of Biomaterials and Biomedical Engineering Annual Research Conference (iARC). This transformation marked a pivotal moment in ToBE's history, signaling a renewed commitment to excellence and innovation in the biomedical engineering community. Three years later, in 2019, under the stewardship of co-chairs Chaim Katz and Kramay Patel, the conference underwent another rebranding, becoming the Toronto Biomedical Engineering Conference (ToBE). This rebranding effort aimed to more accurately reflect the conference's expanded scope and growing influence within the global biomedical engineering community, reaffirming ToBE's position as a premier forum for the exchange of ideas and the advancement of biomedical engineering research and practice.

Looking back on its distinguished history, ToBE has consistently attracted leading scholars and practitioners in the field, providing a platform for fruitful discussions and collaborations. With over 300 students and 100 faculty members participating each year, the conference has become a cornerstone of the University of Toronto's academic calendar, drawing attendees from across the globe to engage in insightful deliberations and explore the latest advancements in academia and industry.

As ToBE looks to the future, it remains committed to its founding principles of excellence, innovation, and collaboration. With each passing year, the conference continues to push the boundaries of biomedical engineering, driving forward progress and shaping the future of the discipline. As we embark on the next chapter of our journey, we look forward to building on our rich legacy and furthering our mission of advancing knowledge and improving lives through biomedical engineering innovation.

PROGRAM SCHEDULE

FRIDAY, MAY 10TH, 2024	
8:30 AM - 9:00 AM	Check-in, Poster set-up, Breakfast Location: Quad
9:00 AM - 9:15 AM	Conference Welcome from BME Director and ToBE Co-Chairs Location: Great Hall
9:15 AM - 10:15 AM	Keynote Speaker 1: Dr. Jennifer Doudna Location: Great Hall
10:15 AM - 10:25 AM	Break
10:25 AM - 11:25 AM	Keynote Speaker 2: Dr. John-Ross Rizzo Location: Great Hall
11:25 AM - 11:30 AM	Break (Walk to poster session)
11:30 AM - 12:30 PM	Poster Session Location: Burwash Room & Music Room
12:15 PM - 1:15 PM	Lunch Location: Quad
1:15 PM - 2:15 PM	Concurrent Session 1: Workshop 1 - Effective Communication Location: East Common Room
	Concurrent Session 2: Workshop 2 - Success in Entrepreneurship Location: Great Hall
2:15 PM - 2:30 PM	Break (Walk to oral presentation)
2:30 PM - 3:30 PM	Concurrent session 1: Student Oral Presentation - Molecular Location: East Common Room
	Concurrent session 2: Student Oral Presentation - Cell & Tissue Location: Great Hall
	Concurrent session 3: Student Oral Presentation - Clinical Location: Debates Room
3:30 PM - 3:45 PM	Break (Walk to keynote presentation)
3:45 PM - 4:45 PM	Keynote Speaker 3: Dr. Andrew Pelling Location: Great Hall
4:45 PM - 5:00 PM	Closing Remarks
MONDAY, MAY 13TH, 2024	
6:00 PM - 10:00 PM	Reception/Award Ceremony for Oral & Poster Presentations Location: The Carlu (444 Yonge Street, Toronto, ON)

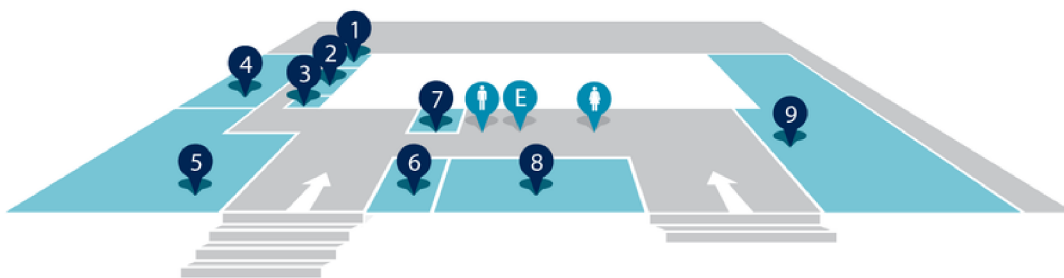
Venue MAP

main level



- | | | |
|---|--|---|
| ① Information HUB | 4 Theatre Entrance
(box office and theatre
auditorium) | 9 Lower Gallery |
| 1 Justina M. Barnicke
Gallery/Art Museum | 5 Map Room | 10 Great Hall |
| 2 Meeting & Event
Services Office | 6 East Common Room | E Elevator |
| 3 Reading Room | 7 Chapel | ♂♀ Washroom |
| | 8 Quad | ♿ Accessible Entrances via
Queen's Park Cres. (W)
and Tower Rd. (E) |

2nd level



- | | | |
|---------------------|---------------------|--------------------|
| 1 North Dining Room | 6 Committees Room | E Elevator |
| 2 South Dining Room | 7 Meeting Room | ♀ Women's Washroom |
| 3 Board Room | 8 Debates Room | ♂ Men's Washroom |
| 4 Music Room | 9 The Gallery Grill | |
| 5 Library | | |

KEYNOTE SPEAKERS



Jennifer Doudna, PhD, FAAAS
University of California, Berkeley

Dr. Jennifer Doudna is the Li Ka Shing Chancellor's Chair and a Professor in the Departments of Chemistry and of Molecular and Cell Biology at the University of California, Berkeley. Her groundbreaking development of CRISPR-Cas9 as a genome-engineering technology, with collaborator Emmanuelle Charpentier, earned the two the 2020 Nobel Prize in Chemistry and forever changed the course of human and agricultural genomics research. Doudna is an investigator with the Howard Hughes Medical Institute, senior investigator at Gladstone Institutes, and the founder of the Innovative Genomics Institute. She co-founded and serves on the advisory panel of several companies that use CRISPR technology in unique ways. Doudna is a member of several prestigious academies, including the National Academy of Sciences and the Royal Society. She has received top honors like the Breakthrough Prize (2015) and the Wolf Prize in Medicine (2020). Recognized by TIME among the "100 Most Influential People" in 2015, she co-authored of "A Crack in Creation," highlighting a personal account of her research and the ethical considerations of gene editing.



John-Ross Rizzo, MD, MSCI, FACRM
NYU Grossman School of Medicine

Dr. John-Ross Rizzo is a physician-scientist and leader at NYU Langone Health. He is currently the Health System Director of Disability Inclusion, Endowed Professor of Rehabilitation Medicine, and the Vice Chair of Innovation & Equity in the Rusk Institute of Rehabilitation Medicine at the NYU Grossman School of Medicine, with cross-appointments in the Department of Neurology, the Department of Mechanical & Aerospace Engineering, and the Department of Biomedical Engineering at the NYU Tandon School of Engineering. He is the Associate Director of Healthcare for the renowned NYU WIRELESS and associate faculty in the Center for Urban Science and Progress (CUSP) at the NYU Tandon School of Engineering. He leads the Visuomotor Integration Laboratory (VMIL), exploring motor control with a special emphasis on visual guidance, and the Rehabilitation Engineering Alliance and Center Transforming Low Vision Laboratory (REACTIV), exploring bio-inspired, multi-sensory assistive technologies with a special emphasis on advanced wearables.



Andrew Pelling, PhD, FRSB
University of Ottawa

Dr. Andrew Pelling is a distinguished scientist and full professor at the University of Ottawa, known for founding the Pelling Lab for Augmented Biology. This lab has made groundbreaking strides in using plants to create medical-grade biomaterials for human tissue engineering and regeneration. Dr. Pelling's innovative work, including growing human ears from apples, has garnered international acclaim, particularly highlighted in his TED talk. The lab's research has led to the creation of five companies in technology, biotech, and medical sectors. As co-founder and Chief Scientific Officer of Spiderwort, Dr. Pelling leads efforts in plant-based biomaterials for tissue engineering, navigating the clinical and regulatory paths to bring products to market. An award-winning researcher, Dr. Pelling has published extensively in top-tier journals and has been recognized with prestigious accolades, such as being elected a Fellow of the Royal Society of Biology, Member of the Royal Society of Canada, holding a Canada Research Chair, and being a TED Senior Fellow. He is a sought-after speaker and advisor for his expertise in biotechnology and innovation.

WORKSHOP SPEAKERS

Workshop 1 – From Idea to Impact: Tools for Effective Communication Across Audiences

Even our best ideas will fall flat without an interested and engaged audience. This workshop will help you develop as a compelling communicator to connect with diverse audiences for your presentations. Through discussion and activities you'll practice strategies to craft a message and make it stick, covering ways to engage your audience and maintain their interest; approaches to shape your story and make it more memorable; and methods to distill and explain your key ideas to communicate across diverse expert and non-expert groups. Underpinning all of these approaches is the importance of understanding your audience and shaping your presentation to their needs and your purpose. This session will close by introducing physical and vocal tools to improve your presence as a presenter.



Dr. Lydia Wilkinson
University of Toronto

Dr. Lydia Wilkinson is an Assistant Professor at the Institute for Studies in Transdisciplinary Engineering Education and Practice. Her teaching focuses on providing graduate and undergraduate engineering students with the skills required to navigate the communication tasks of their academic as well as future professional careers. Her current teaching responsibilities include graduate courses in Engineering Presentations, and Research Methods and Project Execution. Dr. Wilkinson's approach to engineering education works to enrich engineering classrooms through knowledge and pedagogies drawn from her background in the humanities, including sharing strategies from theatre and performance studies to foster creativity and confidence.

WORKSHOP SPEAKERS

Workshop 2 – Cultivating Success: Navigating Entrepreneurial Challenges and Rewards

Join us for an insightful workshop delving into the dynamic world of entrepreneurship. Explore the delicate balance between family, health, and wealth as you embark on the exhilarating journey of building your own business. Learn firsthand the challenges and rewards faced by entrepreneurs navigating the intricate landscape of startup ventures. Gain valuable insights into raising capital for pre-seed and seed stage IP-rich startups, equipping yourself with the knowledge and tools necessary to thrive in today's competitive market. Whether you're a seasoned entrepreneur or just beginning your journey, this workshop promises to inspire, educate, and empower you on your path to success.



Garry Lee

President, Megalab Group Inc. | Director, Cortex Design

Garry Lee is a seasoned Entrepreneur, Investor, and Strategic Business Leader. As the Founder and Partner of Megalab Group Inc., he heads an ISO 17025 Accredited engineering and independent environmental testing firm. Additionally, he serves as Director of Cortex Design Inc., a prominent medical design, engineering, and manufacturing company. Prior to these roles, Garry was the President and founder of Global Advantage Int & Global EMC Inc., which became one of Canada's largest firms for product safety certification in medical equipment, telecom, and IT industries, boasting over 25 engineers and generating annual revenues exceeding \$10M. In 2016, both organizations were successfully acquired by TUV SUD America Inc., one of the world's largest certification bodies. Garry's expertise lies in guiding clients through regulatory and testing procedures, ensuring their products meet international standards for market readiness.



Aaron Rezaei, PEng, MBA

CEO & President, STIM Canada Inc. | Partner, AXION Capital Fund

Aaron Rezaei, P.Eng., MBA serves as the CEO & President of STIM Canada Inc (HW Venture Studio) and is a General Partner at AXION Capital Fund (ARCHNAGEL). At STIM Canada, Aaron leads a team offering a comprehensive suite of solutions tailored to the product life cycle needs of hardware-based startups, spanning from MVP development to commercialization and scale-up. STIM closely collaborates with startups from pre-seed and seed stages through to scale-up, providing expertise in areas such as design (Analog & Digital), Embedded Design (FPGA, ASICS, VHDL, and CPLDs), RF communications, WiFi, IoT, and Medical MDSAP/FDA compliance, as well as clinical trial roadmap architecture for electronics/mechanical device-based startups. As a General Partner at AXION Capital Fund (ARCHNAGEL), Aaron focuses on investing in promising early-stage Canadian companies, with a dedication to fostering innovation and excellence. ARCHNAGEL aims to democratize angel investment, facilitate the creation and commercialization of intellectual properties, and foster hyper-growth outcomes, while also breaking down barriers for Canadian inventors to access smart and value-added investors and industry partners.

SPONSORS

GOLD LEVEL

FUJIFILM VisualSonics



FUJIFILM VisualSonics, a leading innovator in preclinical imaging, revolutionizes biomedical research with cutting-edge ultra high frequency ultrasound and photoacoustic imaging solutions. Their advanced technologies empower scientists worldwide to explore the complexities of biology with unprecedented clarity, driving breakthroughs in disease understanding and therapeutic development. As a proud sponsor of our conference, Fujifilm VisualSonics remains committed to supporting scientific endeavors that push the boundaries of discovery and improve human health.

BRONZE LEVEL

Anonymous Donor

Student **ORAL** Presentations

FOR DETAILED ABSTRACTS, SCAN THIS QR CODE



OR
CLICK HERE

Stream	Presenter	Presentation Title
Cell & Tissue	Nitya Gulati	Elucidating the Role of Nicotinamide Adenine Dinucleotide (NAD) in the Impairment of First Phase Insulin Release (FPIR) during Early-stage Type 2 Diabetes
	Omar Mourad	Modeling diastolic dysfunction in a human heart-on-a-chip platform
	Amel Sassi	Effects of Low-Magnitude High-Frequency Vibration on Prostate Cancer Progression and Bone Metastasis
Molecular	Lucia Huang	ROS-Responsive Hydrogel Biosensor for Improved Monitoring of Inflammatory Bowel Diseases
	Thaisa Luup Carvalho Kannen	Multi-Axes Electromagnetic Sample Handler (ESH) For Multi-View Imaging Of Organoids
	Amir Moghadam	Towards DNA Origami Therapeutics: How PEG Length, Density, and Oligolysine Length Controls Hybrid DNA-Origami-Polymer Material Function
Clinical	Shaghayegh Chavoshian	Development of an Artificial Intelligence Model to Assess the Risk of Exercise in Persons with Asthma
	Davood Dadkhah	Detecting Slips Using Audio Signals: A Deep Learning Approach
	Kate Kazlovich	Efficacy Evaluation of the Remote Surgical Skill Training with the Marshall III Thoracic Surgery Simulation Training Kit

Student **POSTER** Presentations

Stream - Cell & Tissue

Poster #	Presenter	Abstract Title
1	Ferdinand Reke Avikpe	Development of a Comprehensive Computational Model for Simulating the Proliferation Dynamics of Human Pluripotent Stem Cells
2	Chantel Campbell	Biomaterial fabrication of angle-ply and cross-ply structures
3	Griffin Copp	Do Culture Enhanced Mesenchymal Stromal Cells Secrete Extracellular Vesicles with Improved Immunomodulatory Properties?
4	Kevin Fan	Investigating culture-expanded adipose tissue mesenchymal stromal cell fitness in autologous fat transfer for Trapeziometacarpal Osteoarthritis
5	Aleksandra Fomina	Application of Vacuum Thermoforming for Manufacturing of GLAnCE Platform With Improved Optical Properties
6	Erik Jacques	Unveiling muscle stem cell quiescence re-entry: Combining in silico predictions with an engineered tissue assay identifies a responsible skeletal muscle niche cue
7	Alexandra Jucan	Optimization of a HAMVEC-ASC seeded gelatin-polyurethane scaffold to support stem cell derived cardiomyocyte maturation
8	Sofia Karter	Polarized trafficking of cell-cell adhesion proteins facilitates scarless wound healing
9	Kenneth Kimmins	Facile Fabrication of Anisotropic Porous Collagen Scaffolds
10	Oreoluwa Kolade	Computational analysis of donor heterogeneity and critical processing parameters in mesenchymal stromal cells identifies suitable donors and CPP conditions for improved MSC expansion and potency
11	Samuel Lasinski	A Scalable Approach for the Fabrication of Meter-Long Aligned Collagen Sheets for Load-Bearing Scaffolds
12	Melody Li	Vascularized Heart-on-a-chip for Recapitulating Physiological Complexity
13	Kate MacQuarrie	Differentiated and Non-Differentiated Adipose-Derived Stromal Cells Accelerate Autologous, Non-Thrombogenic Endothelialization of an Electrospun Scaffold
14	Siddhartha Pahari	Biomimetic Scaffold Using Graphene Quantum Dots-Hybrid Hydrogel for Diabetic Wound Healing
15	Kimberly Seaman	Mechanical loading of osteocytes via oscillatory fluid flow regulates prostate cancer cell extravasation to bone in vitro

Student **POSTER** Presentations

Poster #	Presenter	Abstract Title
16	Suzie Xin Song	Vibration-Driven Protection Against Radiation-Induced Osteocyte Damage
17	Vrushali Guruji	Identification of congenital aortic valve malformations in juvenile natriuretic peptide receptor 2 deficient (Npr2+/-) mice using high frequency ultrasound
18	Atoosa Ziyaeyan	Investigating the interplay between gut microbiome, monocytes/macrophages, and osteoarthritis

Stream - Molecular

Poster #	Presenter	Abstract Title
19	Savina Cammalleri	Using Digital Microfluidic Isolation of Single Cells to Understand Microglia Heterogeneity
20	Kevin Da	A novel lateral flow assay (LFA) to detect a urinary acute kidney injury biomarker for pediatric patient monitoring
21	Travis Douglas	Spatially defined and decorated DNA origami to investigate immune cell Fc-gamma receptor biology
22	Sabina Panfilov	Antibody Synthesis in Cell-Free for High-Throughput Production and Screening
23	Lu (Kelly) Yin	Engineering a Model to Simulate Intestinal Inflammation for Biomaterials Testing

Student **POSTER** Presentations

Stream - Clinical

Poster #	Presenter	Abstract Title
24	Rawad Alkallas	A Multi-Modal Physiological Monitoring System Utilizing Multi-Wavelength Photoplethysmography and Bioimpedance for Advanced Hemodynamic Classification and Regression
25	Sorsha Asady	Gamified Assessment: Extracting and characterizing reaching performance in children with cerebral palsy using data collected during a movement tracking video game, Bootle Blast
26	Atousa Assadi	The impact of chronic opioids therapy on sleep efficiency: A sex-specific comparative analysis
27	Samantha Bartman	Patient Reported Outcome Measures In The Elderly-Do These Reflect Healing Post FFP?
28	Naomi Opia-Evans	Improving Tele-Rehabilitation with Automated Exercise Assessment
29	Reza Basiri	Generative Platform for Diabetic Foot Ulcer Electronic Health Reporting and Image Synthesis
30	Gloria Boudreault-Morales	Does Human Pose Estimation benefit from Depth Data?
31	Dylan Dao	Optimizing spatial frequency domain imaging for defocus-invariance towards robust remote patient monitoring
32	Faranak Dayyani	Correlation Of Sleep And Mobility Sensor Data With Social Isolation And Functional Decline In Older Adults After Lower Limb Fractures
33	Joana Dilipkumar	Exploring Pain Phenotypes in Osteoarthritis using Ultrasound: Preoperative Assessment of Total Joint Arthroplasty Patients
34	Stephanie DiNunzio	Wearable, smart textile sensors for centre of pressure estimation using machine learning for a standing neuroprosthesis
35	Matthew Downing	Active Tunable Integrated Silicon Photonic Refractive Index Sensors for Biosensing Applications
36	Jonathan Eby	Personalization of a myoelectric classification system to optimize information transfer after spinal cord injury
37	Najat ElFarra	Using Pressure Mat Technology for Body Position Monitoring to Prevent Pressure Injuries
38	Alireza Etefagh	Feasibility of Depth Camera-Based Systems in Estimating the Joint Angle and Range of Motion
39	Aliaa Gouda	Development of a Wearable Biofeedback System to Elicit Temporal Gait Asymmetry using Rhythmic Auditory Stimulation and an Assessment of Immediate Effects

Student **POSTER** Presentations

Poster #	Presenter	Abstract Title
40	Adam Gravitis	Respiratory Signal Extraction from ECG using a Phase-Amplitude Cross-Frequency Coupling Index
41	Zain Hasan	Real-time Location System to assess motor agitation in people living with dementia.
42	Hugo Higueros	Long-term Renal Fibrosis Evaluation Through Implantable Spectrometry-based Device
43	Deniz Jafari	Development of a Gamified Modular Robotic Rehabilitation System to Enhance Motivation and Engagement in Post-Stroke Upper Limb Recovery Exercises
44	Jie Jiao	Simultaneous blood oxygenation and flow imaging with coherent optics
45	Adesh Kadambi	Providing Hand Use Context for Outpatient Neurorehabilitation by Detecting Activities of Daily Living
46	Yasser Karam	Real-Time Location Systems to Discern Clusters of Rest-Activity in People with Dementia
47	David Koivisto	The Assessment of Motor Unit Excitability using Electromyography-Based Techniques: A Scoping Review
48	Laura Kondrataviciute	Depressive-like phenotype induced by AAV-mediated overexpression of human α -synuclein in midbrain dopaminergic neurons
49	Matthew Lee	Development of Deep Learning Models for Motion Artifact Mitigation in Wearable Photoplethysmography Devices
50	Guijin Li	Investigating Muscle Electrophysiological Profiles in Cervical SCI Through Surface EMG Clustering Analysis for Tailored Rehabilitation
51	Anne Mei	Using deep learning fusion architectures to classify impaired hands after stroke using multiple egocentric videos of activities of daily living
52	Pratik K. Mishra	Detection of Agitation in People with Dementia using Different Video Camera Views
53	Seyed Pourya Moghadam Kouhi	Automatic Recognition of Lower Limb Rehabilitation Exercises Using a Pressure-Sensitive Mat
54	Fateme Pourghasem	Protocol for Development of AVA: A Platform for Avatar-Assisted Virtual Cardiac Rehabilitation
55	Jahir Ibna Rafiq	Multi-Sensor Wearable Technology to Safely Navigate Exercise in Hot and Cold Environments

Student **POSTER** Presentations

Poster #	Presenter	Abstract Title
56	Aisha Raji	Development of a Novel Approach for Assessing Range of Motion in Upper Extremity Post-Stroke or Spinal Cord Injury
57	Megh Rathod	Development of multilayer pigmented biomedical optical phantoms with vasculature microchannels for testing photoplethysmography devices
58	Koorosh Roohi	From Caregivers' Activity Recognition to Subsequent Patient Infection Risk Prediction
59	Delaram Sadatamin	Influence of Body Posture and Electrode Placement on ECG Signal Measurement Using Textile Electrodes
60	Saba Sadatamin	Optimizing MRgLITT Patient Monitoring through Time-series based Deep Learning Methods: A Comparative Study of ConvLSTM and U-Net
61	Fatemeh Shomal Zadeh	Modifying Ankle Muscle Stiffness using Neuromuscular Electrical Stimulation
62	Lindsay Stern	Effect of Mattress Stiffness and Sleeping Aids on Posture Detection via Pressure Imaging
63	Yinghe Sun	Improving selective peripheral neural recordings through transfer learning
64	Saleh Tabatabaei	Progression of Osteosarcopenia in Prostate Cancer Patients using AI-Enabled Musculoskeletal Imaging Biomarkers
65	Behrad Taghibeyglou	Feasibility of Employing Speech Representations in Screening Obstructive Sleep Apnea
66	Anshul Verma	Unveiling Dataset Bias: Impeding Generalization of Remote Photoplethysmography for Heart Rate Monitoring
67	Siti Nurfaezah Binti Zahari	Semi-Automated Sensory Assessment in Spinal Cord Injury
68	Luka Zigomanis	A Novel Noise Reduction Framework for Electrocardiogram Signals Captured by Textile Electrodes



TOBE

TORONTO BIOMEDICAL
ENGINEERING CONFERENCE



Institute of Biomedical Engineering
UNIVERSITY OF TORONTO