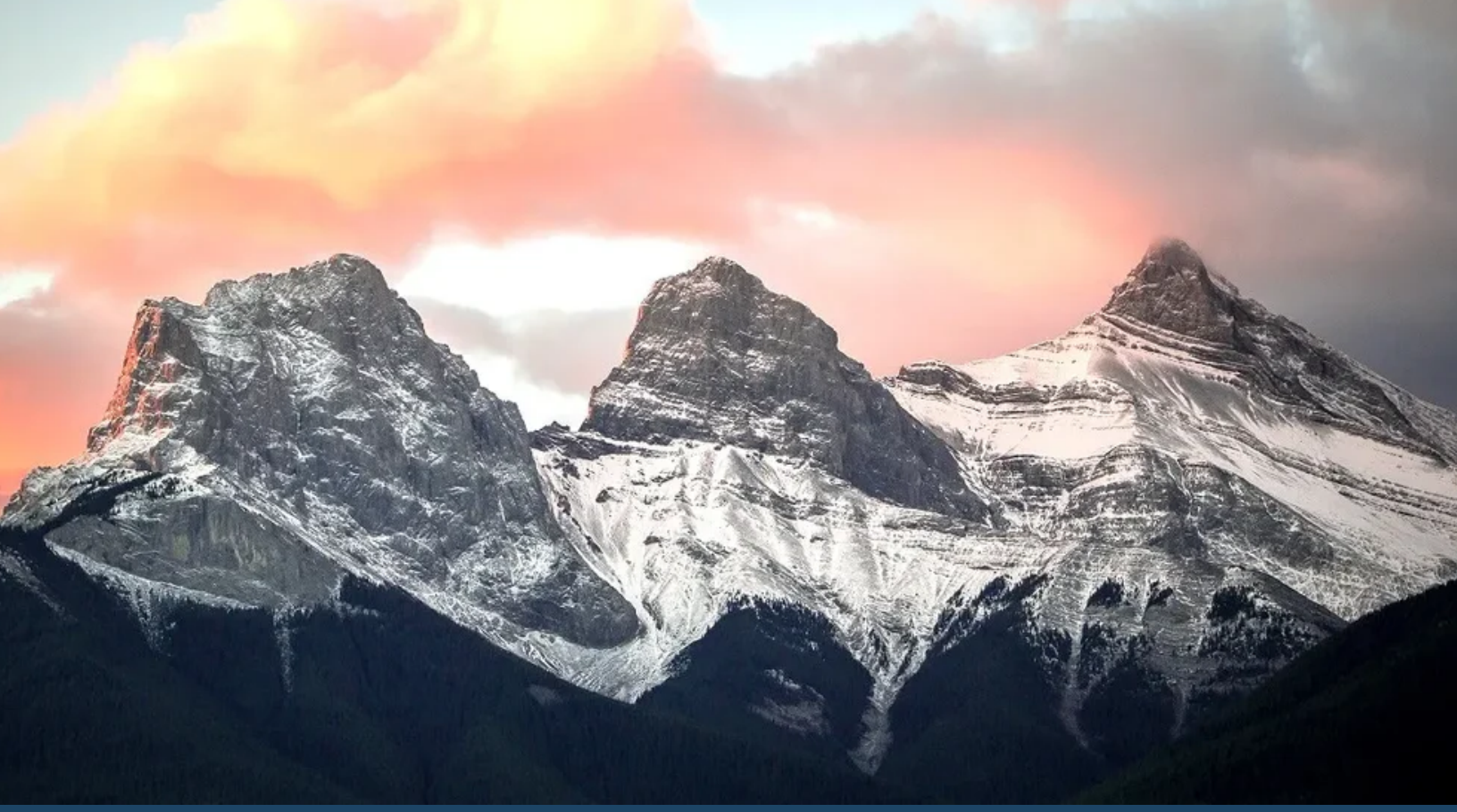

27th Annual Alberta Biomedical Engineering Conference

Program

Alberta BME

October 30-November 1, 2026 | Canmore, Alberta

UNIVERSITY OF ALBERTA

UNIVERSITY OF CALGARY

UNIVERSITY OF SASKATCHEWAN



October 30-November 1, 2026

CONFERENCE ORGANIZERS		
Student Co-Chairs	**University of Alberta**	Merwa Al-Rashid
		Madeline Barker
		Lingyu Bu
	University of Calgary	Carly O'Sullivan
		Zahra Shahhossein
		Leila Shahsavari
	University of Saskatchewan	Kathryn Avery
		Kirsten Neville
Faculty Co-Chairs	**University of Alberta**	Karyne Rabey
		Dan Romanyk
	University of Calgary	Roman Krawetz
		Kartikeya Murari
	University of Saskatchewan	Emily McWalter

KEYNOTE SPEAKER

Dr. Ashley Dalrymple, PhD	Assistant Professor, Department of Physical Therapy, University of British Columbia Canada Research Chair (Tier 2) in Spinal Cord Neuromodulation

INDUSTRY-ACADEMIA PANEL

Dr. Hilal Gul	Founder and CEO, MyStemBiotech Inc. and Colustra Inc. Industrial Professor, University of Alberta
Dr. Steven McFadden	Senior Software Engineer, Garmin
Dr. John Wong	CEO and Co-Founder, Fluid Biomed Associate Professor, University of Calgary

ABSTRACT REVIEWERS

University of Alberta

Fred Berry
Marzieh Matinfar
Karyne Rabey
Dan Romanyk
Albert Vette
Christine Webber
Lauren Welte

University of Calgary

Omar Boursalie
Rashmita Chatterjee
James Colter
Emma Farago
Colin Firminger
Sarah Manske
Kartikeya Murari
Tsolmonbaatar Khurelbaatar
Amin Komeili
Roman Krawetz
Nima Tabatabaei Rezaei
Steph Ross
Griffen Small
Fereshteh Vajhadin
Weilan Wang
Paul Williamson
Davood Zaeim
Bahareh Zarin
Jose L Zavaleta-Ruiz

University of Saskatchewan

Michael Bradley
Daniel Chen
Abbas Fazel
James (JD) Johnston
Farinaz Ketabat
Angelica Lang
Sean Maw
Emily McWalter
Jonathan Norton

University of Lethbridge

Arash Khassetarash

SESSION CHAIRS

University of Alberta	University of Calgary		University of Saskatchewan
Merwa Al-Rashid	Nazanin Askari	Leila Shahsavari	Kathryn Avery
Madeline Barker	Emma Hu	Benafsha Tughra	Paul Kulyk
Clarissa Choy	Zahra Shahhossein	Vaneeza Upal	
Chavy Dworkind			

SUNDAY WORKSHOP ORGANIZORS & PRESENTERS

Taylor Low	Senior Business Partner on the Clinical Trials Innovation team, Alberta Innovates
Maddie Renouf	Senior Business Partner on the Health System Enablement team, Alberta Innovates

THANK YOU TO OUR SPONSORS



UNIVERSITY OF CALGARY
Biomedical Engineering



UNIVERSITY OF CALGARY
FACULTY OF KINESIOLOGY



UNIVERSITY OF SASKATCHEWAN



UNIVERSITY OF ALBERTA



McCAIG INSTITUTE
FOR BONE AND JOINT HEALTH



LIBIN
CARDIOVASCULAR
INSTITUTE

GOLD SPONSOR

GARMIN®

SILVER SPONSOR

Canadian Society for Biomechanics

Société canadienne de biomécanique

a-medico™
medical devices



GARMIN

LIKE TO HIKE, BIKE, SWIM, TRI, RUN OR ROAM THE UNKNOWN?

PUT YOUR PASSION TO WORK AT GARMIN.
OUR OFFICE IN COCHRANE, ALBERTA, CANADA,
IS CALLING YOUR NAME.

SCAN BELOW TO FIND OUT MORE

MORE WAYS TO HELP YOU PURSUE YOUR PASSIONS

No matter what stage you're at in your life or career, we offer benefits that help you and your family access medical care, save for the future, and prepare for any number of life's surprises and milestones.

- Medical
- Dental and Vision
- Retirement
- Parental Leave
- Paid Time Off
- Associate Assistance Plan
- Employee Stock Purchase Plan
- Life and Disability Insurance
- Adoption Assistance

NEVER STOP LEARNING

We want our associates to contribute in meaningful ways throughout their careers at Garmin. That's why we offer opportunities to take on new challenges and learn new skills.

CAREER LAB
The Garmin Training Center provides resources for professional and self-development.

EDUCATIONAL REIMBURSEMENT
Garmin assists associates who want to develop or enhance their skills and knowledge to stay current in their field.

PILOT CERTIFICATION AND GROUND SCHOOL
Garmin offers financial reimbursement for costs associated with ground school and pilot certification.

TAKE ADVANTAGE OF THE PERKS

We provide a few extras to make our associates feel appreciated.

- No dress code
- Patent incentive
- Referral bonus
- Service awards
- Birthday and holiday gift cards
- Garmin product discount
- Family events and activities


CSB | SCB
CANADIAN SOCIETY FOR BIOMECHANICS
SOCIÉTÉ CANADIENNE DE BIOMÉCANIQUE
CSB / SCB
2028
25TH BIENNIAL CONFERENCE
25E CONGRÈS BIENNAL
AUGUST 21-24, 2028
21-24 AOÛT 2028

BRONZE SPONSORS

FluidBiomed

Stem Cell Network
Powering Regenerative Medicine

Réseau de Cellules Souches
Propulsons la médecine régénératrice

NAIT
CENTRE FOR ADVANCED MEDICAL SIMULATION

NORTHERN RNA
MANUFACTURING A BETTER FUTURE

SUNDAY WORKSHOP PRESENTED TO YOU BY:



PROGRAM

FRIDAY	
12:00 – 2:30 pm	**Registration**
3:00 – 3:10 pm	**Welcoming Remarks**
Presentation Session 1	
3:10 – 4:05 pm	**Session Chairs: Leila Shahsavari & Paul Kulyk**
Saleh, Najafi Chaleshtori	Molecularly Imprinted Electrochemical Biosensor for Sensitive and Selective Detection of L-Kynurenine in Artificial Urine
Arushi, Tandon	Development of a Nanocrystalline Silver-Based Therapeutic for Targeted Pulmonary Treatment
Zahra Shahhossein	Engineering an Integrated Human Bone Marrow–Lung-on-a-Chip Platform to Model Immune Responses to Pneumococcal Pneumonia
Benafsha Tughra	A Quantitative SHG Biomarker Outperforms Indentation Testing for Early Detection of Cartilage Degeneration
Zahra, Firouzi	Balanced Evaluation of SegFormer and U-Net Variants for Breast Ultrasound Lesion Segmentation
Zahra, Mohebi	Laser Beam Directed Energy Deposition of Zirconia: A Binder-Free Additive Manufacturing Method for Dental Ceramics
Javeria, Rafique	Phase Singularities in Mouse Brain Activity and Their Relationship to Anesthetic Regimen
4:05 – 4:25 pm	**Coffee Break**
Presentation Session 2	
4:25 – 5:20 pm	**Session Chairs: Merwa Al-Rasheed & Benafsha Tughra**
Monique Yuan	Novel Combination of Neuromodulatory Techniques with Arm-and-Leg Cycling for Functional Recovery after Spinal Cord Injury
Sorosh Abdollahi	MICROPHYSIOLOGICAL BIOINTERFACE-INTEGRATED GUT-ON-A-CHIPS RECAPITULATES GASTROINTESTINAL TISSUE FUNCTIONS

Soroush, Soleymani	CellScope: A Platform for Cell Quantification and Multi-Stain Overlap Analysis in Microscopy images
Vincent, Castronuovo	Osteoporosis Screening from Low-Dose Chest Computed Tomography
Setayesh, Afshar	A Bi-layered Electrospun Wound Dressing for Bacteriophage-Antibiotic Co-Delivery
Ethan, Masuda	Quantitative Evaluation of EEG Preprocessing during Cervical tSCS in Individuals with Spinal Cord Injury during Upper-Limb Movement
5:20 – 5:30 pm	**Break**
Keynote	
5:30 – 6:15 pm	**Session Chair: Leila Shahsavari**
Dr. Ashley Dalrymple, PhD Assistant Professor, Department of Physical Therapy, University of British Columbia Canada Research Chair (Tier 2) in Spinal Cord Neuromodulation	
6:15 – 7:30 pm	Reception
7:30 – 11:30 pm	Off-Site Social Event (Canmore Brewing Company)
SATURDAY	
7:30 – 8:30 am	**Breakfast**
Presentation Session 3	
8:30 – 9:25 am	**Session Chairs: Madeline Barker & Bella An**
Kathryn, Avery	Development of a Biomimetic Bioreactor to Apply Physiologically Relevant Biomechancial Microenvironments for In Vitro Lung Modelling
Sasha Hasick	Longitudinal in vivo changes in femoral and tibial tunnel following anterior cruciate ligament reconstruction by graft type: the SALTACII trial
Jaden, Hood	Weak Inhalation Doesn't Have to Mean Poor Dosing for Inhaled Medicines

Anna, Landry	Optimizing Microneedle Reference Electrode Stability for Reliable Glucose Sensing in Diabetes Management
Jonah, Dimnik	A Weightbearing CT Pipeline for Comparing Rigid and Flexible Syndesmotic Fixation
Shannon Poon	Effects of Combined Functional Electrical Stimulation and Transcutaneous Spinal Cord Stimulation on Gait Biomechanics Following Spinal Cord Injury
Priyal Patel	DOES MENOPAUSE ALTER POST-STROKE TENDON MECHANICAL PROPERTIES IN A RAT MODEL?
9:25 – 9:30 am	McCaig Promotional Talk by Dr. Roman Krawetz
Presentation Session 4	
09:30 – 10:25 am	**Session Chairs: Kathryn Avery & Emma Hu**
Daelyn, Page	Quantifying Normal Local Cranial Suture-Bone Interface Displacement
Raveen, Sidhu	Hypertension is associated with sex- and site-specific differences in bone microarchitecture
Aaron Burke	Muscle activity and oxygen uptake during grounded running
Benjamin, St. Louis	Spring-Cam Mechanism Design Factors Enabling Replication of the Level-Ground Walking Torque-Angle Curve of the Ankle Joint
Jessica, Duffill	Magnetic Resonance Spectroscopy Used To Investigate Metabolic Profiles in Normoxic and Hypoxic People With Multiple Sclerosis
Tudor, Muresan	The Impact of Vascular Calcification on Abdominal Aortic Aneurysm Mechanics
An Bella	Vestige: GenAI-Augmented Personal Stories for Dementia Care
10:25 am – 11:45 pm	**Coffee Break and Poster Session 1**
12:00 pm – 1:00 pm	**Lunch**

Presentation Session 5	
1:00 – 1:55 pm	**Session Chairs: Zahra Shahhossein & Benafsha Tughra**
Natalia, Januszewski	Tackling in-vivo mechanical characterization of skin heterogeneity: pairing by anatomical proximity or functional similarity?
Vincent, Vu	Characterizing sex- and age-based variation in knee subchondral bone properties
Saman Abbasi	Agentic AI Navigational Smart Glasses for Visually Impaired Users
Simon, Wong	Multi-Timescale Predictions of Knee Kinematics for Prosthetic Control
Fathima, Chappangathil	Exploring Region-Dependent Behaviour of Human Skin Biomechanics
Salamah, Alshammari	Machine Learning Classification of Cognitive Impairment Using Passive Smartphone-Derived Mobility Data: A Feasibility Study
Abdul, Qureshi	Developing a Low-Cost Wireless Transtibial Prosthetic Socket Sensor Sock: An Iterative Design Study
1:55 – 2:15 pm	**Coffee Break**
Industry Panel	
2:15 – 3:15 pm	**Session Chairs: Madeline Barker & Emma Hu**
	Dr. Hilal Gul Founder and CEO, MyStemBiotech Inc. and Colustra Inc. Industrial Professor, University of Alberta **Dr. Steven McFaden** Senior Software Engineer, Garmin **Dr. John Wong** CEO and Co-Founder, Fluid Biomed Associate Professor, University of Calgary

Presentations Session 6	
3:15 – 3:25 pm	**Session Chairs: Kathryn Avery & Nazanin Askari**
Katerina, Kurz	Bioenergetics of the brain and body
Mahmoud Hashim	Quantifying Regional Trunk Asymmetry in Adolescent Idiopathic Scoliosis Through 3D Surface Topography
Matthew, Lawrence	Comparison of micro-finite element analysis methods to capture pediatric fracture healing
3:25 – 4:45 pm	**Poster Session 2 & Coffee Break**
4:45 – 4:50 pm	**Break**
Presentation Session 7	
4:50 – 5:45 pm	**Session Chairs: Vaneeza Upal & Clarissa Choy**
Camryn, McMillan	Novel approach to quantify fracture healing through callus volume change using high-resolution peripheral quantitative computed tomography
Hargun, Khosa	Early vs. Late ACL Reconstruction: A Biplanar Videoradiography Assessment of In-vivo Knee Joint Biomechanics
Maria, Sawiak	Where to Sense, What to Stimulate, and How to Design a Co-Designed Smart Garment for Individuals with Parkinson's Disease
Paul, Kroliczek	Application of Phantom-less Internal Calibration to Longitudinal Muscle Density Assessment in Critical Illness
Nikala, Bochinski	Sex Differences in Bone Healing With Exercise in a Mouse Model
5:45 – 6:00 pm	**Closing Remarks + Group Photo**
6:00 – 7:30 pm	**Dinner**

SUNDAY	
7:30 – 9:00 am	**Breakfast**

Sunday Workshop in partnership with

ALBERTA INNOVATES

The Road to Health Innovation Success

9:00 – 12:00 am	**Moderators: Leila Shahsavari & Emma Hu**

A great idea is only the beginning – the workshop will go beyond the technology to other domains that can make or break a health innovation. What does it really take to turn a promising technology into an innovation that improves care in the real world?

This interactive session will explore the critical pieces that can make or break an innovation – product-market fit, business, regulatory, and technical development. Through hands-on activities and real-world insights, you will:

- uncover blind spots,
- learn from challenges encountered along the way, and
- discover skills and career paths involved in bringing health innovations into care.

Bring your curiosity and ideas to explore what it really takes to turn an idea into an innovation with real-world impact!

KEYNOTE SPEAKER



Dr. Ashley Dalrymple, PhD

Assistant Professor, Department of Physical Therapy, University of British Columbia
Canada Research Chair (Tier 2) in Spinal Cord Neuromodulation

Dr. Ashley Dalrymple is an Assistant Professor in the Department of Physical Therapy at the University of British Columbia in Vancouver. She is also a Canada Research Chair (Tier 2) in Spinal Cord Neuromodulation. Dr. Dalrymple earned her BSc in Electrical and Biomedical Engineering and her PhD in Neuroscience at the University of Alberta in Edmonton, AB, Canada. She completed her first postdoc at the Bionics Institute in Melbourne, Australia. She then moved to Pittsburgh, PA, USA, first at the University of Pittsburgh and then at Carnegie Mellon University. She was an Assistant Professor at the University of Utah in Salt Lake City, UT, USA before joining UBC in Vancouver.

Dr. Dalrymple is the Director of the Neural Engineering and Rehabilitation Via Electrical Stimulation (NERVES) Lab. As the Director of the NERVES Lab, she aims to improve the quality of life of individuals with neurological impairments. She seeks to advance the scientific understanding of motor and somatosensory systems to better engineer new rehabilitation therapies and technologies. The research in the NERVES Lab involves the use of implanted and non-invasive spinal neural interfaces and assistive technologies to restore function, particularly the rehabilitation of walking, restoring sensation, and reducing pain. They also develop reinforcement learning methods to control walking after neural injury. Research in the NERVES Lab spans basic science, proof-of-concept, pre-clinical, and clinical studies, working towards translation into real clinical applications.

INDUSTRY-ACADEMIA PANELISTS



Dr. Hilal Gul

Founder and CEO, MyStemBiotech Inc.
Founder and CEO, Colustra Inc.
Industrial Professor, University of Alberta

Dr. Hilal Gul is an Industrial Professor in the Department of Biomedical Engineering at the University of Alberta and the Founder and CEO of two Edmonton-based biotechnology companies, MyStemBiotech Inc. and Colustra Inc. Drawing on extensive experience in stem cell and regenerative medicine, she bridges academia and industry, translating biomedical discoveries into real-world applications in healthcare and agriculture. As Industry Liaison for the Department's Industry Advisory Council, she also plays a key role in connecting researchers, students, and industry partners.

Dr. Gul's leadership and innovation have earned national and international recognition. In 2025, she received a North American Women of Inspiration Award in the Women in Tech category, and MyStemBiotech was featured in Natural Products Canada's 2023 report, Game Changers: Leading Companies Powered by Women, which celebrated women-led companies advancing Canada's natural and bio-based industries.



Dr. Steven McFadden

Senior Software Engineer, Garmin

Dr. Steven McFadden is a Senior Software Engineer at Garmin, working on algorithms for wearable biosensors. He completed his Ph.D. in Electrical and Computer Engineering at the University of Waterloo and his experience includes research, medical devices, and product development.



Dr. John Wong, MD MSc MBA

CEO and Co-Founder, Fluid Biomed
Associate Professor, University of Calgary

Dr. John Wong, MD MSc MBA, is CEO and co-founder of Fluid Biomed, a VC-backed and clinical-stage medical device startup developing the world's first bioabsorbable polymer-based brain stent to treat aneurysms. As an associate professor of neurosurgery at the University of Calgary, his research and surgical practice concentrates upon treating brain aneurysms and stroke. A domain expert trained at the University of Alberta, Yale University and in New York City, Dr. Wong earned his MBA from the Wharton School of Business at UPenn with a double major in Finance and Entrepreneurship & Innovation and was conferred the Dean's Leadership Award.

SUNDAY WORKSHOP ORGANIZORS & PRESENTERS



Taylor Low

Senior Business Partner on the Clinical Trials Innovation team, Alberta Innovates

Taylor Low is a Senior Business Partner on the Clinical Trials Innovation team at Alberta Innovates, with over seven years of experience in the pharmaceutical research space. Taylor Low collaborates with academic, government, and research organizations to expand clinical trial capacity in Alberta by attracting industry R&D investment, providing centralized access for industry to engage with Alberta's clinical trial assets and breaking down barriers to streamline processes. Previously, Taylor Low was a project manager at Centricity Research, overseeing enterprise-wide projects, site openings, network integrations, and clinical trial start-up across 30 research sites in diverse therapeutic areas.



Maddie Renouf

Senior Business Partner on the Health System Enablement team, Alberta Innovates

Maddie Renouf is a Senior Business Partner on the Health System Enablement team at Alberta Innovates. She is a health innovation professional who connects health-system priorities with promising technologies and solutions.

Maddie has contributed to Alberta's health and life sciences ecosystem through research, patient engagement, partnership development, and initiatives that bridge academia, industry and the health system. Starting in university, she worked as a healthcare aide and movement program facilitator for individuals living with disabilities. Subsequently, Maddie worked in a clinical research lab to build and implement best practices in patient-engaged research, and as a Department Research Coordinator to build relationships, collaborations, and developed partnerships that connected academic research with industry.

In her current role, she uses data to define barriers to implementation, find and assess solutions, and move the strongest opportunities toward adoption and procurement. This work seeks to connect health system priorities to Alberta's innovation ecosystem so that promising solutions can move into practice.

POSTERS

Saturday 10:25 – 11:45 am	Poster Session 1	
Abdul-Samad, Ahmed	1	MECHANICAL PROPERTIES OF SKINNED PAPILLARY MUSCLE BUNDLES FOLLOWING DIET-INDUCED OBESITY IN MALE SPRAGUE-DAWLEY RATS
Adrian, Balajadia	2	Predicting Cardiotoxicity Risk in Cancer Patients Using Health Records and Transformers
Ahmad, Firouzian-Nejad	3	Fabrication of a Soft Robotic Griper Incorporating Bistable Hybrid Composite Laminates
Akshayakumar Senthilkumar	4	Assessing the Effects of Robotic Walking Aid Use on Knee Flexor Spasticity in Children and Young Adults with Neuromotor Impairments
Anakin, Gill	5	What's their Angle: Evaluation of Unicortical Hole Angle on Tendon Button Repair Pullout Strength
Andrii Lekhan	6	Hydrophobic Antimicrobial Coatings For High-Touch Surfaces: A Scalable Strategy For Infection Control
Arshad, Ayyaz	7	Targeting NOTUM to Overcome Immune Resistance in Colorectal Cancer
Ayesha, Bhakhrani	8	Evaluation of Cam Geometries Generated Through Distinct Design Approaches for Biological Torque-Angle Curve Replication
Ayman, Sheikh	9	Embedded FSR–IMU Sensing for Gait-Phase Detection in a Prosthetic Foot
BAHAREH BABAMIRI	10	Development of a Fluorescence-Based Immunosensing Platform for Sensitive Detection of PD-1 and PD-L1 Immune Checkpoint Biomarkers
Barbod Shiri	11	Does a high fat sucrose diet affect the forelimb muscle integrity in rats with diverse inherent aerobic capacity?
Bella, An	12	Vestige: GenAI-Augmented Personal Stories for Dementia Care
Bethany,Jantz	13	Developing a protocol for optimizing sensor placement for a smart shirt to detect trunk motions
Breanna, Schneider	14	Development of a Quantitative Magnetic Resonance Imaging Protocol for Multi-Tissue Assessment of the Ankle and Hindfoot
Caitlyn, Lee	15	Characterizing Layer-Dependent Mechanical Properties of Intraluminal Thrombus in Abdominal Aortic Aneurysms

Chetan, Gupta	16	Reindeer Antler Velvet Biomechanics: Decoding the Mechanics Behind Regenerative Potential
Chinaza, Enyinnaya-Okidi	17	Advanced Footwear Technology and Lower Limb Loading in Female Runners
Clarissa, Choy	18	From Imaging to Impact: Creating Anatomically Accurate Models with Advanced Manufacturing and Materials
Conrad, Brabec	19	Non-Invasive Detection of Cancer from Electrocardiograms Using Machine Learning
Dominic, Daigle	21	Three-dimensional quantification of cellular-level adipocyte morphology in growing mouse tibia using contrast-enhanced microCT
Eleonora, Fernandez	22	Reproducibility of radiomics from MRI UTE-T2* relaxation time maps of healthy human knee articular cartilage
Ella, Williams	23	Subtypes in Huntington Disease Derived from Mouse MRI and their Biological Correlates
Emma, Hu	24	Measuring the Impact of Microcatheter Jailing on Flow Diversion in an in-vitro Model
Ethan, Semeniuk	25	Exploring Sex-Specific Impacts of Weight-Bearing Exercise on Peripheral Nerve Injury Rehabilitation
Ethan, De Beaudrap	26	Neuro-Analytical Waveform Reconstruction of Lower-Limb Joint Kinematics from a Single Foot-Mounted IMU
Ethan, Hagarty	27	Susceptibility MRI as a marker of brain hypoxia in multiple sclerosis— validation with frequency domain near-infrared spectroscopy
Ethan, Masuda	28	Quantitative Evaluation of EEG Preprocessing during Cervical tSCS in Individuals with Spinal Cord Injury during Upper-Limb Movement
Evan, Wilde	29	Optimization of Computational TMC Biomechanical Simulations Through Analysis of Cadaveric Joint Kinematics
Gabriel, Andrecut	31	Elucidating the Mechanical Role of Skin Layers
Hanna, Musnicka	32	A Pilot Investigation of Running Biomechanics Across the Menstrual Cycle in Female Recreational Runners
Hannah, Klingenberg	33	Quantifying Ankle Motion for Lower-Limb Exoskeleton Programming
Hans, Jarales	34	Reinforcement Learning Reward Specification Limits Pathological Gait Imitation in Humanoid Robots
Hasan, Waheed	35	Full-Field Strain Characterization of Laser-Sintered PEKK and PEEK Rings by Digital Image Correlation for Surgical Robotics

Inayat Kang	36	A Low-Cost, Smartphone-Compatible Reader and Automated Detection Pipeline for Quantitative and Universal Lateral Flow Assays
Javeria, Rafique	37	Phase Singularities in Mouse Brain Activity and Their Relationship to Anesthetic Regimen
Jaylon, Pascual	38	Biomechanical Impact of an Actuated Knee-Ankle-Foot Orthosis on Proximal Tibia Replacement and Able-bodied Patients
Jessica Tran	39	Social Presence and Conversation During Walking: A Single Lumbar IMU Study in Older Adults With and Without Cognitive Impairment
Jessica, Duffill	40	Magnetic Resonance Spectroscopy Used To Investigate Metabolic Profiles in Normoxic and Hypoxic People With Multiple Sclerosis
Jessica, Ho	41	Kinematics and Implant Retrieval Analysis on a Failed M6-C Implant: A Case Study
Joanna Lin	42	Investigating Socioeconomic and Demographic Disparities in Acute Stroke Care Using Registry – Census Linkage
Jonah, Dimnik	43	A Weightbearing CT Pipeline for Comparing Rigid and Flexible Syndesmotic Fixation
Kayla, Walker	44	Fast and Fibrous: Load-Dependent Differences in Patellar Tendon UTE-T2* Relaxation Time in Early Knee Osteoarthritis
Khalid Alquwaynim	45	Phase-Specific Effects of CMR- vs. Echo-Derived Training Labels on 3D Echocardiographic LV Segmentation
Lev, Sushanek	46	Modeling Artificial Caries Lesions and Hydroxyapatite Precipitation in Enamel
Madison, Sagert	47	Divergent muscular and kinematic adaptations following resistance training do not translate to scale-playing postures in skilled pianists
Majed, Althubaiti	48	Federated Fuzzy Cognitive Maps for Short-Term Heart-Rate Forecasting
Mariam Ezzat	49	Attention-Based Deep Learning with Output-Level Ensemble for Region-Specific Cobb Angle Prediction
Mary, Cherneske	50	Optimizing Radiographic Positioning for Assessing Equine Distal Tarsal JSW
Maryam Vatani	51	Engineering Spatial Oxygen Gradients in a Multiplex Gut-on-Chip Using Localized Nitrogen Delivery: A Computational Study
Melwin, Chacko Moncy	52	A Multi-Modal Smart Garment System for Real-Time Trunk Motion Monitoring
Michael Yoo	53	Effects of MSC Source and Oxygen Level on Neurologically Relevant Proteins in Conditioned Media

Michelle Fernandez Schmitz	54	GEMINI-SURFACTANT COATED GOLD NANOPARTICLES AS ENHANCERS FOR RADIOFREQUENCY ABLATION IN HEPG2 TUMOR SPHEROIDS
Mohammad Reza , Zamani	55	Evaluating Dynamic Functional Connectivity and Brain State Extraction: A Comparative Benchmark of Sliding-Window Cross-Correlation and Hierarchical Observational Connectivity (HOCO)
Nazanin Askari	56	Development of Lubricant-Infused Bacterial Nanocellulose Membranes for Prevention of Postsurgical Pericardial Adhesions
Nidhin Sunil	57	Tracking Mitochondrial DNA (mtDNA) Release Events Using a Novel Live-Cell Image Processing Pipeline
Omar Amer	58	Engineering a Non-Genotoxic strain of Escherichia coli Nissle 1917 That Preserves Probiotic Function
Omar, Elshimi	59	A Large-Sample Normative Distribution for Trunk Asymmetry Scoring in Adolescent Idiopathic Scoliosis
Priyal Patel	60	DOES MENOPAUSE ALTER POST-STROKE TENDON MECHANICAL PROPERTIES IN A RAT MODEL?
Puneet, Grewal	61	Inter-slice Image Registration to Interpolate Partial Segmentations onto a High-resolution Human Brain Template
Saba, Allahgholiloo	62	The Effects of Transcutaneous Spinal Cord Stimulation on Proprioception in Neurologically Intact and Individuals with Spinal Cord Injury
Salamah, Alshammari	63	Machine Learning Classification of Cognitive Impairment Using Passive Smartphone-Derived Mobility Data: A Feasibility Study
Scarlet, Hegel	64	Shear-Enhanced Brownian Diffusion of Anisotropic Drug Carriers
Shannon Poon	65	Effects of Combined Functional Electrical Stimulation and Transcutaneous Spinal Cord Stimulation on Gait Biomechanics Following Spinal Cord Injury
Sina, Kazemi	66	Real-Time Human-Exoskeleton Co-Simulation Using MuJoCo and OpenSim
Tudor, Muresan	67	The Impact of Vascular Calcification on Abdominal Aortic Aneurysm Mechanics
Vincent, Castronuovo	68	Osteoporosis Screening from Low-Dose Chest Computed Tomography
Wajeeha,Chattha	69	Enhancing Patient Engagement and Clinician Perspectives in Biomedical Engineering Education
William, Rutherford	70	How Does Simulated Space Radiation Affect Bone? A Systematic Review and Meta- analysis of Rodent Studies

Zahra, Firouzi	71	Balanced Evaluation of SegFormer and U-Net Variants for Breast Ultrasound Lesion Segmentation
Zahra, Mohebi	72	Laser Beam Directed Energy Deposition of Zirconia: A Binder-Free Additive Manufacturing Method for Dental Ceramics
Saturday 3:25 – 4:45 pm	**Poster Session 2**	
Abdoljalil Addeh	2	Respiratory Events Across the Lifespan in Resting-State fMRI: Characterization and Motion-Based Detection
Abdul, Qureshi	3	Developing a Low-Cost Wireless Transtibial Prosthetic Socket Sensor Sock: An Iterative Design Study
Aness Suleiman	4	An SHG-Derived Structural Biomarker Detects Cartilage Degeneration Before Major Loss of Cell Viability and Mechanical Function
Anna, Rosvold	5	Engineering a probiotic to deplete Klebsiella within the gastrointestinal microbiome of dairy cows
Aryan Sharma	6	Investigating the underlying mechanisms of Age-related Macular Degeneration (AMD) using CRISPR-generated lrp1aa and rp111 zebrafish knockout models
Aryka, Gordon	7	Silicone Diaphragm Mold Design for the Pumping Mechanism of a Total Artificial Heart (TAH)
Asher Vander Deen	8	MATERIAL SELECTION AND GEOMETRIC SCALING OF A COMPLIANT POLYMER STRUCTURE FOR SURGICAL APPLICATIONS
Atoosa, Ayazbakhsh	9	Reading the Learner, Not Just the Performance: Physiology-Informed Adaptive Exergames for Robotic Upper-Limb Training
Basma, Hussain	10	SELECTION OF A WIRELESS COMMUNICATION METHOD FOR A TOTAL ARTIFICIAL HEART
Beverly Zhao	11	Quantifying Strength: Absolute and Relative Reliability Between Two Versions of a Multi-Axial Dynamometer
Brayden, Ritter	12	Safe Product Verification of Novel Lower Limb Prosthetics
Chandrima, Podder	13	FLASH: Fluorescent Lateral Flow-Assay using Synthesized Carbon Quantum Dots with Hybrid bioconjugates
Charlotte, Bradley	14	Investigation of the Nature of Various Antimicrobial Combinations on Three Commonly Resistant Microorganisms

Chavy, Dworkind	15	From Cytoskeletal Disruption to Retinal Architecture: Multiscale Approaches to Investigating Zebrafish Retinal Structure
Chloe, Smith	16	Influence of Ringette Stick Mechanical Properties on Shot Performance
Chris, Tiessen	17	Shark (S. suckleyi) Cardiac Titin Offers Insights into Isoform-Specific Sarcomere Mechanics
Davina, Dang	18	Surface Plasmon Resonance (SPR) Optimization for Proteoglycan 4 Interactions
Dragos Ursu	19	Discriminating Thrombus First from Wall-Expansion-First AAA Pathogenesis Using Idealized Fluid–Structure Interaction
Duncan, Boyd	20	Effect of Aging on Dielectric Properties of Breast Implants
Elizabeth, Rak	21	The Role of Titin in Residual Force Depression in Skeletal Muscle
Erin, McKechnie	22	Integration of 3D Scanning into a Digital Prosthetics Production Workflow
Ethan, Holtved	23	Estimating trabecular bone elastic moduli using MRI: A Pilot Study
Faraja, Habiyakare	24	Effect of Menopause and Stroke on Skeletal Muscle Sarcomeric Proteins in a Rat Model
Farzaneh, Dehghani	25	An Intersectional Fairness-Aware Framework for Alzheimer’s Disease Detection Using Multimodal Data
Fathima, Chappangathil	26	Exploring Region-Dependent Behaviour of Human Skin Biomechanics
Grace, Yin	27	The Impact of Age on Prosthesis Use, User Experience, and Priorities
Hannah, Nguyen	28	Engineering a Reconfigurable Electrochemical Biosensor Platform for Point-of-Care Diagnostics
Himanshu, Sangale	29	Do salivary ovarian hormones improve wearable-based fatigue and menstrual-cycle phase prediction? A participant-held-out longitudinal study
Hugo Wong	30	Face Validity of Digital 3D Scan-Derived Residual Limb Tissue Compression
Humza Javed	31	Quantum-Monolayer $NbSe_2$ Triboelectric Nanogenerator for Wearable Sensing Applications

Isabelle Roberts	32	One Child Every Child: Participatory Approaches to Assessing Impacts of Climate Change on Children's Health
Jack, Grad	33	Stress Concentration Factors Associated with Anterior Notching During TKA
James, Reeves	34	Tailoring Mesenchymal Stem Cell Derived Small Extracellular Vesicle Population Profiles by Modifying Culture Surface Stiffness
Kailyn, Chau	35	Automating the coating of microneedle arrays: a comparison of manual and automated dispensing
Katerina, Kurz	36	Bioenergetics of the brain and body
Katia, Nasri	37	Limiting Factors of Compliant Materials in Pulsatile Total Artificial Hearts
Kayley, D'Onofrio	38	Comparative Evaluation of an Underactuated Single-Motor Prosthetic Leg Transmission
Kevyn, Harder	39	Design and Development of an Insertion Tool for Robotic Implantation of Flexible Intraspinal Microstimulation Electrode Arrays
Kishan, Prasad	40	Toward Real-Time Prosthetic Control: A Synchronized sEMG-IMU Framework for Predicting Lower-Limb Kinematics
Krish, Chahal	41	INVESTIGATING IDEAL TET COIL PLACEMENTS FOR POWERING A TOTAL ARTIFICIAL HEART
Kristela, Kozi	42	Standardizing Longitudinal Cochlear Implant Data for Secondary Health Research
Lilli, Sauer	43	Accuracy analysis of dual-energy CT material decomposition
Mahan, Jaberi	44	Validation and benchtop testing of a passive biarticular exoskeleton inspired by the gastrocnemius muscle
Mahmoud Hashim	45	Quantifying Regional Trunk Asymmetry in Adolescent Idiopathic Scoliosis Through 3D Surface Topography
Mattea, Krug	46	Effect of Tubing Compliance on Mock Circulatory Loop Performance for Artificial Heart Testing
Matthew, Lawrence	47	Comparison of micro-finite element analysis methods to capture pediatric fracture healing
Maya Wadhera	48	Fairness for Predictive Modeling for Mental Health in Technology

Merwa, Al-Rasheed	49	Effects of Cognitive Task Type and Walking Speed on Gait and Neuromuscular Control in Young Adults
Michael, Tan	50	Biarticular Quasi-Passive Lower Limb Exoskeleton Improves Expected Efficiency Compared to Passive Device
Mohammadreza, Farrokhnia	51	Sample-to-answer Point-of-care Microfluidic Biosensor Based on Molecularly Imprinted Polymer for Screening Mild Traumatic Brain Injury Patients
Mohammed,Alsaleh	52	Artificial Intelligence and Machine Learning for Illicit Drug Supply Surveillance: A Scoping Review of Methods, Data Sources, and Validation
Nadithi, Tissera	53	Simulation-Guided RF Coil Design and Validation for Deuterium Metabolic Imaging
Niosha, Attarifard	54	Predicting Speed in Ice Hockey Skating Using Inertial Measurement Units and Machine Learning
Olivia, Anderson	55	Improving Halo Gravity Traction (HGT) Treatment Systems to Enhance Tension Control, Data Monitoring and Usability
Omar, Marinos	56	Bent Laue Diffraction Intensity Measurements at the Biomedical Imaging and Therapy Beamlines of the Canadian Light Source
Paul, Kulyk	57	Imaging-Based Characterization and Prediction of Distal Tibial Bone Mechanics in Ankle Arthritis
Peter,Afriyie	58	Experimental and Numerical Evaluation of 3D-Printed Composite Running Blades for Pediatric Prosthetic Applications
Prateek Kumar, Shreyas	59	Fault Detection for a Preclinical Deep Brain Stimulation Device
Ryker, Frank	60	Correlation of Bone Fatigue Damage to HR-pQCT and Magnetic Resonance Imaging Metrics
Saliem, Abraham	61	Analysis of Qualitative and Quantitative Data of a SmartWalker for Performance Optimization
Savaarna Mitra	62	Pediatric-Focused B0 Shimming for Improved Brain MRI and MRS
Sebastian Polanco	63	Changes in Bone Density Around Surgical Tunnels After Anterior Cruciate Ligament Reconstruction
Setayesh, Afshar	64	A Bi-layered Electrospun Wound Dressing for Bacteriophage-Antibiotic Co-Delivery

Shana, Fu	65	Brain slice visualization via the grammar of graphics
Soham Shringarpure	66	Empathy in Biomedical Engineering
Spencer, Smith	67	Characterizing the Intended Uses of FDA-Cleared AI Medical Devices
Sukhman Kaur	68	Identifying Human-Centered Needs in Healthcare Technology Through Patient and Nurse Perspectives
Tala, Al-yasiri	69	Influence of Proteoglycan 4 (Prg4) Deficiency on Cardiomyocyte and Myofibroblast Generation from Mouse Embryonic Stem Cells (mESCs)
Tamu Siwira	70	Development of a Custom LiFePO4 Battery System for a Prosthetic Leg
Taryn, Kelly	71	Weight-bearing CT in Patients with Recurrent Patellofemoral Instability Stratified by Tibiofemoral Rotation Angle
Vaneeza Upal, Clarissa Choy	72	Empowering Home Care Community Stroke
Xixi Qiao	73	Kinematic Comparison of Single-DOF and 3-DOF Gait Simulators