Sunday, August 11th — Pre-Conference Workshops

Registration Desk Opens 8:30-4:00pm (Convention Centre)

9:00-12:00pm Fillauer Workshop (Barkers Point Room)

10:30 - 12:00pm BLINCdev Workshop (Nashwaaksis Room)

1:00-4:00pm Embodiment Workshop (Barkers Point Room)

1:00-5:00pm LibEMG Workshop (Nashwaaksis Room)

Time	Monday, August 12th	Tuesday, August 13th	Time	Wednesday, August 14th	Thursday, August 15th
8:00-8:30am	Registration Desk Opens (Convention Centre)	Registration Desk Opens	8:00-8:30am	Registration Desk Opens	Registration Desk Opens
8:30-9:00am	Buffet Breakfast (Foyer) / Vendor Workshop Point Designs	Buffet Breakfast / Vendor Workshop Coapt	8:30-9:00am	Buffet Breakfast / Vendor Workshop Aether Biomedical	Buffet Breakfast / Vendor Workshop Delsys
9:00-9:15am	Welcome Address	Morning Comments	9:00-9:15am	Morning Comments	Morning Comments
9:15-10:15am	Keynote Helen Huang (Pointe St-Anne CD)	User Feedback Panel	9:15-10:15am	Keynote Corry van der Sluis	Session G - Paper Presentations (4 papers)
10:15-10:45am	Networking with Exhibitors (Pointe St-Anne B)	Networking with Exhibitors	10:15-10:45am	Networking with Exhibitors	Networking with Exhibitors
10:45-11:15am	Session A - Paper Presentations (2 papers) (Pointe St-Anne CD)	Session C - Paper Presentations (5 papers)	10:45-12:00pm	Session D - Paper Presentations (5 papers)	Session H - Paper Presentations (4 papers)
11:15-12:00pm	Vendor Workshop Ossur				Exhibitor Bingo Prizes & Closing Remarks
12:00-1:00pm	Lunch (Foyer)	Lunch	12:00-1:00pm	Lunch	Grab n Go' Lunch
1:00-2:00pm	Perspective Talk - Phil Stevens (Pointe St-Anne CD)	Vendor Workshop	ibt	1:00-1:30pm	Perspective Talk - Greg Bowring	
	Session B - Paper Presentations (2 papers)	Unconference Session (1:20-2:45pm)	1:30 - 2:15pm	Session E - Paper Presentations (3 papers)	
2:00-2:30pm	Networking with Exhibitors (Pointe St-Anne B)		2:15 - 2:45pm	Networking with Exhibitors	Tour of IBME/CARE 2:00-3:00pm
2:30-3:45pm	Fast-Track Poster Presenters (Pointe St-Anne CD) Poster Session (Atrium)	Poster Session (Atrium) (2:45-3:45pm) / Networking with Exhibitors (2:45-3:45pm)	2:45 - 3:45pm	Session F - Paper Presentations (4 papers)	
3:45-4:15pm	Perspective Talk - Levi Hargrove	Perspective Talk - Richard Weir	3:45-4:00pm	End of Day Comments	
4:15-4:30pm	End of Day Comments	End of Day Comments			

7:00-9:00pm Welcome Event (Farmers Market - 665 George St.)

6:15pm Buses from Convention Centre to SUB

6:30-9:30pm Banquet & Student Awards (UNB Student Union Building, Bottom Floor)

9:15pm & 9:30pm Buses from SUB to Convention Centre

MEC24 Schedule

Monday, August 12th (1/2)

Paper Session A - 10:45am - 11:15am			
Time	**Authors**	**Title**	**Track**
10:45 - 11:00am	Chris Baschuk	Designed for Additive Manufacturing: Upper Limb Prostheses	Devices and Materials
11:00 - 11:15am	Heather Daley, Wendy Hill and Dan Dafonseca	A Modular Solution to a Unique Design Request for a Shoulder Disarticulation Prosthesis: A Case Study	Clinical Practice
Paper Session B - 1:30 - 2:00pm			
Time	**Authors**	**Title**	**Track**
1:30-1:45pm	Shriram Tallam Puranam Raghu, Dawn MacIsaac and Erik Scheme	Enabling Myoelectric Control Training Using Continuous Data Through Self-Supervised Representation Learning	Myoelectric Control Algorithms
1:45 – 2:00pm	Joshua Siegel and Jonathon Schofield	Exploring the Perspectives of Different Professions on Task-Based Upper-Limb Prosthesis Assessment Techniques	Clinical Practice

Fast-Track Poster Presentations & Poster Session

Monday 2:30 – 3:45pm		
Poster #	Authors	Title	Track
1	Debra Latour and Megan Hodgson	UnLIMBited Wellness: Program Expansion	User Experience and Pain
2	Luke Osborn, Courtney Moran, Breanne Christie, Meiyong Himmtann, Rama Venkatasubramanian, Matthew Fifer and Robert Armier	Creating Pressure and Thermal Tactile Sensations in the Phantom Hand Using Non-Invasive Stimulation	Control and Sensory Feedback
3	Kristi L. Turner, Wendy Hill, Eric J. Earley, Maria Munoz-Novoa, Liselotte Hermansson and Helen Lindner	Refinement of New Items in the Assessment of Capacity for Myoelectric Control for Multi-Articulating Hands	Other
4	Eric Earley, Cristina Piazza and Kristi Turner	A Taxonomy for Commercially Available Myoelectric Terminal Devices	Prosthetic Devices and Materials
5	Nicolò Boccardo, Michele Canepa, Samuel Stedman, Lorenzo Lombardi, Andrea Marinelli, Dario Di Domenico, Emanuele Gruppioni, Lorenzo De Michieli and Matteo Laffranchi	A Compact 2-DOFs Actuated Wrist for Improving Dexterity of Upper Limb Prosthetics	Prosthetic Devices and Materials
6	Samantha G Rozevink, Bart Maas, Alessio Murgia, Raoul M Bongers and Corry K van der Sluis	Assessing Control and Feedback in Virtual Reality for Myo-Electric Prosthesis Training	User Experience and Pain
7	Mitchell Dumba, Michael Dawson, Glyn Murgatroyd, Patrick Pilarski, Jacqueline Hebert and Ahmed Shehata	A Virtual Reality Training Environment For Myoelectric Prosthesis Grasp Control With Sensory Feedback	Control and Sensory Feedback
8	Laura Petrich, Heather Williams, Matthew Taylor, Jacqueline Hebert, Pierre Lemelin, Ahmed Shehata and Patrick Pilarski	A Preliminary Investigation into Bio-Inspired Data Collection for Transhumeral Targeted Muscle Reinnervation Prosthetic Control	Control and Sensory Feedback
9	Stephanie Lorelli and Richard Weir	Exploration of Fuzzy Logic As a Means to Handle Imprecise EMG Signals In Pattern Recognition Classifiers	Myoelectric Control Algorithms
10	Alix Chadwell, Laurence Kenney, Michael Prince, Jennifer Olsen and Matthew Dyson	An Approach to Replicating Clinical Prosthetic Sockets to Support Research	Prosthetic Devices and Materials

11	Brittney Curcio	Integrating Novel Components into Bilateral Pediatric Shoulder Disarticulation Prosthetic Fittings: A Case Study	Other
12	Sarah Mehigan and Sigrid Dupan	Limitations to the Sense of Agency Over Myoelectric Controlled Movements	User Experience and Pain
13	Peyton R. Young, Eden J. Winslow, Giancarlo K. Sagastume, Marcus A. Battraw, Richard S. Whittle and Jonathon S. Schofield	The Effects of Limb Position and Applied Load on Hand Gesture Classification Accuracy Using Electromyography and Force Myography	Other
14	Kiriaki J. Rajotte, Anson Wooding, Todd Farrell, Jianan Li, Xinming Huang, Edward A. Clancy and Benjamin E. McDonald	Power Consumption, Latency, and Maximum Number of Supported Nodes for BLE Biosensor Applications	Prosthetic Devices and Materials
15	Josh McGinnis, Lana Wong, Marcus Battraw and Jonathon Schofield	Ice is Nice: A Modular Gamified Research and Training Platform for Pediatric Upper Limb Prosthetic Control	Control and Sensory Feedback
16	Daniel DaFonseca, Heather Daley and Wendy Hill	Enhancing Upper Limb Prosthetic Fabrication with 3D Printing Technology: Opportunities and Applications	Prosthetic Devices and Materials
17	Barathwaj Murali and Richard Weir	A Responsive Myoelectric Control Signal Processing Technique Using Muscle Excitation-Contraction Modeling	Myoelectric Control Algorithms
18	Evan Campbell, Ethan Eddy, Ulysse Côté-Allard and Erik Scheme	Improving User-in-the-Loop Myoelectric Control Using Context Informed Incremental Learning	Myoelectric Control Algorithms
19	Amber Bollinger and Richard Weir	Comparison Of Differential Surface EMG Circuits And Interelectrode Spacing For Use With Regenerative Peripheral Nerve Interfaces	Control and Sensory Feedback
20	Robert Midura and Mark Brinton	Effect of Biomimicry on Perceived Intensity, Naturalness, and Pleasantness Using Non-Invasive Electrical Stimulation	Control and Sensory Feedback
21	Charles Moore, B. Ulgen Kilic, Federico Masiero, Marta Gherardini, Christian Cipriani and Paul Marasco	Comparative Kinematic Analysis of Two Kinesthetic Interfaces from Distinct Recording Methodologies	Control and Sensory Feedback
22	Seyedeh Nadia Aghili and Kianoush Nazarpour	Feasibility of Spatio-Temporal Linear Feature Learning for Myoelectric Control: A Small Window Size Approach	Myoelectric Control Algorithms
23	Chenfei Ma, Xinyu Jiang and Kianoush Nazarpour	3-Stage Neural Network Training Protocol for Generalisable Myoelectric Control	Myoelectric Control Algorithms

Tuesday, August 13th

Paper Session C - 10:45am - 12:00pm

Time	Authors	Title	Track
10:45 - 11:00am	Christian Morrell, Evan Campbell and Erik Scheme	Exploring User Compliance in the Training of Regression-Based Myoelectric Control	User Experience and Pain
11:00 - 11:15am	Laura Miller, Kristi Turner, Kevin Brenner and Levi Hargrove	Functional Outcomes of a Transradial Prosthesis with and without Wrist Flexion and Extension	Prosthetic Devices and Materials
11:15 - 11:30am	Félix Chamberland, Xavier Isabel, Evan Campbell, Gabriel Gagné, Benoit Gosselin, Erik Scheme, Gabriel Gagnon-Turcotte and Ulysse Côté-Allard	BioPoint: Single-site, Multi-sensor Compound Gesture Recognition	Myoelectric Control Algorithms
11:30 - 11:45am	Jacopo Franco, Simon Stuttaford, Patrick Degenaar and Matthew Dyson	Optical Sensing of Muscle Activity	Prosthetic Devices and Materials
11:45 - 12:00pm	Bart Maas, Jack Tchimino, Bram Van Dijk, Alessio Murgia, Corry K. van der Sluis and Raoul M. Bongers	The Effectiveness of Virtual Reality Training for Arm Prosthesis Control Compared with Prosthesis Simulator Training	Clinical Research

Wednesday, August 14th (1/2)

Paper Session D - 10:45am - 12:00pm

Time	Authors	Title	Track
10:45 - 11:00am	Phillip Stevens, Dwiesha England, Bretta Fylstra, Todd Castleberry and Shane Wurdeman	Prosthesis Receipt Is Associated with Improved Participation and Decreased Pain Following Upper Limb Amputation	User Experience and Pain
11:00 - 11:15am	Heather E. Williams, Jacqueline S. Hebert, Patrick M. Pilarski and Ahmed W. Shehata	Evidence That a Deep Learning Regression-Based Controller Mitigates the Limb Position Effect for an Individual with Transradial Amputation	Control and Sensory Feedback
11:15 - 11:30am	Milad Jabbari and Kianoush Nazarpour	Spatio-Temporal Convolutional Networks for Myoelectric Control	Myoelectric Control Algorithms
11:30 - 11:45am	Salma Soliman, Anna Rita Moukarzel, Inhwa Lee, Megan Hodgson, Christopher Hunt, Rahul Kaliki, Ahmed Shehata and Jacqueline Hebert	Effects of Augmented Reality Training on Pattern Recognition Control in Myoelectric Prostheses Users: A Case Study	Clinical Research
11:45 - 12:00pm	Eisa Aghchehli, Chenfei Ma, Matthew Dyson and Kianoush Nazarpour	Medium Density Digital Electromyography Sensing System	Control and Sensory Feedback

Paper Session E - 1:30 - 2:15pm

Time	Authors	Title	Track
1:30 – 1:45pm	Xinyu Jiang, Chenfei Ma and Kianoush Nazarpour	Toward Self-Calibrating Plug-and-Play Myoelectric Control	Myoelectric Control Algorithms
1:45 – 2:00pm	Zachary Wright, Blair Lock, Kristi Turner, Andrea Ikeda, Katie Cai, Xavier Oberhelman, Carlos Martinez and Levi Hargrove	A Portable Myoelectric Pattern Recognition-Driven Virtual Training System for Phantom Limb Pain Management	User Experience and Pain
2:00- 2:15pm	Kristi Turner, Andrea Ikeda, Zachary Wright, Blair A. Lock and Levi J. Hargrove	Preliminary Results of a Portable Take Home Phantom Limb Pain Management System	User Experience and Pain

Wednesday, August 14th (2/2)

Paper Session F - 2:45 – 3:45pm			
Time	**Authors**	**Title**	**Track**
2:45 - 3:00pm	Felix Jarto and Sigrid Dupan	Investigating the Speed-Accuracy Tradeoff in Electrotactile Stimuli	Control and Sensory Feedback
3:00 – 3:15pm	Laura Miller, Quinn Boser, Vikram Darbhe, Jacqueline Hebert, Kevin Brenner and Kristi Turner	Kinematic Changes with Powered Wrist Flexion for Transradial Prosthetic Users Completing the Gaze and Movement Assessment (GAMA) Pasta Box Task	Devices and Materials
3:15 – 3:30pm	Eden Winslow, Marcus Battraw, Justin Fitzgerald, Michelle James, Anita Bagley, Wilsaan Joiner and Jonathon Schofield	Affected Muscles Retain Dextrous Motor Capabilities in Children Born with Upper-Limb Deficiencies	Clinical Research
3:30 – 3:45pm	Afsana Hossain Rima, Zahra Taghizadeh, Ahmed Bashatah, Brian Monroe, Siddhartha Sikdar, Abhishek Aher and Gabriel Gibson	First Evaluation of an Integrated Sonomyographic Prosthesis in Individuals with Congenital Limb Difference	Control and Sensory Feedback

Thursday, August 15th (1/2)

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Paper Session G - 9:15am - 10:15am			
Time	**Authors**	**Title**	**Track**
9:15 - 9:30am	Christopher Hunt, György Lévay, Megan Hodgson, Damini Agarwal and Rahul Kaliki	Feasibility of the Glide Myoelectric Control Algorithm for Partial Hand Prosthesis Control	Myoelectric Control Algorithms
9:30 - 9:45am	Lincoln Inglis and Dan Blustein	Development and Assessment of an Augmented Reality Feedback System for Prosthesis Users	Control and Sensory Feedback
9:45 - 10:00am	Christopher Fink, Timothy Bump and Debra Latour	Rethinking the Shoulder Disarticulation Prosthesis: Let's Stop Thinking Outside the Box and Make the Box Bigger	Clinical Practice
10:00 - 10:15am	Brian Monroe and Phillip Stevens	Preliminary Evaluation of Variations in Control Strategy Following Transhumeral Osseointegration	Other

Paper Session H – 10:45 – 11:45am			
Time	**Authors**	**Title**	**Track**
10:45 – 11:00am	Simon Stuttaford, Jacopo Franco, Patrick Degenaar and Matthew Dyson	Investigating the Universality of Optical Myography	Control and Sensory Feedback
11:00 - 11:15am	Gyorgy Miklos Levay, Ruichen Yang, Christopher L. Hunt, Megan C. Hodgson, Rahul R. Kaliki and Nitish V. Thakor	Pattern Separability Visual Feedback to Improve Pattern Recognition Decoding Performance	Control and Sensory Feedback
11:15 - 11:30am	Melissa Schmitt, Alexandra Zanowick-Marr, Debra Kelty, Linda Resnik and Emily Graczyk	User Perspectives on Features of Upper Limb Prostheses: A Qualitative Cross-Case Comparison	User Experience and Pain
11:30 - 11:45am	Miriam Rafferty, Paulo Aco, Kristi Turner, Laura Miller, Blair Lock and Zachary Wright	Barriers and Facilitators to Adopting a Clinician Dashboard Supporting Upper Limb Myoelectric-Controlled Prostheses	Clinical Practice

Thursday, August 15th (2/2)

2:00-3:00pm: Tour of IBME/CARE

Join us at the Institute of Biomedical Engineering (25 Dineen Dr.) for a tour of the **Atlantic Clinic for Upper Limb Prosthetics** and the **Centre for Adaptive Rehabilitation Engineering** (CARE)! The CARE is a unique facility that provides state of the art equipment and facilities to research and provide clinical care for mobility rehabilitation. The centre comprises three labs:

- Our **Mobility Lab** enables us to safely analyze mobility using motion-capture while subjects walk around a track, up and down stairs, using functional-electrical-stimulation bikes, wearing exoskeletons, and more! A Zero-G dynamic harness enables weight reduction for subjects with mobility-impairments.
- Our **Virtual Reality Lab** has a CAREN virtual reality platform. This platform enables us to create immersive environments in which the platform moves, spins and tilts. Motion-tracking and force-plates enable responsive reactions from the environment, and a split-belt treadmill lets subjects walk through the virtual environment. We can improve rehabilitation, assess stability, and research how the human brain works in new environments.
- Our **Activity of Daily Living Lab** lets us assess how rehabilitation is helping in everyday environments. Adjustable appliances let us assess how helpful environmental changes can be. Stepscan pressure tiles let us measure people's sway and posture. Pupil-dilation, eye-tracking, and EEG measurements let us assess cognitive load.

Please note that transportation to and from the facility is not provided.
Sign-up for this event is not required.