

# 2022 DALHOUSIE ENGINEERING CAPSTONE CONFERENCE

Presented by



**SHOWCASING SENIOR YEAR ENGINEERING CAPSTONE PROJECTS:  
THE INTEGRATION OF COURSE WORK AND DESIGN SKILLS TO PROVIDE INNOVATIVE  
SOLUTIONS TO LOCAL INDUSTRIAL PARTNERS.**

*The Westin Nova Scotian, Halifax NS  
April 5<sup>th</sup>, 2022*

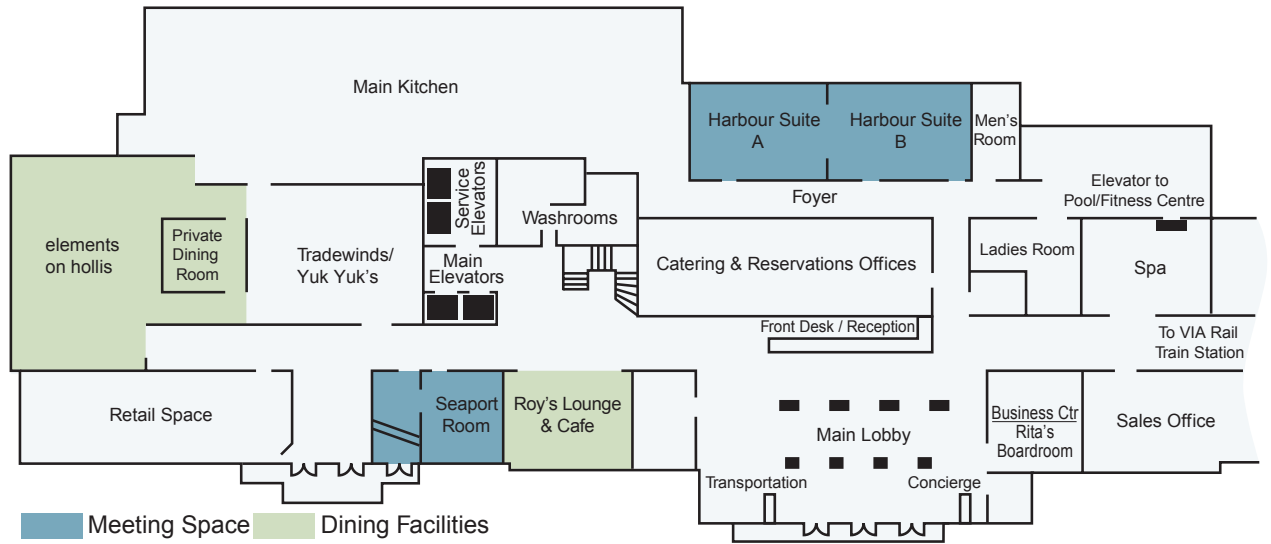


# westin nova scotian

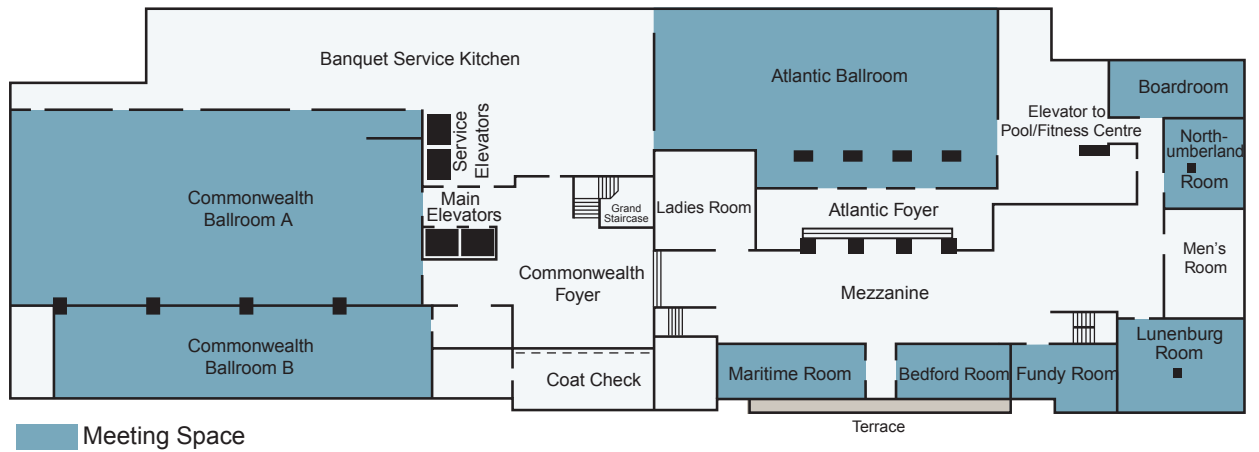
## property floorplans



lobby level  
ground floor



conference level  
first floor



**THE WESTIN  
NOVA SCOTIAN**

HALIFAX

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Halifax, NS B3H 2P6

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**Welcome to the 6th Annual  
Dalhousie Engineering Capstone Conference  
April 5<sup>th</sup>, 2022  
presented by Michelin**

We are excited to be hosting the sixth annual Engineering Capstone Conference today and we thank you for your participation.

The Dalhousie Engineering Capstone Conference (DECC) celebrates the hard work of our graduating engineering students through formal presentations and a poster exposition. It is an opportunity for students to showcase how their capstone projects integrate course work and engineering design skills to provide innovative solutions to local industry partners.

Through the Capstone program in the Faculty of Engineering at Dal, students work in teams to participate in an eight-month capstone project in their final year of studies. Most of our capstone projects are sponsored by clients from industry who have presented a current problem of theirs which requires students to apply the culmination of their previous years' studies, skills and experience. Capstone is a meaningful program to both students and industry because it integrates students' course work and engineering design skills, while providing innovative solutions for many local industrial partners.

Each team has prepared a project poster summarizing their work and these can be viewed online at [dal.ca/decc](http://dal.ca/decc). Over the past few days, volunteer judges who are professional engineers have evaluated the students' communication skills. A winning team from each discipline will be announced at 1:00 pm.

The DECC would not be possible without the support of Capstone instructors, faculty advisors, technical and administrative staff, industry project sponsors and advisors, event sponsors and the organizing committee. The time and energy that has been dedicated to this event is highly appreciated.

***Schedule:***

<b>7:30 am – 8:30 am</b>	<b>Arrival and Set up</b>
<b>8:30 am – 9:50 am</b>	<b>Project presentations: see following room schedules</b>
<b>9:50 am – 10:15 am</b>	<b>Coffee break 15 mins – Schedule varies by Discipline</b>
<b>10:00 am – 11:20 am</b>	<b>Project presentations: see following room schedules</b>
<b>11:20 am – 12:50 pm</b>	<b>Lunch Break</b>
<b>13:00 pm – 15:50 pm</b>	<b>Project presentations: see following room schedules</b>

We hope that you enjoy the DECC and wish the best of luck to all our senior year engineering students today, and in the future.

## Judging Committee

A special thank you to all our industry judges for volunteering their time to review and evaluate our students' poster presentations.

<b>Judges</b>	<b>Company</b>
Allan Boddy, P.Eng.	NovaTech Mining Solutions
Aswin Rajendran	Pomerleau
Bill Grace, P.Eng.	Aureus Gold Inc.
Breanne Lewis, EiT	H3R Inc.
Brian Wolfe, P.Eng.	
Cameron Ells, P.Eng.	Cameron Consulting
Chris Davis, P.Eng.	Halifax Regional Municipality
Chris MacAulay, P.Eng.	Heritage Gas
Colin Davis, P.Eng.	National Defence
Colin Jim, P.Eng.	CBCL
Dan Khan, P. Eng.	Nova Scotia Lands Inc.
David Arsenaault, P.Eng	NS Power
Derek Bent, P.Eng.	MacKay's Truck & Trailer Center
Geoff Jamieson, P.Eng.	J.W. Lindsay
Jamie Hannam, P.Eng.	
Jean-Marc Guindon, B.Eng.	Enginuity Inc
Jeff Knapp, FEC, P.Eng.	Halifax Water
Jeff Spares, P.Eng.	Halifax Regional Municipality
Jennifer Richardson, P.Eng.	Halifax Water
Jessica Goodland, P.Eng.	Andrea Doncaster Engineering Ltd.
Jim Fletcher, M.A.Sc., P.Eng.	Bluenose Engineering
Katherine MacLeod, P.Eng.	NS Gov – Environment
Kelsey Green, P.Eng.	Opus International
Kevin Brown, P.Eng.	DesignPoint Engineering & Surveying Ltd.
Kris Dove, P.Eng.	Engineers Nova Scotia
Krista Hogan. P.Eng.	Halifax Regional Municipality
Marcos Casimirri, M.Eng, P.Eng.	CBCL
Meghan Woszczyński, P.Eng.	Halifax Water
Mike Morris, P.Eng	Ultra-MS
Pal Mann, P.Eng.	Engineers Nova Scotia
Pat Sweet, P.Eng.	The Engineering Leadership Project
Patrick McKenna, P.Eng.	Heritage Gas
Phil Nash, P.Eng.	CNSOPB
Richard Hattin, M.A.Sc., P.Eng.	
Rob Hudson, P.Eng.	Nova Scotia Health Authority
Samantha Ghosn, P.Eng.	BMR Engineering
Scott Kyle, P.Eng., LEED AP	Dillon Consulting Limited
Susan Campbell, P.Eng., MBA	NSCC
Taso Koutroulakis, P.Eng.	
Tertius Baard, P.Eng.	CBCL
Tom Brennan, P.Eng.	
Tyler Hughes, P.Eng.	Smith and Anderson
Vicki McKenna, P.Eng.	
Vivek Tomar, P.Eng., FEC	Pomerleau

**Dalhousie Engineering Capstone Conference**  
PRESENTATION SCHEDULE - April 5, 2022

	Common-wealth B	Harbour Suite A	Harbour Suite B	Elements	Atlantic Ballroom	Maritime	North-umberland	Lunenburg	Fundy	Bedford
Floor	First	Ground	Ground	Ground	First	First	First	First	First	First
7:30										
8:25										
8:30										
8:35	IENG08	MECH03	MECH16	MINE01	CIVL01	ENVE03	CHEE04	CHEE09	ECED10	ECED02
8:40										
8:45										
8:50										
8:55	IENG03	MECH05	MECH18		CIVL02	ENVE06	CHEE03	CHEE05	BREAK	BREAK
9:00										
9:05										
9:10	IENG05	MECH09	MECH19	MINE02	CIVL07	ENVE05	CHEE07	CHEE12	ECED04	ECED12
9:15										
9:20										
9:25										
9:30	IENG16	MECH10	MECH14		CIVL08	BREAK	BREAK	BREAK	BREAK	BREAK
9:35										
9:40										
9:45										
9:50	BREAK	BREAK	BREAK	BREAK	BREAK					
9:55										
10:00										
10:05	IENG12	MECH15	MECH06	MINE03	CIVL09	ENVE01	BREAK	BREAK	ECED03	ECED05
10:10										
10:15										
10:20										
10:25	IENG06	MECH22	MECH12		CIVL13	ENVE04	CHEE15	CHEE08	BREAK	BREAK
10:30										
10:35										
10:40										
10:45	IENG13	MECH13	MECH20		CIVL14	ENVE02	CHEE02	CHEE11	ECED01	ECED09
10:50										
10:55										
11:00										
11:05	IENG04				CIVL15					
11:10										
11:15										
11:20										
11:25										
11:30					CIVL16					
11:35										
11:40										
11:50										
13:00										
13:05	IENG07	MECH25	MECH17		CIVL03		CHEE14	CHEE01	ECED08	ECED07
13:10										
13:15										
13:20										
13:25	IENG09	MECH04	MECH23		CIVL04				BREAK	BREAK
13:30										
13:35										
13:40										
13:45	IENG02	MECH07	MECH26		CIVL05		CHEE13	CHEE16	ECED14	ECED13
13:50										
13:55										
14:00										
14:05	IENG01	MECH08	MECH01		CIVL06		CHEE10	CHEE06	BREAK	BREAK
14:10										
14:15										
14:20										
14:25	BREAK	BREAK	BREAK		BREAK					
14:30										
14:35										
14:40	IENG11	MECH11	MECH02		CIVL10				ECED06	ECED11
14:45										
14:50										
14:55										
15:00	IENG10	MECH21	MECH27		CIVL11					
15:05										
15:10										
15:15										
15:20	IENG14		MECH24		CIVL12					
15:25										
15:30										
15:35										
15:40	IENG15				CIVL17					
15:45										
15:50										

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~ 08:30 AM ~ **CHEE 04**

**Hydrogen Production from Acid Gas Waste**

Abdirahman Haiye, Carlos Villaorduna, Niall Burnett, Rawan Al Ojaily

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~ 09:00 AM ~ **CHEE 03**

**Hydrogen Production Using Canadian Nuclear Reactors**

Rania Elsebai, Sophie Janke, Hongdi Guan, Matthew Vail

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~ 09:30 AM ~ **CHEE 07**

**Redesigning Dalhousie's Boiler System to Run on  
Catalytic Hydrogen Combustion Technology**

Andrew Smith, Cameron Batcules, Kallen Harber, Omar Mansour

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~ 10:00 AM - 10:15 AM ~

**Break**

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~ 10:15 AM ~ **CHEE 15**

**Assessing the Feasibility of Coproducing Biomethane and  
Synthetic Natural Gas from Wastewater in the Cape Breton Regional Municipality**

Rebecca Acker, Lachlan Thornton, Quinn Cavanagh, Farah Al-Razani

---

~ 10:45 AM ~ **CHEE 02**

**Ammonia Production Using Renewable Energy**

David Birnie, Darlene Francis, Manda Tchonlla, Scott Talbot

---

~ 11:15 AM - 12:50 PM ~

**Lunch**

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~ 01:00 PM ~ **CHEE 14**

**Reforming of Landfill Gas for Hydrogen Production and  
Carbon Capture in Nova Scotia**

Nathaniel Schrader, Maram Tabbara, Rafee Hossain, Kayleigh Rambeau

---

~ 01:30 PM ~ **CHEE 13**

**Renewable Methanol Production through  
direct Carbon Dioxide Hydrogenation**

Cole Godfrey, Timothy Atamosa, Daniel Russell, Kye Alleyne

---

~ 02:00 PM ~ **CHEE 10**

**Carbon Dioxide Processing and Loading Facility Design in Atlantic Canada**

**Dr. Robin Hughes, Natural Resources Canada, Canmet ENERGY**

Mary Kayle Telen, Shakkyadeep Bose, Olivia Billard, Andrew Morrison

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~ 08:30 AM ~ **CHEE 09**

**Extraction of Hydrolyzed Collagen as a  
Value Added Product from Poultry Processing Wastewater  
Scotia Garden Seafood Inc.**

Sarah Yates, Kara Chisholm, Olivia Leahy, Donald MacIsaac

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~ 09:00 AM ~ **CHEE 05**

**Production of Omega-3 Rich Oil from Herring Oil Feedstock  
Scotia Garden Seafood Inc.**

Patrick Nnoka, Duncan Turner, Mohamed Barre, Momen Moustafa Ibrahim

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~ 09:30 AM ~ **CHEE 12**

**Wood-Fired Brandy Distillation  
Wild Wines & Spirits**

Adam LeBlanc, George Boyd, Adam Robertson, Wyatt LaForge

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~ 10:00 AM - 10:15 AM ~

**Break**

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~ 10:15 AM ~ **CHEE 08**

**Development of Microalgae Waste Stream Co-Product through  
Membrane Filtration and Scale-up Design  
Mara Renewables Corporation**

Marie Mason, Mikayla Balodis, Jenna Howell

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~ 10:45 AM ~ **CHEE 11**

**The Optimization of the Bokashi Bin for Decentralized Composting  
Azadeh Kermanshahi pour**

Savanah Saulnier, Tanner Costen, Godson Oroku, Hannah MacCormack

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~ 11:15 AM - 12:50 PM ~

**Lunch**

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~ 01:00 PM ~ **CHEE 01**

**On-Demand Block Copolymer Production System  
Dr. Alison Scott**

Brody Reyno, Anton Schrader, David Yi, Zhisen Sun

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~ 01:30 PM ~ **CHEE 16**

**Design of a Reconfigurable System for  
Polymer-Encapsulated Nanoparticle Production**

Maggy McGrath, Yasmin Omar, Alexis Mulligan

---

~ 02:00 PM ~ **CHEE 06**

**Amorphous Solid Dispersion of Ibuprofen  
Production using Fluidized Bed Coating**

Jamie Watton, Keeley Power, Drew Whalen, Mohammad Ikbariyeh

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# Civil Engineering

~ Sponsored by **CBCL Limited**

~ Atlantic Ballroom - First Floor



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~ 08:30 AM ~ **CIVL 01**

## **Lacewood Drive Active Transportation Corridor**

**Halifax Regional Municipality**

Shauna Campbell, Etanami Adam, Nicholas Naugle, Xi Chen

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~ 08:50 AM ~ **CIVL 02**

## **Halifax Dutch Style Roundabout**

**Halifax Regional Municipality**

Tim Wypper, Eric Hernandez, Patrick Deveau, Zheng Yuan

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~ 09:10 AM ~ **CIVL 07**

## **Charlottetown Pollution Control Plant Expansion**

**CBCL Limited**

Cody Smith, Conrad Zinck, Tunmishe Akande, Yilu Chen

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~ 09:30 AM ~ **CIVL 08**

## **Design of Historic Canal Bridge Crossing**

**Harbourside Engineering Consultants**

Youssef Abdeldayem, Mahmoud Kassem, Matthew Lawen, Weijie Wang

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~ 9:50 AM - 10:00 AM ~

**Break**

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~ 10:05 AM ~ **CIVL 09**

## **Wharf Extension**

**CBCL Limited**

William Laporte, Jose Enriquez, Isaac Houston, Matthew Goodick, Mohsiul Alam

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~ 10:25 AM ~ **CIVL 13**

## **Niagara Falls Exchange Studio Building Structural Design**

**Blackwell Structural Engineers**

Karen Ballesteros, Danielle Crowe, Hayden Hicks Redden, Parker Rowter

---

~ 10:45 AM ~ **CIVL 14**

## **Ward to Downtown Pedestrian Bridge Design**

**Blackwell Structural Engineers**

Valerie McCarron, Caleb Wood, Jean Luc Niyomuremyi, Kobe Shannon

---

~ 11:05 AM ~ **CIVL 15**

## **Athabasca River Bridge**

**COWI**

Nicole Clements, Matthew Mason, Siyuan Zhang, Alexa Kahil

---

~ 11:25 AM ~ **CIVL 16**

## **New Bridge Design for Burnside Drive Underpass**

**CBCL Limited**

Jonathan Cox, Edward Steeves, Luke Teasdale

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~ 11:50 AM - 12:50 PM ~

**Lunch**

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~ 01:00 PM ~ **CIVL 03**

**Designing a Depressed Sewer System for Energy-Free  
Wastewater Transmission**

Allison Stenhouse, Iain Green, Shane Cormier, Dan Gasparetto

---

~ 01:20 PM ~ **CIVL 04**

**New Bridge Over Meadow Brook  
WSP**

Nicolas Doucet, Patrick Doyle, Alanna Fenton, Matthew Moulton

---

~ 01:40 PM ~ **CIVL 05**

**Controlling Coastal Sediment Transport in Basin Head, PEI  
CBCL Ltd.**

Alexandra Oliver, Austin Arab, Graham St. John, Reese Butler

---

~ 02:00 PM ~ **CIVL 06**

**Preventing Tidal and Freshwater Flooding in  
Dykelands: Stewiacke, Nova Scotia, Canada  
Nova Scotia Department of Agriculture**

Erica Kelly, Brandon Creamer, Benjamin Trites, David Watson

---

~ 2:20 PM - 2:30 PM ~

**Break**

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~ 02:35 PM ~ **CIVL 10**

**Geotechnical Design of a Tailings Storage Facility in Puerto Rico  
BGC**

Cameron Fillmore, Jonathan Florian, Shihao Zhao, Jeremy Watson

---

~ 02:55 PM ~ **CIVL 11**

**Geotechnical Design For Preventing Tidal and  
Freshwater Flooding Related to Dykelands in Stewiacke, Nova Scotia  
Nova Scotia Department of Agriculture**

Nicole Burwell, Saif Kahn, Duna Ghothani, James Brenton

---

~ 03:15 PM ~ **CIVL 12**

**Foundation Design of a Soft Soil Site Development  
Harbourside Geotechnical Consultants**

Mohammed Ali, Brandon Burns, Cagatay Colak, Leon Fearon

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~ 03:35 PM ~ **CIVL 17**

**Low Impact Development at Seven Lakes - Phase 2  
Seven Lakes Developments Ltd.**

Noreen Zaman, Anthony Fakhri, Rishi Gaba, Zhishuang Lyu

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**Gold Sponsor:**

**Loblaw**  
Companies  
Limited

# Electrical & Computer Engineering

~ Sponsored by **CBCL Limited**

~ Fundy Room - First Floor



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~ 08:30 AM ~ **ECED 10**

## **Food Machinery Automation at ABCO Industries**

**ABCO Industries Inc.**

Muhammad Shaheer Farrukh, Hunter MacRitchie, William Gurney

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~ 9:10 AM - 9:15 AM ~

**Break**

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~ 09:15 AM ~ **ECED 04**

## **Optimization of Ultrasonic Scalpel for Neurosurgery**

**Dr. Jeremy Brown**

Jonathan MacDonald, David Walker, Marc Vezina, Khaled Abdul

---

~ 9:55 AM - 10:00 AM ~

**Break**

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~ 10:00 AM ~ **ECED 03**

## **Fabrication of an Ultrasonic Scalpel for Neurosurgery**

**Dalhousie Ultrasound Lab**

Mahmoud Ibrahim, Brandon Senholt, Colton Campbell, Justin Greige

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~ 10:40 AM - 10:45 AM ~

**Break**

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~ 10:45 AM ~ **ECED 01**

## **Development and Validation of a Low-Cost Functional Myoelectric Hand Prosthesis**

**Dr. Rakesh Gudimella**

Daniela Madariaga, Jennifer Vibert, Lori Smigelski, Ben McKay

---

~ 11:25 AM - 12:50 PM ~

**Lunch**

---

~ 01:00 PM ~ **ECED 08**

## **Private Presentation – Invitation Only**

Yiming Zhang, Chee Sheng Yu, Chris Brennan

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~ 01:45 PM ~ **ECED 14**

## **Private Presentation – Invitation Only**

Shuo Chen Wang, Simon West, Syed Shanto, Wenjun Miao

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~ 2:25 PM - 2:30 PM ~

**Break**

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~ 02:30 PM ~ **ECED 06**

## **Playground Sensor**

**Kingswood Ratepayers Association Resources**

Guodong Li, Ruixuan Chang, Zicong Shao

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# Electrical & Computer Engineering

~ Sponsored by WSP

~ Bedford Room - First Floor



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~ 08:30 AM ~ **ECED 02**

## Electric Bike Conversion

Dr. Larry Hughes

Sahil Khan, Aditya Aji, John Porter, Angelo Diggs

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~ 9:10 AM - 9:15 AM ~

**Break**

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~ 09:10 AM ~ **ECED 12**

## IOT Platform for Condition Monitoring

MOOG Focal

Evan Terry, Usman Kamran, Vineet Saxena

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~ 9:55 AM - 10:00 AM ~

**Break**

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~ 09:55 AM ~ **ECED 05**

## Wireless Soil Monitoring for Vertical Farming

Enginuity Inc.

Jarod Fougere, Johnathan Slaunwhite, Mitchell Mills, Brett McLellan

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~ 10:40 AM - 10:45 AM ~

**Break**

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~ 10:40 AM ~ **ECED 09**

## Training Needs Analysis - KSA Mining

Lockheed Martin Canada

Arash Basirat Tabrizi, Talia Horn, Sheng Luo, Daniel Parsons

---

~ 11:25 AM - 12:50 PM ~

**Lunch**

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~ 12:50 PM ~ **ECED 07**

## Improved AAC Device for Dogs

Michelle Cortens

Nouman Lu, Shuowei Chao, Jie Ren, Peizhuang Liu

---

~ 1:40 PM - 1:45 PM ~

**Break**

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~ 01:40 PM ~ **ECED 13**

## Ground Penetrating Radar for Forensic Investigation

NSMES

Ben West, Shivi Sharma, Jake Sampson

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~ 2:25 PM - 2:30 PM ~

**Break**

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~ 02:25 PM ~ **ECED 11**

## Long-Range Data and Power Transmission

Ocean Sonic

Liyuan Qian, Haochen Jiang, Yao Sun

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# Industrial Engineering

~ Sponsored by Davis Pier

~ Commonwealth Room B - First Floor

DAVIS PIER

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~ 08:30 AM ~ **IENG 08**

## Improvement of Nova Scotia Power's Storm Damage Prediction System

Nova Scotia Power Inc.

Emma Leeshanok, Jacob Locke, Robert Coakley, Ashley Fulmer

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~ 08:50 AM ~ **IENG 03**

## Semi-Automated Analysis Program for Overall Equipment Effectiveness

Pratt & Whitney Canada

Emily Bailey, Nour El Attar, India Saunders

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~ 09:10 AM ~ **IENG 05**

## Increasing Scheduling Efficiency through Computational Methods and Algorithms

Joyful Sounds Music Studio

Jeff Walton, Arman Atbaei, Peter Drohan, Kirk Drabble

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~ 09:30 AM ~ **IENG 16**

## Michelin Inventory Challenge

Trudy Teed (Michelin Granton Plant)

Dean Phinney, Riley Coombs, Ketian Yan, Yang Yu

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~ 9:50 AM - 10:00 AM ~

**Break**

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~ 10:05 AM ~ **IENG 12**

## Operational Guide for Supply Chain Operations at Dispension Industries

Dispension Industries

Max Boudreau-Perkins, Matt Lindsay, Jasper de Bie, Ian Turner

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~ 10:25 AM ~ **IENG 06**

## Brew Management Tool

Lone Oak Brewing Co.

Jaykeb McLure, Ayman Madi, Matthew Bellefontaine, Keenan Shirt

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~ 10:45 AM ~ **IENG 13**

## Improving Efficiency Within the Regional Tissue Bank (RTB)

Nova Scotia Health Authority Regional Tissue Bank

Ahmad Elcheikh Mohamad, Osama Elcheikh Mohamad, Julie Pace, Mengsha Wu

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~ 11:05 AM ~ **IENG 04**

## Operations Scheduling Problem at Loblaw's Distribution Centre

Loblaw

Connor Newman, Matthew Laforest, Justin Wright, Catie Shaw

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~ 11:25 AM - 12:50 PM ~

**Lunch**

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~ 01:00 PM ~ **IENG 07**

## Construction of a Hazard Analysis and Critical Control Points Plan

Metroworks Stone Hearth Bakery

Manijeh Jalali, Hermandell Maycock, Ahmed Abidali, Bader Hajibi

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~ 01:20 PM ~ **IENG 09**

**Developing a Layout Project for Next-Gen Kiosk Refurbishment**

**Dispension Industries Inc.**

Suvendu Dev, Ali Elayyan, Bahaa Hany Abdelaal, Matthew Bayne

---

~ 01:40 PM ~ **IENG 02**

**Raw Material Inventory Process Improvement**

**Michelin**

Neam Al Izy, Mahmoud Bersy, Piers Broadhead, Ijaz Ayub

---

~ 02:00 PM ~ **IENG 01**

**Time Study and Process Improvement of the Halifax Infirmiry Acute Stroke Protocol**

**Nova Scotia Health, Interventional Radiology**

Westley Dubois, Adam Forward, Alissa Spinney, Ryan Yates

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~ 2:20 PM - 2:30 PM ~

**Break**

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~ 02:35 PM ~ **IENG 11**

**Preventative Maintenance KPI Dashboard for NS Public Housing**

**Nova Scotia Department of Municipal Affairs and Housing**

Abdul Rahman Lakosha, Zilin Liang, Hao Dong, Zishuo An

---

~ 02:55 PM ~ **IENG 10**

**Scene Attendance Decision Support Tool & Data Entry User Guide**

**Nova Scotia Medical Examiner Service**

William Mann, Kareem Eldareby, Cameron Howie, Zeyad Soliman

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~ 03:15 PM ~ **IENG 14**

**Improving Data Management Practices and Production Efficiency at PieceMeal**

**Davis Pier, PieceMeal**

Meghan Flood, Aparna Mohan, Juan Rivadeneira, Youngjin Son

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~ 03:35 PM ~ **IENG 15**

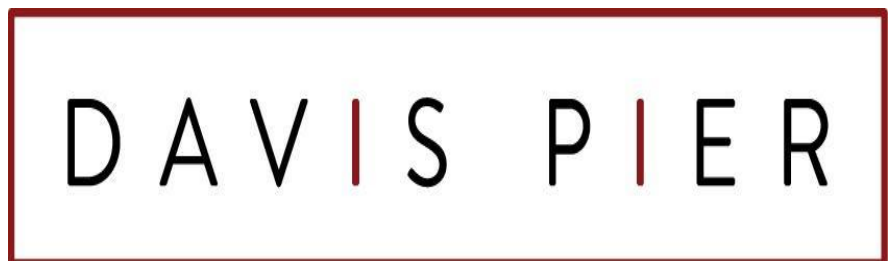
**Halifax Fire Time & Information Management**

**Halifax Fire Regional Emergency**

Layla Ryou, Maria Azcarraga, Mahi Shaheen

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**Platinum Sponsors:**



# Mechanical Engineering

~ Sponsored by WSP

~ Harbour Suite A - Ground Floor



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~ 08:30 AM ~ **MECH 03**

## Process Improvements to a Skin Decellularization System

DeCell Technologies

Siefeldin Sanad, Seif Mostafa Kamal, Walid Abdelmalek, Alex Brezovan

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~ 08:50 AM ~ **MECH 05**

## Compressed Air System Optimization

CKF Inc.

Patrick Pellerin, James Gesse, Xinglun Yang, Jeff Meagher

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~ 09:10 AM ~ **MECH 09**

## Combined Rear-Anti-Tip Device and Caregiver Push-Handle for Manual Wheelchairs

Dr. Lee Kirby, Dalhousie University, Division of Physical Medicine & Rehabilitation

Huzefa Awan, Cory Aker, Mingrui Fu, Mubbashir Umar

---

~ 09:30 AM ~ **MECH 10**

## Semi-Automated Improvements to Paper Bag Making Process

Greenii Inc.

Matthew Glencross, Zihao Geng, Jordan Matthews, Alexander Anthony

---

~ 9:50 AM - 10:00 AM ~

## Break

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~ 10:05 AM ~ **MECH 15**

## Towed Array Tension Measurement Station

Ultra Electronics

Isaac Nauss, Faris ElShanti, Ninad Nimkar, Jace Goodwin

---

~ 10:25 AM ~ **MECH 22**

## Single Stage Gas Gun

Dr. Taheri

Alex Driscoll, Andrew Kieft, Sean Carlisle, Zepeng Li

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~ 10:45 AM ~ **MECH 13**

## Design and Control of UAV Grippers and Transportation Mechanisms

Dr. Ya-Jun Pan

Cole Bleau, Scott Buchanan, Dulyavich Vongsathorn, Garret Johnson

---

~ 11:05 AM - 12:50 PM ~

## Lunch

---

~ 01:00 PM ~ **MECH 25**

## Automatic Portable Traffic Light

Nick Bentzen

Kavin Vishnu, Taha Anwar, Liam Doiron, Yutai Liu

---

~ 01:20 PM ~ **MECH 04**

## ASHRAE Design Competition: HVAC System Selection

CBCL Limited and Halifax ASHRAE Chapter

Sara Chesley, Justin Campbell, Ryan Wallace, Mohamed Elzuhairy

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~ 01:40 PM ~ **MECH 07**

**Private Presentation – Invitation Only  
Multiplanar Rollator Walker Seat Design**

**Axtion Mobility**

Danielle Dey, Ben Abraham, Aya Ghalib, Lara Mullally

---

~ 02:00 PM ~ **MECH 08**

**Private Presentation – Invitation Only  
Braking Mechanism for a Rollator Walker with an Elevating Seat**

**Axtion Independence Mobility Inc.**

William Houser, Liam Maaskant, Adam Dorrance, Matthew Ingham

---

~ 2:20 PM - 2:30 PM ~

**Break**

---

~ 02:35 PM ~ **MECH 11**

**Mechanized Robot for Indoor Strawberry Production**

**Vital Berry Farms**

Keiran Jack, Connor Mullins, Daniel Adane, Jerin Monsi

---

~ 02:55 PM ~ **MECH 21**

**Secondary Lock Mechanism for the Sea-Snap Connector**

**Enginuity Inc.**

Ian Bryan, Matthew Laidlaw, Anthony Pasher, Beth O'Connell

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**Platinum Sponsors:**



# Mechanical Engineering

## ~ Sponsored by Halifax Water

~ Harbour Suite B - Ground Floor



~ 08:30 AM ~ **MECH 16**

### 3D Printing Plastic Filament Recycler

#### Shifting Shap3s

Francis Losier, Ingy Elokda, Ben Ryan, Emma Brouwer

~ 08:50 AM ~ **MECH 18**

### K-9 Orthotics Alignment Jig System

#### K-9 Orthotics & Prosthetics Inc

Kaitlyn Anderson, Alex Owen, Houda Zaazaa, Michael Favier

~ 09:10 AM ~ **MECH 19**

### Thermally Controlled Battery Pack

#### Mavio Technologies

Payton Brown, Mitch Gregory, Patrick Andreou, Isaiah Reade

~ 09:30 AM ~ **MECH 14**

### Acoustically Transparent Pressure Vessel

#### ULTRA Maritime Electronics

Kenzie Timmons, Rinad Shahrstan, Cameron Creaser, Othman Ali

~ 9:50 AM - 10:00 AM ~

### Break

~ 10:05 AM ~ **MECH 06**

### Watering Device for Production Cricket Farming

#### Ovipost

Emily Chisholm, Peter MacNeil, Jasmine Walton, Warren Davidson

~ 10:25 AM ~ **MECH 12**

### Vertical Planter

#### MetroWorks

Jack Lynds, Hayley Knowles, Mohamed Kasmani, Malcolm Gascoigne, Cayden Spencer

~ 10:45 AM ~ **MECH 20**

### Hail Cannon

#### Rayleigh Solar Solutions

Alex McGaw, Kiera Chang, Connor Murdock, Dave Worth

~ 11:05 AM - 12:50 PM ~

### Lunch

~ 01:00 PM ~ **MECH 17**

### Marine Automatic Emergency Towing System

#### MacDonald Hallett Oceans Protection Group

Connor Blahey, Jonathan Storrow, Cale McCarron, Samuel Cain

~ 01:20 PM ~ **MECH 23**

### Robotic Spacecraft Simulator: Thrust Measurement System

#### Intelligent Systems Laboratory

Katrina Mullane, Nolan Cain, Anthony Newton, Srajit Mehrotra



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~ 01:40 PM ~ **MECH 26**

**Hydrodynamics and Control of a Towfish for Autonomous Underwater Vehicle Docking**

**International Submarine Engineering Ltd.**

Danaan Pederson, Samuel Richardson, Aiden O'Flaherty, Julien Malenfant

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~ 02:00 PM ~ **MECH 01**

**UV Reactor Chamber Testing Apparatus**

**Coloursmith Labs Inc.**

Drew Koerber, Jonathan Bunn, Kaixing Wan, Kyle Smith

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~ 2:20 PM - 2:30 PM ~

**Break**

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~ 02:35 PM ~ **MECH 02**

**Spin Coater for Thin Film Application**

**Coloursmith Labs Inc.**

Michelle Pellerin, Duohan Cui, Dawson Copeland, Alanna Gravelle

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~ 02:55 PM ~ **MECH 27**

**Aerodynamic Ambulance Body Moldings**

**Tri-Star Industries**

Tongwei Zhu, Brayden Metcalfe, Lachlan Forsythe Gertridge, Ardib Mostafizur

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~ 03:15 PM ~ **MECH 24**

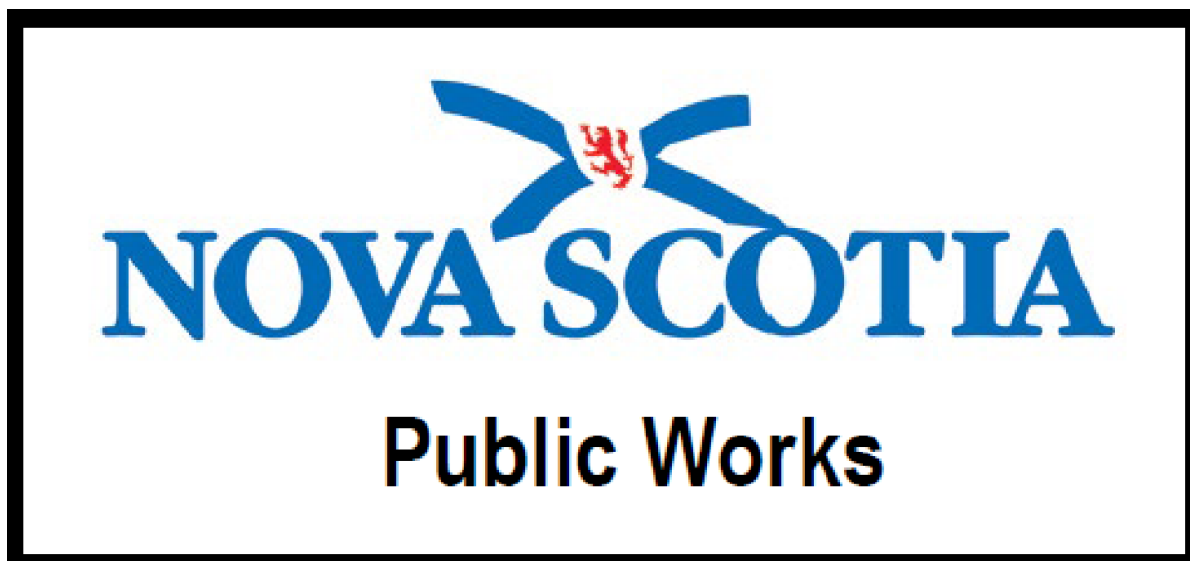
**UV Benchtop Apparatus**

**Solas Ultraviolet**

Jacob Lafond, Adam MacKenzie, Caden Coglon, David Fox

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~ 08:30 AM ~ **MINE 01**

**High Roller Minerals Limited**

Devin Devarenes, Emily Dunn, Jordan Miller, Max Trzop, Hademine Mohamed Yahia

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~ 09:10 AM ~ **MINE 02**

**Du Chefs Gold Mine**

Luis Fernando Gomez de Alba, Reid Dauphinee, Ethan Densmore, Hussain Hashmi, Manuel Manero

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~ 9:50 AM - 10:00 AM ~

**Break**

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~ 10:05 AM ~ **MINE 03**

**N.I. 43-101 Technical Report &  
Preliminary Economic Assessment of the Bellecombe Project**

Jeff Coffin, Kyle Lamont, Kate Rowsell, Le Zhang, Tyler Hubbard

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Environmental Engineering  
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~ Maritime Room - First Floor



~ 08:30 AM ~ **ENVE 03**

**Marsh Lake Watershed Management Plan**

Benjamin Gesner, Hayden Yorke, Holly MacLeod, Kirklan Huntley

~ 08:55 AM ~ **ENVE 06**

**Remediation of a Petroleum Contaminated Site**

Liam Delehanty, Steve Johnston, Zack Levisky, Cole Larson

~ 09:20 AM ~ **ENVE 05**

**Design for Legionella Control in Buildings - Post COVID Recovery**  
CBCL

Alyssa Chiasson, Kyle Cousineau, Marley Flinn, Ellen Jansen, John Ogilvie

~ 9:45 AM - 9:55 AM ~

**Break**

~ 10:00 AM ~ **ENVE 01**

**Design of an Alternative Wastewater Effluent Disinfection System**  
CBCL Consulting

Sophia Briskin, Cameron Clarke, Madison Gouthro, Sayed Finianos

~ 10:25 AM ~ **ENVE 04**

**Water Management Strategy for Williams Lake**  
The Williams Lake Conservation Company

Evan Cahill, Fawzi Ayoub, Marion C. Baptiste, Sarah van den Heuvel

~ 10:50 AM ~ **ENVE 02**

**Optimizing and Upscaling the Dal-SMBR for the on-Vessel Treatment of Decanted Oily Seawater**

Baily Reid, Eleanor McGowan, Jane McDonald, Noah DaAscanio, Coleman Porter

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