2025 RECAP NEWSLETTER

January – December 2025

Message from the Chair
Viacheslav Adamchuk

As we reflect on 2025, I am proud of the remarkable achievements of our community in the Department of Bioresource Engineering at McGill University. This year has been excellent in research and innovation, teaching, and in an unwavering commitment to developing sustainable solutions for the world's most pressing challenges in food, water, energy, and the environment. From welcoming outstanding new colleagues to celebrating national and international recognitions, our Department continues to strengthen its leadership at the intersection of engineering and sustainability.

Our faculty and students have once again demonstrated what is possible when talent, curiosity, and collaboration come together. The joining of Professor Jonathan Maisonneuve as Associate Professor reinforces our expertise in advanced membrane technologies and sustainable systems. At the same time, the multiple awards earned by our faculty and students, including prestigious fellowships, research distinctions, and top placements at provincial and national engineering competitions, highlight the depth of excellence across our programs. Beyond academic accomplishments, our growing digital reach and engagement reflect a vibrant and connected community whose impact extends well beyond campus. We are grateful for the reestablished Advisory Committee's valuable input on the continued Bachelor of Engineering program evaluation and improvement process. With pending improvements to our teaching program, we entrust our graduates to be successful in dedicating their engineering talent to solving the most pressing food security and environmental sustainability problems.

I extend my sincere congratulations to every member of our Department for contributing to this success. Together, we are advancing knowledge, mentoring the next generation of engineers, and driving meaningful change locally and globally. I look forward to building on this momentum in the year ahead.

Viacheslav Adamchuk
Chair, Department of Bioresource Engineering

NEWS

New Faculty Highlight:
Jonathan Maisonneuve, Associate Professor

In 2025, we were delighted to welcome Jonathan Maisonneuve back to McGill University as an Associate Professor in the Department of Bioresource Engineering.

Prof. Maisonneuve is a proud McGill alumnus, having earned his B.Sc. from McGill's School of Environment before completing his M.Eng. and Ph.D. at Concordia University. His doctoral research—conducted in partnership with Hydro-Québec—focused on harvesting energy from salt gradients, laying the foundation for his interdisciplinary work at the intersection of water, energy, and the environment.
He began his academic career in 2016 in the Department of Mechanical Engineering at Oakland University, where he advanced from Assistant to Associate Professor. In 2025, he returned to his alma mater, accepting a faculty position in the Department of Bioresource Engineering.

Research Focus
Prof. Maisonneuve led a research program centered on advanced membrane technologies to address global challenges in clean water, renewable energy, and sustainable food production. His lab combined theoretical analysis, numerical modeling, bench-scale testing, and prototype design to improve process performance and energy efficiency. A strong emphasis was placed on collaboration with industry partners and communities to co-develop locally practical, scalable solutions.

We are thrilled to welcome Prof. Maisonneuve to the department and looked forward to the impact his research, teaching, and mentorship would have on our community and beyond.

2025 FACULTY AWARDS AND ACCOLADES

Professor Vijaya Raghavan: Asian Association for Agricultural Engineering (AAAE) Foundation Fellow

Professor Vijaya Raghavan: King Charles III Coronation Medal

Professor Michael Ngadi: named James McGill Professor

Professor Hamid Akbarzadeh: Canadian Society for Mechanical Engineering (CSME) Fellow

Dr. Jaskaran Dhiman, PhD, EIT: Macdonald Campus Award for Distinguished Teaching

Dr. Zhiming Qi, Ph.D.: John Ogilvie Research Innovation Award

Professor Chandra Madramootoo: Chair of the Technical Advisory Committee (TAC) of the Global Framework on Water Scarcity in Agriculture (WASAG)

Professor Miezah Kwofie: FRQ Chair in Scientific Diplomacy

Promotion: Fernando Altamura

In 2025, we were pleased to celebrate the promotion of Fernando Altamura, M.Sc., D.M., to Senior Faculty Lecturer at McGill University.

This well-deserved advancement recognizes his sustained excellence in teaching, dedicated service to students, and impactful leadership as Director of the Freshman Program. Fernando's promotion reflects both his long-standing commitment to academic excellence and his vital role in shaping an outstanding student experience.

2025 STUDENT AWARDS AND ACCOLADES

1ST PLACE Overall- Québec Engineering Competition
1st place – Re-Engineering: Marie-Anne Dessureault and Natasha Lyons
1st place – Innovative Design: Malik Cherrat, Karim Hoyek, Arev Citak, Alexia Girard-Boisson, and Victor Fourquet
2nd place – Graduate Research Project: Olivia Mendelson
Manifesto Award (presented by Hatch): Innovative Design Team
Equity, Diversity & Inclusion Award (presented by EngiQueer): Innovative Design Team
4th place in Scientific Communication: Luca Bratianu

2nd PLACE - Canadian Engineering Competition (CEC)
Reengineering Team: Marie-Anne Dessureault and Philippe Leblond (replacing Natasha Lyons)

Ping Kwan Lau Convocation Prize: Ms. Linda Wu

Valedictorian for the Macdonald Campus Convocation: Andre Hadji-Thomas

CSABE/SCGAB Annual Awards:
ASABE ¼ Scale Tractor Student Design Competition: McGill MuTrac Team – Liam Parnell, Nadia Etzinger, Camille Laboisse, Martin Ma, Vincent Boa, Thomas Brunet, Olivia M. Guiguère, Imad Boumenna, Alyson Meadows, Madeleine C. Hétu, Kyle R. Geddes, Étienne-Nathan Balasingam & Catherine Grammond
CSABE/SCGAB Foundation Undergraduate Scholarship: Grace McDougall-Vick
Undergraduate Thesis Award: Tristan A. Brunger, Kevin Fitzsimmons, Catherine Quinty & Chendan Zhang – "Digestate management for biogas-ZE" (Advisor: Dr. Grant Clark)
Graduate Thesis Awards (PhD)
• Haoyu Chen – "Energy harvesting and energy absorbing/dissipating triboelectric mechanical metamaterials" (Advisor: Dr. A. Akbarzadeh)
• Surabhi Pandey, Ph.D. – "Production of 2,5-furandicarboxylic acid from whey permeate powder and its application in fluorescent sensor" (Advisors: Dr. Valerie Orsat & Dr. M.J. Dumont)
Graduate Thesis Award (MSc): Calista Brown – "Development of a preliminary nitrogen index for different soil types in Quebec" (Advisor: Dr. Chandra Madramootoo)

ASABE - American Society of Agricultural and Biological Engineers:
Information Technology, Sensors, and Control Systems (ITSC) Technical Community Paper Award: Yu Tian
Outstanding Student Paper Award from the Association of Overseas Chinese Agricultural, Biological, and Food Engineers (AOC): Yu Tian
FRQNT Doctoral Research Scholarship: Xuehai Zhou

Environmental Research & Education Foundation (EREF) Graduate Scholarship: Xiaowen Ni
Undergraduate Student Research Awards (USRA):
• 1st place winner: Alice Liang — "Building a Diverse Plant Dataset for Modelling Plant-Environment Interactions through Visual Simulations" (Supervised by Dr. Shangpeng Sun)
• Xavier Brasseur-Trottier — "Breathing Life into Soil: a Portable Solution for Monitoring Microbial Respiration" (Supervised by Dr. Viacheslav Adamchuk)
• Kyra Charpentier-Tsunokawa — "Design and Application of a Phosphorus Removal Structure in Organic Soils" (Supervised by Dr. Chandra Madramootoo)

McCall MacBain International Fellowship Award: Luca Ioan Bratianu

HIGHLIGHTS

Bioresource Engineering Students Excel at the 40th Québec Engineering Competition

Students from McGill University's Department of Bioresource Engineering achieved outstanding results at the 40th Québec Engineering Competition, demonstrating the innovation, technical expertise, and problem-solving skills that define the program.

In the Graduate Research Project category, Olivia Mendelson earned second place for her research on optimizing crop selection for future space missions. Her thesis explores strategies for sustainable food production systems designed to support astronauts during long-term space exploration while also offering insights that may strengthen food security on Earth.

The team of Malik Cherrat, Karim Hoyek, Arev Citak, Alexia Girard-Boisson, and Victor Fourquet secured first place in the Innovative Design category. Their project focused on accelerating the integration of green hydrogen in Québec through the development of an online marketplace and an optimization tool to strategically locate hydrogen production infrastructure. Their solution aims to improve efficiency, reduce costs and environmental impacts, and incorporate engagement with Indigenous stakeholders.

In the Re-Engineering competition, Marie-Anne Dessureault and Natasha Lyons were awarded first place for their creative and technically rigorous approach. Participants were given seven hours to redesign and optimize an existing product or process, culminating in a technical report and presentation. Their solution involved the development of an ancient messaging system using only technologies that would have been available during the period, demonstrating both ingenuity and strong engineering design skills.

The Department congratulates these students for their exceptional achievements and for representing Bioresource Engineering with distinction at this prestigious provincial competition. Their accomplishments highlight the creativity and leadership of McGill engineering students and their ability to address complex challenges with innovative solutions.

HIGHLIGHTS

MuTrac Team Sets New Record at International Tractor Design Competition

Congratulations to the MuTrac McGill University Tractor Pulling Team, McGill's ¼-scale tractor design team, on an impressive performance at the ASABE International Quarter-Scale Tractor Student Design Competition, where they set a new team record with a 167-foot pull.

Representing McGill University's Macdonald Campus and the Department of Bioresource Engineering, the MuTrac team competed against leading engineering programs from across North America in a demanding, industry-judged event that challenges students to apply classroom knowledge to real-world engineering problems.

In the competition, each student team designs and builds a custom quarter-scale tractor using a standardized engine and tires. Participants must also present and defend their design before a panel of industry experts, demonstrating the technical, analytical, and business considerations behind their work. The event simulates the full lifecycle of an engineering project, from concept development and fabrication to technical reporting, business presentations, and field testing in events such as tractor pulls, durability trials, and maneuverability challenges.

This year also marked the first time engines from Kawasaki Engines were used in the competition, following the company's debut as an event sponsor.

More than a competition, the ASABE event serves as a training ground for the next generation of engineers, helping students develop technical expertise, teamwork, communication, and leadership skills. The Department of Bioresource Engineering is proud to see McGill students continue to push boundaries and represent the university with distinction.

HIGHLIGHTS

Bioresource Engineering Volunteers Support the 2025 ASABE Annual International Meeting

Members of McGill University's Department of Bioresource Engineering played an important role in the success of the ASABE 2025 Annual International Meeting. A team of 20 dedicated student volunteers contributed their time and energy throughout the event, supporting conference operations from early morning preparations at 6:45 a.m. to evening duties that extended until 7:15 p.m.

Their efforts helped create a welcoming and well-organized environment for hundreds of participants attending the international gathering. Through their professionalism, enthusiasm, and commitment to service, these students represented the Department of Bioresource Engineering with distinction while supporting one of the leading global events in agricultural and biological engineering.

The Department extends its sincere appreciation to the following volunteers:
Prince Agyemang, Nastaran Alizade, Derrick Kpakpo Allotey, Benedicta Njinnam Biyimba, Anna Cantú Ortíz, Emmanuel Cobbinah-Sam, Dennis Dankwa, Sushree Sangita Dash, Daniel Dikio, Théo Humbeeck, Sadie MacDonald, Samson Ndukwe, Xiaowen Ni, Anjaly Paul, K. R. Jolvis Pou, Ata Rahmani, A. B. M. Shahed, Tangina Aktar Tamanna, Angela María Trivino Arevalo, and Shuyao Wang.

Building on this strong tradition of student engagement, Bioresource Engineering students will once again contribute their support to the engineering community when they take on key volunteer roles at the upcoming NABEC Conference, which will be held in Montréal in August 2026.

HIGHLIGHTS

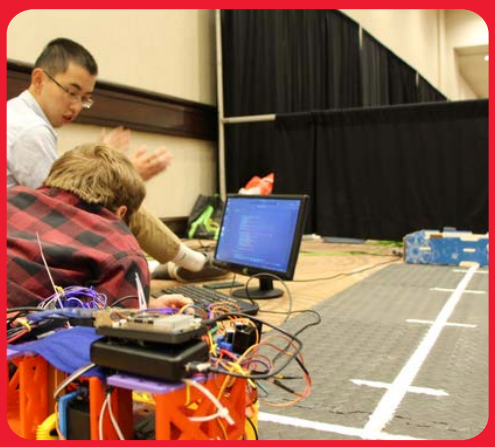
Meet OEUF: McGill Robotics Club Shines at ASABE 2025 Robotics Competition

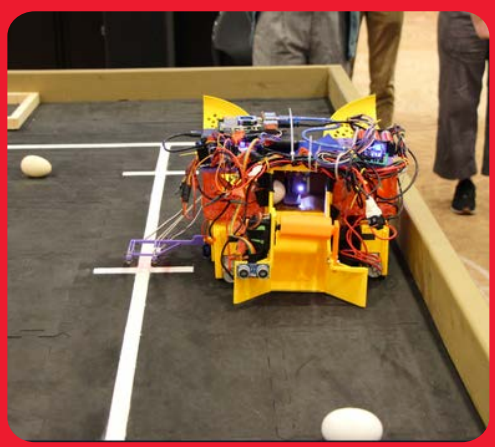
The Mac Robotics Club showcased its innovation and engineering skills at the American Society of Agricultural and Biological Engineers 2025 Robotics Competition with OEUF—the Optical Egg Unloading & Filtering robot. Designed to autonomously navigate a simulated chicken coop, OEUF collected and sorted eggs, demonstrating both egg identification and path-following capabilities.

The robot reflects months of dedicated work by our student team, who successfully integrated mechanical, electrical, and software components into a cohesive system. Their efforts resulted in a performance that surpassed the previous year, highlighting the growth of their technical and problem-solving skills in agricultural robotics.

Five students represented the Department of Bioresource Engineering in Toronto, gaining invaluable hands-on experience and exposure to real-world agricultural engineering challenges. Their participation illustrates the practical, applied learning opportunities available to McGill students beyond the classroom.

The Department extends sincere thanks to our supporters and sponsors—SEEF, Dr. Viacheslav Adamchuk, MCSS, and BESS—whose guidance and contributions made this achievement possible. This accomplishment underscores the commitment of Bioresource Engineering students to innovation, collaboration, and excellence in engineering practice.





2025 GRADUATES

Undergraduate

Laurie Bernier
Maria Bou Samra
Simone Cole
Emie Diaz
Nadia Etzinger
Danaé Gilbert
Alexia Girard-Boisson
Karim Hoyek
Marie-Ève Hébert
Molly Keyes
Camille Laboisse
Sara Lapointe
Robin Le Vigouroux
Martin Ma
Anthony McCall
Liam Parnell
Justin Siegman
Jasper Sieniewicz
Lara Szabo-Banicz
Isabella Vignuzzi
Sarah Wakeling
Linda Wu
Simon Beck
Jamie Cox
Sydney Baer
Imad Boumenna
Arev Citak
Samantha Csisztu
Marie Anne Dessureault
Imad El-Nawam
Kevin Fitzsimmons
Victor Fourquet
Sophie Gravelle
Catherine Quinty
Catarina Sahyoun
Laura Tremblay
Sarah Wamboldt

MSc

Dominic Aboagye
Oluwafemi Adaramola
Quineth Aghaukwu
Felix Bentum-Anderson
Adeola Bolarinwa
Jasmine Brar
Delaney Dill
Ijeoma Ebi
Kiki Fu
Ameen Hammed
Mamoun Laghrari
Almoatasem Maamon
Adam Mokhtar
Perpetual Nin-yenle
Jing Ren
Daniel Santander
Everestus Ugwu
Cameron Vermaire
Jordan Wong
Saman Zohrabi
Alibeiglou
Farshad Abavisani
Xuechao Chen
Johanna Dipple
Shivani Mittal
Andres Rello Rincon
Gurarshbir Singh
Zahra Sow
Kunwei Sun
Nastaran Alizadeh
Kangxu He
Hala Issa
William Nauss Connors
Hiuto Ye

MScA

Junchao Chen
Anna Cantú Ortiz
Nastaran
RazmjooyHassankhani

PhD

Naresh
Arumugagounder
Thangaraju
Joba Purkaystha
Benyamin Shahryari
Guillaume Cloutier Boily
Aidan De Sena
Hossein Mofatteh
Yasmeen Hitti
Felippe Hoffmann Silva
Karp
Sheida Rezaei
Negar Sharifi Mood