



**McGill** | Engine

*DRIVING INNOVATION*

# **ANNUAL REPORT**

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SEPTEMBER 1, 2021

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AUGUST 31, 2022

A PDF version of this report is available  
on our website: [mcgill.ca/engine](https://mcgill.ca/engine)



## MESSAGE FROM THE DEAN

In 2021-2022, we welcomed back to campus our students, faculty, and staff with the resumption of in-person courses. It was a year of adaptation and of judicious planning around new variant waves. It was also a year of revitalization, enthusiasm, and determination. The McGill Engine Centre was proud to open its doors and provide a space for ongoing collaboration, creation, and innovation. We were also able to pilot three new experiential learning programs, namely, the Invention-to-Impact Training Program, the Application Development Internship Program, and the Global Engineering Design Studio. I invite you to read more about them in this report. None of these activities would be possible without the support and strength of our benefactors, partners, Engine team, and entrepreneurial-minded members. Thank you for taking the Centre into its fourth year, and for allowing us to produce ten years of programming. We look forward to continuing to grow and develop to better serve our McGill community.



**Jim A. Nicell**  
PH.D., P.ENG., FCAE  
Dean, Faculty of Engineering

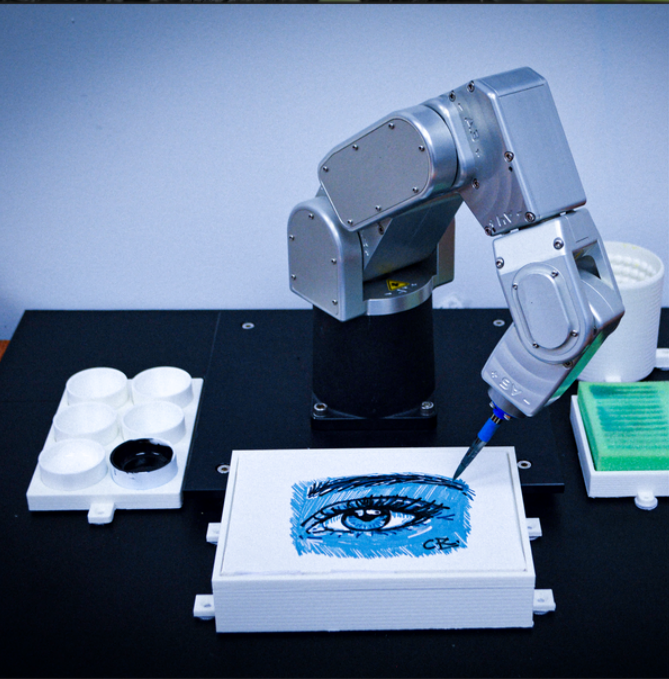
## MESSAGE FROM THE DIRECTOR



**Benoit Boulet**  
PH.D., P.ENG., SMIEEE  
Director, McGill Engine

With our return to campus this past year, we aimed to provide both in-person and online support and training programs for technologically based innovation and entrepreneurship. The implementation of NSERC's Alliance program resulted in an increase of over 140% in our NSERC grants and a doubling of our industry funding dollars. While maintaining event attendance in online or hybrid formats posed a challenge, the McGill Engine Centre continued to offer the same number of workshops and events thanks to our dedicated team. Speaking of our team, we were happy to expand our staff to include a Programs Associate along with a Community and Communications Associate. Looking ahead, we are eager to continue to pilot new programs and use the "build-measure-learn" methodology to improve our offerings and services to students, professors, and companies, increasing our reach across campus and beyond.





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Photos from top to bottom: Ora-3d prototype, Tulsi.farm prototype, Acrylic Robotics prototype. All supported by Engine.





## About McGill Engine

The McGill Engine Centre, in the Faculty of Engineering, focuses on stimulating and supporting technologically based innovation and entrepreneurship at McGill University in collaboration with the McGill Dobson Centre for Entrepreneurship and the Office of Innovation and Partnerships.

## VISION

For the McGill Engine community to make a positive impact and contribute value to the innovation and entrepreneurial ecosystems, locally, regionally, nationally, and worldwide.

## MISSIONS

### 01

Helping to develop the next generation of McGill engineers, designers, innovators, change agents, and entrepreneurs by providing training and experiential learning programs, advising and coaching, project funding, and business mentorship.

### 02

Promoting and accelerating the commercialization of inventions and software through funding, coaching, and connections.

### 03

Increasing engagement and R&D collaborations between innovation-driven companies and the Faculty of Engineering by providing matching and facilitation services.

# VALUES

## CURIOSITY

Questioning the status quo and trying to better understand the world around us

## COLLABORATION

Promote sharing and involvement of everyone to achieve common goals

## COMMUNITY

Caring about each other, staying involved, and giving back

## SUSTAINABILITY

Working in a way that integrates social, economic, and environmental dimensions equitably within the limits of a finite planet

## DETERMINATION

Persevering even when encountering difficulties or failures, believing you can be a positive change agent

## ANNUAL IMPACT

**\$166K +**

IN GRANTS, AWARDS, PRIZES, STIPENDS, AND FELLOWSHIPS AWARDED

**203**

STUDENTS & PROFESSORS ADVISED/COACHED

**50**

PROJECT APPLICATIONS REVIEWED

**199**

COMPANY INTERACTIONS

**27**

AWARDED PROJECTS

**499**

ATTENDEES AT 45 EVENTS, SEMINARS & WORKSHOPS



## ENGINE TEAM



**Katya Marc**  
M.Eng., MBA  
Associate Director



**Vivian Diniz**  
Ph.D. Eng.  
Business Development  
Officer



**Elizabeth Lallemand**  
Programs Associate



**Xiangmin Kong**  
Community and  
Communications  
Associate

## TECHEIRS

The McGill Engine's two technological Entrepreneurs-in-Residence (TechEiRs) are available for advising and coaching to help students and faculty members get to the next level with their technologically based idea or project. They also mentor several of our TechAccel teams.



**Michael Avedesian**  
ENG., PH.D., FCAE, FCIC



**Andrew Csinger**  
B.ENG, PH.D, IDP-C

# ADVISING & COACHING

In addition to the TechEiRs, Katya Marc, the Associate Director of the McGill Engine Centre, also advises and coaches students and professors. She offers drop-in hours for students and faculty members who have questions about technological entrepreneurship and innovation, want feedback on their business ideas, are looking for connections with other resources, potential partners, and investors, or want advice on anything relating to entrepreneurship or innovation.

**27**

**PROFESSORS ADVISED  
& COACHED**

**176**

**STUDENTS ADVISED  
& COACHED**

**716**

**ADVISING & COACHING  
SESSIONS**



# INDUSTRY PARTNERSHIPS

As part of our mission of increasing engagement and R&D collaborations between innovation-driven companies and the Faculty of Engineering, our team had 188 interactions with companies through matching and facilitation services. Our Faculty of Engineering professors brought in the following funding:

**\$5.9M**

**R&D FUNDING FROM  
INDUSTRY**

**\$9.5M**

**FUNDING FROM  
NSERC PARTNERSHIP  
PROGRAMS**

**\$2.7M**

**MITACS PROJECT  
FUNDING**



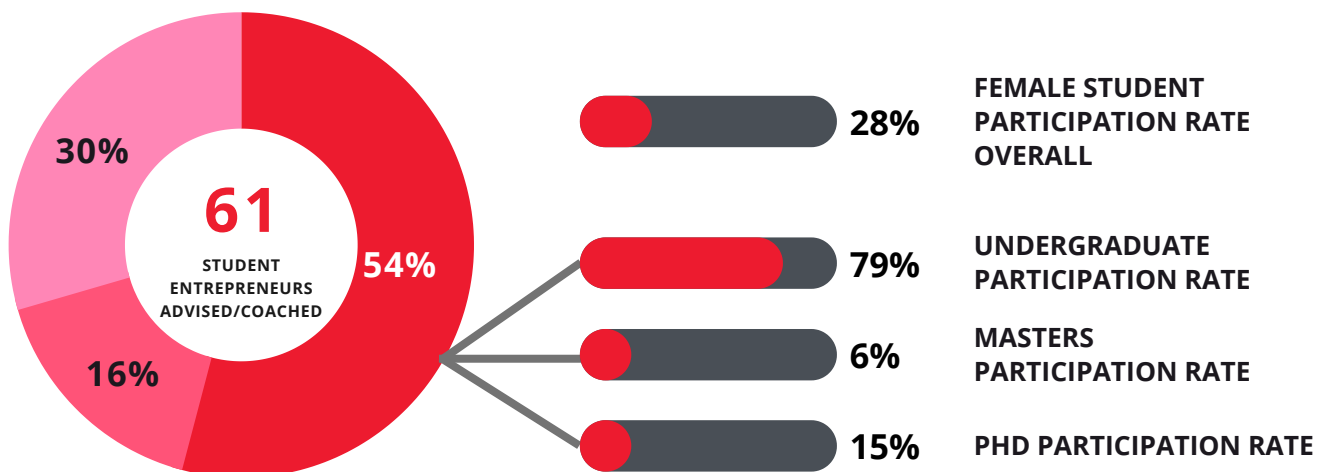


## Funding & Programs

In addition to providing business mentorship, tools, and training to support students and professors in translating their ideas and fundamental research to the marketplace, the McGill Engine Centre provides funding for project implementation. There are several funding programs for faculty members, undergraduate students, graduate students, and postdoctoral researchers.

# TECHACCEL PROGRAM

The TechAccel Program helps students jump-start and accelerate their technologically based ideas that have business or social impact potential. Teams develop their entrepreneurial skills through a seven-part online training platform and one-on-one business mentorship and project funding for product, process, or service development. The program allows participants to define the core purpose of their startup, clarify their vision to their team and potential investors, speak with actual stakeholders to help test the team's hypotheses, and have the opportunity to present an overview of the startup venture in a convincing and clear way as part of a succinct pitch presentation (TechAccel Showcase). This program allows student participants to receive CCR recognition as it is an approved Enriched Educational Opportunities (EEO) program. The grants come out of the Faculty of Engineering Engine Innovation Fund, which is funded by charitable gifts from alumni and other community donors.



- McGill - Faculty of Engineering
- McGill - Other Faculties
- Other Universities



# TECHACCEL PROGRAM

## SUMMER 2022



### Commit Education

Commit to 90 delivers quality tutoring at an affordable rate to empower every student to reach their academic potential.



### Helios Gen

Helios Gen is a start-up aiming to simplify users' routine by providing clothing outfits created using artificial intelligence.



### OD1N Health

OD1N Health is creating a hands-free autonomous urinalysis technology, providing a fast and comprehensive overview of your health, at the comfort of your home.



Reviv

Earth Healing Systems

### Reviv

Reviv is creating a closed-loop, carbon-negative system that upcycles waste plastic into fuel, driven by organic waste-derived catalysts which later serve as potent regenerative soil nutrients.



### Shahin

Shahin is a for-profit startup whose goal is to exploit the potential of drones to monitor traffic more efficiently. Using Computer Vision, we aim to detect traffic patterns in real time to prevent traffic congestion and to help drivers find the quickest paths to their destinations.



### Streamline

Streamline is an innovative QR point of sale and payment rail system for cafes, restaurants, and bars. It's goal is to bring a simple, effective, and free POS solution to every local business in Montreal.



### TrustCare

TrustCare is building a bridge of communication and trust between family members and care facilities.



### Urban Turbine

Urban Turbine is an electricity solution providing company via vertical axis wind turbines (VAWT) as a renewable energy solution.

# TECHACCEL PROGRAM

## WINTER 2022



### BioGEEK

BioGEEK is a non-profit startup made of students passionate about using engineering to help underserved communities. BioGEEK's goal is to provide people with quick and accessible energy to help meet their everyday electrical needs.



### Sutton

Sutton is a peer-hosted cloud. Sutton connects developers seeking affordable edge computing services to billions of computer owners whose devices hold valuable, unused processing power.



### Voire

Voire is an organization that aims to revolutionize the museum experience through digitalization and artificial intelligence.

## FALL 2021



### Brighten

Brighten is a new tech start-up focused on providing Canadians with personalized, accessible, and effective solutions for managing winter depression and seasonal affective disorder.



### Freely

Freely is a for-profit startup on a mission to make sexual wellness more accessible than ever. We are building a one-stop-shop website that empowers anybody to make informed decisions and design the perfect product for them. By leveraging AI and additive manufacturing.



### Libro

Libro is a venture started by students who promote the idea of a safeguarded workspace for studying. Our mission is to guard unattended electronics in public study spaces, and we aim to reinvent the way students interact with their belongings.



# TECHACCEL PROGRAM

## FALL 2021 (CONTINUED)



### Mimetik Solutions

Mimetik Solutions provides innovative biomaterials and creative solutions for printing tissue mimetic scaffolds for surgical training and regenerative medicine.



### Parklue

Parklue is a venture that aims to build a community of shared parking spots through a mobile and web platform that contains two main components: allowing users to temporarily borrow and share parking spots, and an open forum for everyone.



### Reviv

Reviv is creating a closed-loop, carbon-negative system that upcycles waste plastic into fuel, driven by organic waste-derived catalysts which later serve as potent regenerative soil nutrients.



### SMS NanoTech

SMS NanoTech develops the next generation of automated diagnostic platforms. The first prototype « SALIVERA 1.0 » focuses on the early-stage diagnosis of Covid 19 and its variants through a rapid saliva test that is fully automated with over 99% sensitivity.

## TECHACCEL GRANTEE TESTIMONIALS



Engine was very helpful to us in our project. We got to meet an engaged community of entrepreneurs who shared their experience and knowledge with us.

The TechAccel program is a door into the exciting world of startups that many students would otherwise miss.

An eye-opening experience that allowed me to pivot my startup in the right direction.

The TechAccel experience not only helped our start-up project, but also equipped me with the tools to be a successful entrepreneur!



# STARTUP INTERNSHIP PROGRAM

The McGill Engine continued to help provide mentorship and learning experiences for McGill students over the summer. Four McGill Faculty of Engineering-affiliated startups were selected to train and supervise an intern over the summer. Each intern position was filled by a McGill University undergraduate student within the Faculty of Engineering and Desautels Faculty of Management. The interns had the opportunity to collaborate remotely or in-person with both the startup and a mentor at the Engine Centre to ensure they had a well-rounded learning experience over the summer.

Thanks to our generous alumnus donor John D. Thompson, we were able to continue with our Startup Internship Program to provide our students with an experiential learning opportunity within our startups over the summer.

**\$22.5K**

IN STIPENDS  
AWARDED

**4**

STARTUP  
APPLICATIONS WERE  
SELECTED

**44**

INTERN APPLICATIONS  
RECEIVED, 4 WERE  
SELECTED

## STARTUP AND INTERN TESTIMONIALS



Engine's internship program is about team building and collective work. As a team, startups can move ahead and achieve incredible milestones. To make this reality, Engine provides wonderful support of funding, mentorship, and networking.

**Hamid Golhasany,**  
Co-Founder of ScienceReach



**ScienceReach**  
Connecting Science & Society

The internship helped me learn new technologies and algorithms, meet new people with different ideas. It was an amazing experience.

**Himel Saha,**  
Software Development Intern at Brighten Health



# STARTUP INTERNSHIP PROGRAM

## STARTUP AND INTERN SUMMARY



**Himel Saha**  
Software  
Development Intern



**Amanda Kaplan**  
Digital Marketing  
Intern



**Nikhil Jebesh  
Moses**  
IOS/Android App  
Development Intern



**Anabelle de Cabrol**  
Community  
Engagement Intern



Brighten Health is a new tech start-up focused on providing Canadians with personalized, accessible, and comprehensive solutions for developing routines that support mental wellness and facilitate the management of winter depression.

**freely**



Freely is on a mission to make sexual wellness more accessible than ever. We leverage machine learning and additive manufacturing to offer completely custom sex toys, as unique as you are.

**Ora-3D**

Ora-3D is intersecting the gap between dental experts and everyday people through engineering innovation that redefines the next dimension of oral health care.

Our product line consists of a patented three dimensional brushing experience.

**ScienceReach**

Connecting Science & Society

ScienceReach is an online platform that obtains data in specialized templates from community-based organizations (CBOs) like NGOs and provides it to the researchers and students at universities. CBOs are deeply rooted in communities, and they have invaluable information of communities' needs, challenges and priorities.



# GLOBAL ENGINEERING DESIGN STUDIO PROGRAM (GEDS)

McGill Engine partnered with six other leading engineering institutions in the world in the year 2022 and delivered the Global Engineering Design Studio program (GEDS). GEDS allows students from across the world collaborate together to propose innovative solutions to pressing global issues. For the inaugural cohort, GEDS focused on Sustainable Cities and Communities – UN Sustainable Development Goal (SDG) 11.

## PARTNER INSTITUTIONS



## SESSIONS

- |              |                                                                         |
|--------------|-------------------------------------------------------------------------|
| Feb 19, 2022 | Imagine a Better World by McMaster University                           |
| Feb 19, 2022 | Project Management and Inclusive Communication by University of Toronto |
| Feb 26, 2022 | Equity and Ethics by University College London                          |
| Feb 26, 2022 | Problem Assessment and Resource Navigation by McGill University         |
| Mar 05, 2022 | Questions for Subject Matter Experts by McMaster University             |
| Mar 12, 2022 | Downloading Insights by McMaster University                             |
| Mar 12, 2022 | Revisiting Human-Centered Design by McMaster University                 |
| Mar 19, 2022 | Rapid Ideation by Monash University                                     |
| Mar 19, 2022 | Converging on an Idea by McMaster University                            |
| Mar 26, 2022 | Equitable and Inclusive Problem-solving by University College London    |
| Mar 26, 2022 | Prototyping by Monash University                                        |
| Apr 02, 2022 | Business Model Canvas by University of Southern California              |
| Apr 02, 2022 | Creating and Refining a Pitch by University of Southern California      |
| Apr 09, 2022 | Project Showcase                                                        |

# INVENTION TO IMPACT TRAINING PROGRAM

The McGill Engine started the Invention to Impact (I-to-I) Training Program in fall 2021, thanks to funding from Ministère de l'Enseignement supérieur.

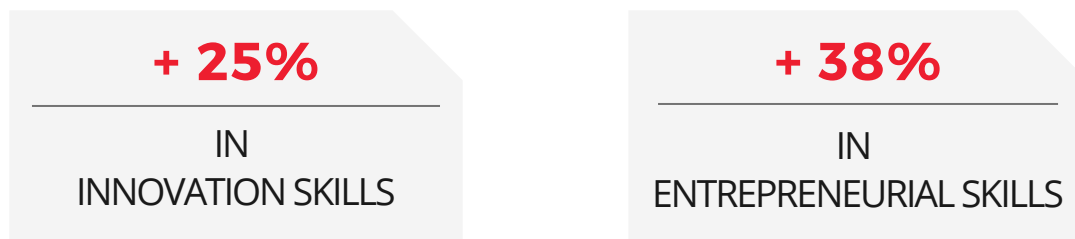
I-to-I uses experiential learning to help McGill graduate students and their faculty supervisors gain insight into: technology commercialization, entrepreneurship, and industry requirements and challenges.

I-to-I provides tools and training to support researchers to translate their research to the marketplace and have their solutions benefit society. The program imparts an evidence-based methodology that students and professors can use for the rest of their careers, and it also enables the transformation of inventions to impact.



## Participant identified skill growth in innovation skills and entrepreneurial skills.

Based on Self-Assessment Questionnaires: pre- and post-program, sample size is 12 (7 from Fall 2021 Cohort, and 5 from Spring 2022 Cohort).



# INVENTION TO IMPACT TRAINING PROGRAM

## INAUGURAL COHORT (FALL 2021)

### Bandits

**Professor Daniel Varro and Sebastian Pilarski, and Slawomir Pilarski**

Solutions to decision-making problems via multi-armed bandits



**Alexandre Marceau-Gozsy and Jonathan De Belle**

Long-haul hydrogen transportation solution to accelerate heavy vehicles transition towards net-zero emissions



**Professor J. Matt Kinsella, Salvador Flores-Torres, and Jacqueline Kort-Mascort**

Novel tissue-based biomaterial to replace preclinical small animal models for improved drug screening and development



**Professor Corinne Hoesli and Hugo Level,**  
Versatile surface treatment platform to create cell-specific biocompatible implants or cell culture systems



**Professor Jianyu Li, Zhenwei Ma, Ran Huo, Christopher Chung-Tze-Cheong, and Alex Nottegar**

Injectible, tough, adhesive hydrogel for sutureless wound management and meniscus repair



**Lulan Shen, Ruofeng Li, Yitian Zhang, and Shilei Lin**

AI-based solution to facilitate communication between residents' family members and elderly care facilities

## MENTORS OF THE INAUGURAL COHORT



**Juliana Munoz**  
Analyst,  
Amplitude Ventures



**Stuart Kozlick**  
Professor of Practice,  
McGill University



**Hugh Cameron**  
Visiting Professor,  
Makerere University,  
Kampala



**Derrick Wong**  
Course Lecturer,  
McGill University



**Prof. Michael Avedesian**  
Serial Entrepreneur and  
Course Lecturer



# INVENTION TO IMPACT TRAINING PROGRAM

## SPRING 2022 COHORT



**Professor Corinne Hoesli, Jonathan Brassard, and Michael Chuang**

A biomedical device that can be filled with insulin producing cells and vascularized to create a connection with the recipient's blood circulation

## **Syntherb Biotech**

**Professor Codruta Ignea and Zimo Jin** Modifying the yeast membrane composition to generate a plant-like yeast cell factory to improve the production of plant-origin fine chemicals



**Professor Theo G.M. van de Ven and Mohammadhadi Moradian**

Production of sustainable straws from cellulose films

## **MENTORS OF THE SPRING 2022 COHORT**



**John Tentomas**  
Owner,  
Nature's Touch Frozen  
Foods Inc.



**Juliana Munoz**  
Analyst,  
Amplitude Ventures



**Suman Rao**  
Associate,  
Lumira Ventures

# APPLICATION DEVELOPMENT PROGRAM

The McGill Engine created the Application Development Program in winter 2022. Three part-time Application Development interns were chosen and they provided assistance with developing minimum viable products (MVPs) of web application based on new ideas and ventures coming from the McGill community. Eleven project submissions were received and the Application Development Interns chose one project to work on.

## STUDENT INTERN SUMMARY



**Arianit Vavla**

Software Engineering, U4



**Keanu Natchev**

Software Engineering, U4



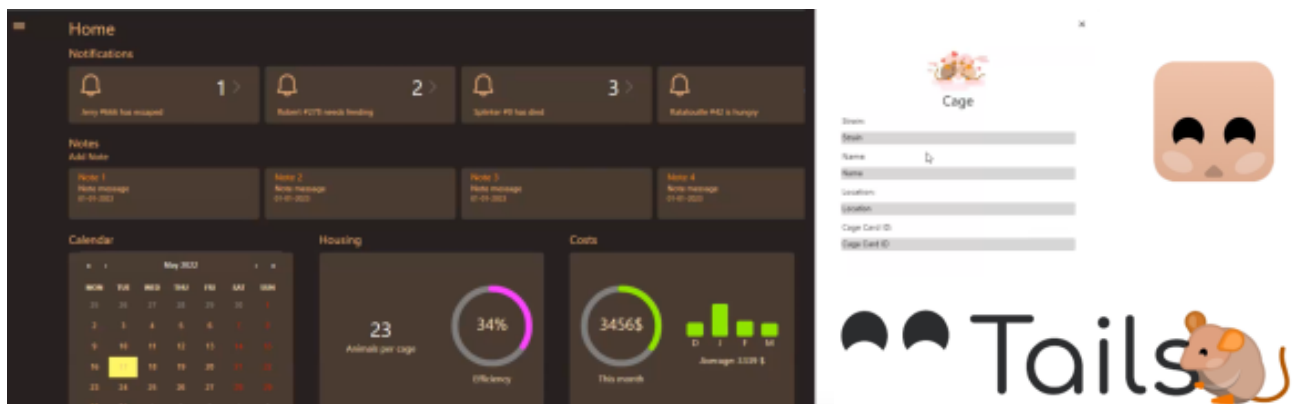
**David Kronish**

Software Engineering, U4

## PROJECT SUMMARY

Engine's Application Development student intern team (Winter 2022) choose to pair up with Tails, helping the startup venture transition from their beta prototype (native to iOS app) into a WebApp both in front-end UI UX design and in back-end setup.

Tails is a personal lab assistant designed by McGill graduate students to provide researchers with in-depth knowledge of their animal colonies (i.e., animal inventory) and providing them with recommendations to help maximize the colony's efficiency and health. Tails will help reduce the financial and time burden associated with biomedical research and improve overall animal welfare by minimizing needless suffering.



The dynamic front-end UI design created by Engine's AppDev intern Keanu Natchev for Tails WebApp project.

# CANSBRIDGE ENGINE FELLOW

The McGill Engine continues to partner with the Cansbridge Fellowship organization to deliver scholarships to entrepreneurial McGill Faculty of Engineering students. The scholarships are offered to up to two promising undergraduate students enrolled in McGill's Faculty of Engineering. This year's Cansbridge Engine fellow is profiled below.



## **LAURENCE LIANG, CANSBRIDGE-ENGINE FELLOW**

Laurence is a mechanical engineering student who joined the Cansbridge Fellowship's 2022 cohort.

Laurence interned at ACSL Ltd., a drone company, in Tokyo, Japan in summer 2022. ACSL manufactures drones for businesses. Laurence interned at the Research and Development Unit (R&D), on the Solutions team. His responsibilities included comparing the performances of two motors for a drone with a 25kg takeoff weight, producing block diagrams and helping prepare drone batteries during test flights.

## **ABOUT THE CANSBRIDGE FELLOWSHIP**

### **ASIAN INTERNSHIP**

A \$6,000 grant to gain international exposure as they work and live in Asia over a summer.

### **SAN FRANCISCO CONFERENCE**

The conference provides immersive workshops with industry professionals, entrepreneurs, and investors.

### **BAY AREA NETWORK**

Resources dedicated to sourcing Cansbridge Fellows to top-tier Bay Area startups & companies.

### **CANSBRIDGE NETWORK**

Network of Fellows enable people to meet their future co-founders and teammates.



# IAN MCLACHLIN PRIZES

The Ian McLachlin Prizes were established in 1998 by Ian McLachlin, B.Eng. 1960, to encourage students in the Faculty of Engineering to undertake new ventures with business or social impact potential. These are awarded to students enrolled in the Faculty of Engineering with high academic standing who have begun, have made progress towards, or have completed an entrepreneurial project with business or social impact potential.

## STOCATE

### YANNICK D'MELLO

(PhD candidate in Electrical and Computer Engineering)

Stocate is an online platform that supports the Buy Local movement by connecting local sellers with potential buyers. They represent small businesses, artists, grassroots organizations, producers, and independent teachers in our mission to empower individuals to find, create, and add their own value to the world.



## BIOOPTIC

### NATASHA JACOBSON AND TREVOR COTTER

(Both PhD candidates in Mechanical Engineering)

BioOptic is a necessary staple in physiotherapy and rehabilitative offices, globally, for its ability to characterize the abdominal compartment, non-invasively, for improved and targeted treatment plans. We directly measure and relate intra-abdominal pressure and abdominal wall elasticity to clinicians and patients, alike.



**Yannick D'Mello**



**Natasha Jacobson**



**Trevor Cotter**

# TECHACCEL R GRANTS

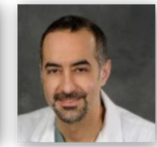
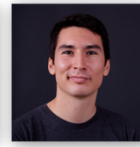
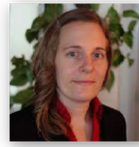
The TechAccelR Grants are intended to help professors in the Faculty of Engineering accelerate their research-based ideas that are reported as inventions but need further validation prior to commercialization. The grants of up to \$15,000 each come out of the Faculty of Engineering Engine Innovation Fund, which is funded by charitable gifts from alumni and other community donors.

## TECHACCEL R GRANTEES



**Professor Changhong Cao, Mechanical Engineering**

Multimeter of the nano-age: a cost-effective system for multi-physics characterizations of ultrathin structures



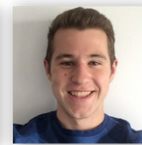
**Professor Corinne Hoesli, Chemical Engineering, Jonathan Brassard, PhD candidate, Biological and Biomedical Engineering, Professor Richard Leask, Chemical Engineering, Professor Steven Paraskevas, Surgery**

Vascularized bioartificial pancreas for the treatment of diabetes



**Professor Natalie Reznikov, Bioengineering, Professor Julia Cohen Levy, Orthodontics, Professor Joyce Fung, School of Physical & Occupational Therapy, Dr. Alexei Morozov**

A feasibility study of the effect of high-frequency vibration on mandibular posture through hyoid bone-anchoring



**Professor Daniel Varro, Sebastian Pilarski, PhD candidate, both from Electrical and Computer Engineering; and Slawomir Pilarski (Versyn)**

Optimizing Sequential Decision-Making (A/B Testing)



**Professor Sebastian Wachsmann-Hogiu and Dr. Juanjuan Liu, research associate, both from Bioengineering**

On-Chip Chemiluminescence Biosensor for Food Safety

# WILLIAM AND RHEA SEATH AWARDS IN ENGINEERING INNOVATION

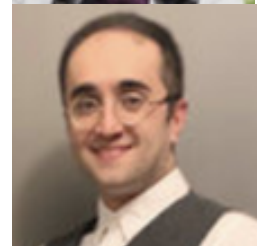
The William and Rhea Seath Awards (WRSAs) which support innovative research and development have been made possible thanks to the generosity of Faculty of Engineering alumnus, the late Mr. William Seath (B.Eng. 1952). These awards recognize outstanding students and professors who are conducting research and development with potential for commercialization. Two awards of \$25,000 each were given in the 2021-2022 competition.

## 2021-2022 GRANTEES

### **SALIVERA: A FULLY AUTOMATED MOLECULAR TESTING DEVICE FOR RAPID DETECTION OF VIRAL RNA**

**Professor Sara Mahshid and Dr. Roozbeh Siavash Moakhar, research associate, Bioengineering**

This technology consists of a device for very rapid diagnostic and serological testing in response to urgent needs in the COVID-19 pandemic. The portable and automated electrical acquisition can be coupled to a smartphone, using a smartphone application that can receive the electrical data and interpret the data into reading signals for a digital display. Our approach is cost-effective and does not require skilled operators.



### **PATTERN BASED CONTRACTILITY SCREENING IN DRUG DISCOVERY**

**Pictured Professor Allen Ehrlicher and Ajinkya Ghagre, PhD Candidate, both from Bioengineering; Dr. Ali Amini, postdoctoral fellow, Johanan Idicula (Forces Canada) and Professor Ramaswamy Krishnan (Harvard Medical School)**

Cells exert contractile forces, and defects therein are fundamental to diverse pathologies including cardiomyopathies, skeletal myopathies, vasospasm, bronchospasm, and cancer migration, invasion and metastasis. In each of these disease contexts, novel drugs with the potential to modulate cellular contractile forces that ameliorate disease symptoms or progression are urgently sought. Nevertheless, there are no pre-clinical, clinical, or industrial methods for quantifying the forces exerted by cells. To bridge this gap, we have created a simple and efficient methodology of contractile quantification which we call Pattern-based Contractile Screening (PaCS). We are commercializing PaCS as a new screening technology that uses cell contractility to identify and characterize novel potential therapeutic compounds while eliminating false positives early in the drug process, thus potentially saving billions of dollars, years of effort, and human lives associated with defective drug candidates.

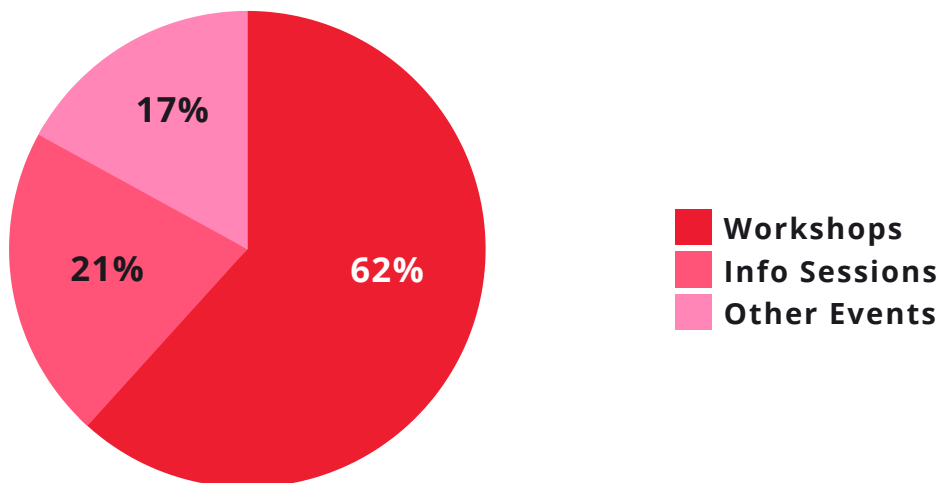






## Events

The McGill Engine hosts competitions, workshops, and events throughout the year to help students build connections, develop their entrepreneurial and innovation skills, and be inspired!



# 7TH ANNUAL CELEBRATION OF

# INNOVATION AND ENTREPRENEURSHIP

**NOVEMBER 18TH, 2021**

**5:00 - 7:00 PM**

**REMOTE**

Our annual Celebration of Innovation and Entrepreneurship highlights and celebrates our emerging technological innovators and entrepreneurs. The evening was an occasion to bring together, students, faculty, accelerators, investors, and alumni. A number of awards were announced, the year's projects were showcased, and our inventors were acknowledged.

## EVENT HONOREES

### 2020-2021 WRSA AWARD WINNERS

Prof. Nathalie Tufenkji & Dr. Mathieu Lapointe  
Pavel Sinha, Prof. Ioannis Psaromiligkos and Prof. Zeljko Zilic

### 2020-2021 WRSA AWARD REVIEW COMMITTEE

Neal Gordon  
Praveen Prasanna  
Michael Mee  
Nathan Stubina  
Professor Benoit Boulet

### TECHACCEL GRANTEES

Prof. Milan Maric, Prof. Richard Leask and Prof. Jim Nicell  
Prof. Mathieu Brochu and Dr. Sunyong Kwon  
Prof. Mihriban O. Pekguleryuz and Dr. Luis Angel Villegas-Armenta

### CANSBRIDGE-ENGINE FELLOWS

Shlesha Van  
Tinetendo Makata

### ENGINE DOBSON PRIZE

Kieyan Mamiche Afara  
Neel Faucher  
Nathan Leuranguer

### IAN MCLACHLIN PRIZES

Natasha Jacobson  
Trevor Cotter  
Yannick D'Mello



**CLICK HERE TO WATCH THE RECAP OF THIS YEAR'S CELEBRATION**

# EVENT HONOREES (CONTINUED)

## INVENTION TO IMPACT TRAINING PROGRAM INAUGURAL COHORT

### Bandits

#### BANDITS

SOLUTIONS TO DECISION-MAKING PROBLEMS VIA MULTI-ARMED BANDITS

Prof. Daniel Varro

Sebastian Pilarski (Ph.D student)



#### C2BIOSURFACES

VERSATILE SURFACE TREATMENT PLATFORM TO CREATE CELL-SPECIFIC BIOCOMPATIBLE IMPLANTS OR CELL CULTURE SYSTEMS

Prof. Corinne Hoesli

Hugo Level



#### EXOXY

LONG-HAUL HYDROGEN TRANSPORTATION SOLUTION TO ACCELERATE HEAVY VEHICLES TRANSITION TOWARDS NET-ZERO EMISSIONS

Alexandre Marceau-Gozsy

Jonathan De Belle



#### MIMETIK SOLUTIONS

INJECTIBLE, TOUGH, ADHESIVE HYDROGEL FOR SUTURELESS WOUND MANAGEMENT AND MENISCUS REPAIR

Prof. Jiayu Li

Zhenwei Ma

Ran Huo

Christopher Chung-Tze-Cheong

Alex Nottegar



#### TIME BIOSYSTEM

NOVEL TISSUE-BASED BIOMATERIAL TO REPLACE PRECLINICAL SMALL ANIMAL MODELS FOR IMPROVED DRUG SCREENING AND DEVELOPMENT

Prof. J. Matt Kinsella

Jacqueline Kort-Mascort

Salvador Flores-Torres



#### TRUSTCARE

AI-BASED SOLUTION TO FACILITATE COMMUNICATION BETWEEN RESIDENTS' FAMILY MEMBERS AND ELDERLY CARE FACILITIES

Lulan Shen

Ruofeng Li

Yitian Zhang

Shilei Lin



# EVENT HONOREES (CONTINUED)

## TECHACCEL GRANTEES AND PRE-GRANTEES

### Brighten

Kieyan Mamiche Afara  
Neel Faucher  
Nathan Leuranguer

### Cloud Nine

Tanbin Chowdhury  
Marie-Lynn Mansour  
Ammar Rudani  
Lawrence Zhang  
Tanjim Chowdhury  
Ajrin Jamil

### CourseLnk

Abdullah Arafat  
Sebastian Danson  
Victorien Garrigues  
Aritra Banik

### DIASkin Technologies

Mohul Sharma  
Xavier Santerre  
Serine Ben Abdessalem

### Freely

Nina-Marie Martinez  
Pierre-Luc Leboeuf  
Alex Moreau  
Benjamin Lusterio-Adler

### HOUND

Ari Kaufman  
Diego Dorantes-Ferreira  
Anthony Pultrone

### Libro

Chun Kit Calvin Li  
Chun Bon Charles Li  
Chun Ho Brian Li  
Yue Du  
Erica Li

### Mimetik Solutions

Zhenwei Ma  
Huo Ran

### Parklue

Joey Koay  
Maggie Xiong  
Signe Hoel  
Aidan Eglin  
Vibhor Gautam  
Elena Pan  
Evian Yang  
Rita Jin

### Pètiencie

Guanbingxue Huang  
Yangshixing Li  
Tianxing Zhong  
Chen He  
Yuzhou Yan

### Recycling Pioneers

Kirklann Lau  
Misghana Kassa  
Arneet Karla  
Simina Alungulesa

### Rheto

Albert Kragl  
Bernard Boisclair  
Arvin Khodayari  
George Kandalaft  
Pouyan Zabihian  
Melissa Li  
Binyuan Sun

### Revív

Adam Rajguru  
Michel Abdelnour

### Sheltered

Mfoniso Ikpe  
Paul Hinta  
Jane Lee

### SMS NanoTech

Mahsa Jalali  
Tamer Abdelwahab

### SWAM

David Brenken  
Johan Boscher  
Matthew Wittmann

### TrustCare

Lulan Shen  
Ruofeng Li  
Abdulrahman  
Takiddeen

### Tulsi.farm

Juliano Cobuzzi  
Justin Dragan  
Mehdi Ibn Brahim

# EVENT HONOREES (CONTINUED)

## 2021 ISSUED PATENT TITLES & INVENTORS

### **Structural Porous Biomaterial and Implant Formed of Same**

Damiano Pasini,  
Burnett Johnston,  
Michael Tanzer, Sajad  
Arabnejad Khanoki

### **Methods and Systems for Foam Mine Fill**

Faramarz (Ferri) P  
Hassani, Mohammed  
A Hefni, Mehrdad  
Fadaei Kermani

### **High Efficiency Visible and Ultraviolet Nanowire Emitters**

Zetian Mi, Songrui  
Zhao, Renjie Wang

### **Dense Hydrogels**

Showan N Nazhat,  
Chiara E Ghezzi,  
Benedetto Marelli,  
Neysan Nejat Oliver  
Kamranpour

### **Method and Apparatus for Wirelessly Communicating over a Noisy Channel with a Variable Codeword Length Polar Code to Improve Transmission Capacity**

Warren Gross, Adam  
Christian Cavatassi,  
Thibaud Tonnellier,  
Yiqun Ge

### **Bioresorbable Medical Devices and Method of Manufacturing the Same**

Rosaire Mongrain,  
Stephen Yue, Olivier  
Bertrand

### **Sulfidated Nanoscale Zerovalent Iron and Method of Use Thereof**

Subhasis Ghoshal,  
Sourjya Bhattacharjee



[To see all 2021 patents click here!](#)

# WOMEN IN ENTREPRENEURSHIP PANEL

**MARCH 15TH, 2021**

**6:00 - 7:00 PM**

**REMOTE**

The McGill Engine teamed up again this year with POWE (Promoting Opportunities for Women in Engineering) to host a panel where three female McGill Engineering students shared their experiences and answered questions about becoming an entrepreneur.



**Guanbingxue (Shirley) Huang**

Studying Mechanical Engineering  
Co-Founder of Pètiencie  
2021 ELLEvate Women Entrepreneurs Pre-Accelerator



**Nina-Marie Martinez**

Studying Mechanical Engineering  
Co-Founder of Freely  
Vice President External of McGill Association of Mechanical Engineers (MAME)



**Zhi Xin (Joey) Koay**

Studying Software Engineering  
2020 Schulich Leader  
Co-Founder of Parklue  
VP Products of Stocate

# ENTREPRENEURSHIP-IN-ACTION

## SPEAKER SERIES

This speaker series provides an opportunity to hear from entrepreneurs, accelerators, incubators, and investors about their experiences and offerings, in order to learn, be inspired, and build connections.

**SEPTEMBER 21ST,  
2021  
5:30 - 7:00 PM  
REMOTE**  

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### **Jimmy E. Chan**

Co-Founder & CEO of Dropbase

Jimmy is the Co-founder & CEO of Dropbase, a data platform that helps analytics and operations teams automate all the manual work of gathering, cleaning, and centralizing internal and external data.

**OCTOBER 25TH, 2021  
6:00 - 7:00 PM  
REMOTE**  

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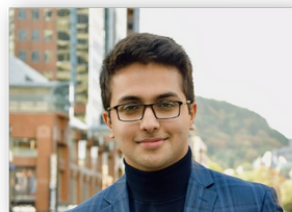
### **Brennan Spellacy**

Co-Founder & CEO of Patch

Brennan (B.Eng '16) is the co-founder and CEO of Patch, the platform for negative emissions.

**NOVEMBER 25TH, 2021  
6:00 - 7:00 PM  
REMOTE**  

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### **Sarim Malik**

Co-Founder & CEO of Neat

Sarim (BEng '21) is the Co-founder and CEO of Neat, a venture-backed startup building a desktop app offering the most seamless web notification experience for knowledge workers.



# PRE-STARTUP SKILLS

## WORKSHOP SERIES

26

WORKSHOPS

150+

ATTENDEES

51%

ATTENDEES  
ATTENDED  
MORE THAN  
ONE WORKSHOP

**SEPTEMBER 8TH, 2021 - APRIL 12TH, 2022**

This workshop series provides a crash course in technological entrepreneurship and innovation. Each workshop allows McGill student participants to receive CCR recognition under the personal and professional development sections. Participants learn how to select and use the design thinking and lean startup methodologies for enhancing innovation and discover the needs of potential customers. They also learn about intellectual property, how to analyze competition, and the resources and tools available to them through McGill's libraries for patent searching and market research.



**Workshop #1 - Technological  
Innovation and Entrepreneurship 101**



**Workshop #2 - Startup Law 101**



**Workshop #3 - Design Thinking  
Methodology**



**Workshop #4 - Market Research and  
Analysis of Competition**



**Workshop #5 - Foundations of IP and  
Patent Searching**



**Workshop #6 - Customer Discovery**

## ALL EVENTS

Sep 08, 2021	Pre-Startup Skills: Technological Innovation and Entrepreneurship 101
Sep 08, 2021	PGSS Innovation Info Session
Sep 15, 2021	Pre-Startup Skills: Design Thinking Methodology
Sep 21, 2021	Entrepreneurship-in-Action Speaker Series with Jimmy E. Chan
Sep 22, 2021	Pre-Startup Skills: Market Research and Analysis of Competition
Sep 22, 2021	Info Session: Course FACC 501 Technology Business Plan Project
Sep 23, 2021	Invention to Impact Training Program Information Session
Sep 29, 2021	Pre-Startup Skills: Foundations of IP and Patent Searching
Sep 30, 2021	Homecoming: TechAccel Showcase Winter & Summer 2021 Cohort
Oct 06, 2021	Pre-Startup Skills: Customer Discovery
Oct 16, 2021	NetX opening day
Oct 19, 2021	Pre-Startup Skills: Technological Innovation and Entrepreneurship 101
Oct 25, 2021	Online: Fostering Industry-University Partnerships Workshop
Oct 25, 2021	Entrepreneurship-in-Action Speaker Series with Brennan Spellacy
Oct 26, 2021	Pre-Startup Skills: Startup Law 101
Oct 27, 2021	Info Session: Campus Party Tech Experience 2021
Nov 02, 2021	Pre-Startup Skills: Design Thinking Methodology
Nov 09, 2021	Pre-Startup Skills : Market Research and Analysis of Competition
Nov 16, 2021	Pre-Startup Skills: Foundations of IP and Patent Searching
Nov 18, 2021	7th Annual Celebration of Innovation and Entrepreneurship
Nov 23, 2021	Pre-Startup Skills: Customer Discovery
Nov 25, 2021	Entrepreneurship-in-Action Speaker Series with Sarim Malik
Jan 10, 2022	TechAccel Winter 2022 Information Session
Jan 19, 2022	Pre-Startup Skills: Technological Innovation and Entrepreneurship 101
Jan 25, 2022	Information Session: Latest updates on all Mitacs programs
Jan 26, 2022	Pre-Startup Skills: Startup Law 101
Jan 27, 2022	Information Session: Global Engineering Design Studio (GEDS)
Feb 02, 2022	Pre-Startup Skills: Design Thinking Methodology
Feb 09, 2022	Pre-Startup Skills: Market Research and Analysis of Competition
Feb 16, 2022	Pre-Startup Skills: Foundations of IP and Patent Searching
Feb 23, 2022	Pre-Startup Skills: Customer Discovery
Mar 08, 2022	Pre-Startup Skills: Technological Innovation and Entrepreneurship 101
Mar 15, 2022	Pre-Startup Skills: Negotiation Skills
Mar 15, 2022	3rd Annual Women in Entrepreneurship Panel
Mar 22, 2022	Pre-Startup Skills: Design Thinking Methodology
Mar 29, 2022	Pre-Startup Skills: Market Research and Analysis of Competition
Mar 30, 2022	Fostering Industry-University Partnerships Workshop - In Person
Apr 01, 2022	Fostering Industry-University Partnerships Workshop - Online

# ALL EVENTS (CONTINUED)

Apr 05, 2022

Pre-Startup Skills: Foundations of IP and Patent Searching

Apr 06, 2022

TechAccel Summer 2022 Information Session

Apr 07, 2022

Invention to Impact Training Program Information Session

Apr 12, 2022

Pre-Startup Skills: Customer Discovery

Jun 07, 2022

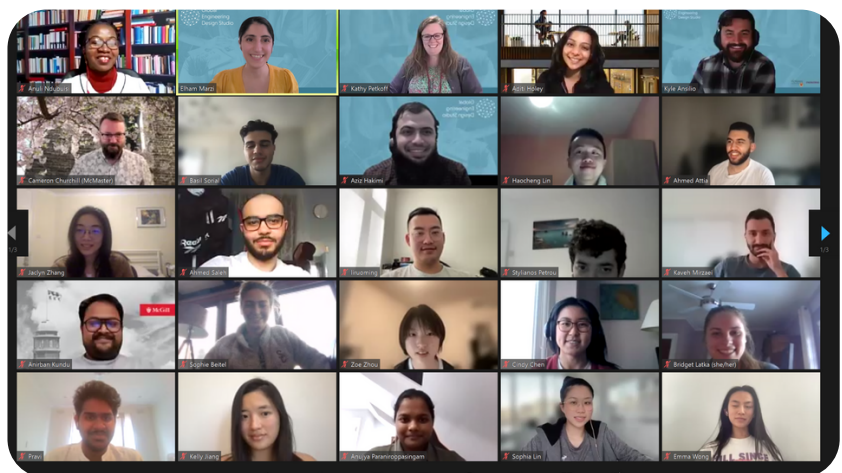
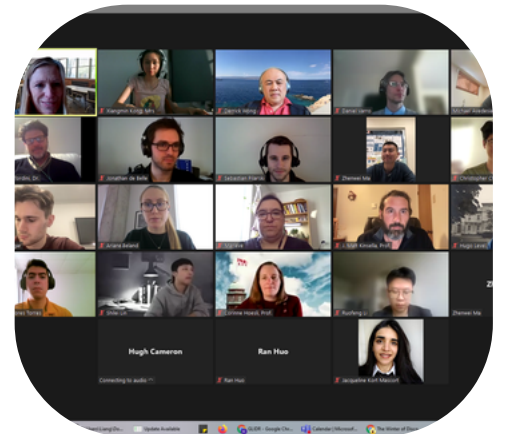
Startup Internship Workshop: Tech Innovation & Entrepreneurship

Jun 08, 2022

Startup Internship Workshop: Design Thinking

Jun 09, 2022

Startup Internship Workshop: Foundations of IP and Patent Searching



# THE ENGINE CENTRE NEEDS YOUR SUPPORT!

## CALL FOR VOLUNTEERS

Volunteers are an essential part of the university community; your participation and financial support are key elements in ensuring that coming generations of students achieve their goals.

### WE ARE LOOKING FOR

01

**TECHACCEL MENTORS**

03

**WRSA PROPOSAL REVIEWERS**

02

**GUEST SPEAKERS & JUDGES**

**LEARN MORE HERE!**

## FINANCIAL SUPPORT

The Innovation Fund lies at the heart of Engine's mission of encouraging entrepreneurial and innovative thinking. The fund supports team based, innovative projects through the TechAccel grants, that help students to jump start and accelerate technologically based ideas that have business or social impact potential. In addition, the TechAccelR grants help researchers validate their research that has commercial and social impact potential.

**The Innovation Fund is being supported by alumni:**

Jim & Barbara Brodeur (B.Eng. '56)

Ian Mclachlin (B.Eng. '60)

Pasquale Di Pierro (B.Eng. '76)

Fonex Data Systems Inc.

The Anna & Louis Viglione

Foundation (B.Eng. '78)

Michael Barski (B.Eng. '68)

Mark Levine (B.Eng. '91)

Arthur Levine (B.Eng. '61)

Howard Stotland (B.Eng. '66)

Robert Walsh (B.Eng. '65)

Leon Fattal (B.Eng.'62)

Eng Class of 1980

Eng Class of 1976

Eng Class of 1966

**The Innovation Fund needs your support through:**

1. An annual contribution
2. A named endowment within the Innovation fund

For more information please contact:

Mr. Krish Dasgupta, Director, University Advancement

krishanu.dasgupta@mcgill.ca



**DRIVING INNOVATION**



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