

# DEAN'S REPORT

Faculty of  
Engineering



Summer  
2017

◀ The NSERC PromoScience project team: (from left) Professor Fabrice Labeau, Tynan Jarrett, Faye Siluk, and Timothy Ellis

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## Faculty of Engineering Leading the Way on Equity

**O**ften seen as lagging behind the curve of social progress, the field of engineering has been modernizing, with numerous studies quantitatively demonstrating the positive impact of diversity on innovation. Studies have consistently shown that corporations with a diverse workforce are more innovative and more profitable than their homogeneous peers. Beyond simple economic or productivity arguments, however, higher education institutions like McGill have an implicit moral responsibility to reflect the societies they serve.

In light of the growing body of research and in consideration of the higher institutional aims of the University, the Faculty of Engineering has undertaken systematic efforts to be more inclusive in both its student body and its staff of all members of society, irrespective of gender identity, cultural or socio-economic background, race or ethnicity, religion, or any other facet of diversity.

To accomplish the goal of increased equity, the Faculty launched the Engineering Inclusivity, Diversity and Equity Advancement (eIDEA) initiative in April of 2016. Headed by Associate Dean

Fabrice Labeau, a professor in the Department of Electrical & Computer Engineering, the group has spearheaded a number of actions to spur inclusiveness in the Faculty of Engineering, both at the student and staff level.

Some examples are the inclusion of implicit bias training as a prerequisite course for all engineering undergraduate students, or the increased hiring of female professors, who as of 2017 represent 30% of new hires. Perhaps the most visible aspect of the Faculty's work is the Equity Ambassadors Program, which has trained 10 staff members to act as listeners for students who encounter prejudicial barriers or discrimination during their studies.

Another project is an NSERC PromoScience program, a federally-funded grant that will enable the Faculty of Engineering to develop course material to be rolled out in Montreal-area indigenous high schools. The goal will be to encourage First Nations youth to consider STEM education and careers as a viable future endeavour by offering material that concretely relates engineering to their lived realities. The program is slated to begin in September 2017.

The cohesive efforts that the Faculty has been making are not going unnoticed; the Faculty was awarded top honours in the Award for Equity & Community Building (Team Category), a distinction issued by the Office of the Provost each May for the past five years. The Faculty was cited for "showing achievement, initiative and impact in the domains of equity, inclusion and community building," according to Associate Provost, Professor Angela Campbell (see sidebar).

While the award signals positive news, Professor Labeau cautioned that there is more work to be done. "The reason we received the award is because we are working on the issue," he said. "Not because we have solved it."

Continued on page 4

### > Equity and Engineering: An Outsider's Perspective



Professor Angela Campbell, Associate Provost (Equity & Academic Policies) commented on the Faculty's equity initiative. Professor Campbell oversees the Joint

Board-Senate Committee on Equity and the Social Equity and Diversity in Education Office.

"McGill University is committed to cultivating a respectful, diverse and supportive campus for all. The Faculty of Engineering is to be congratulated for its sustained efforts to meet this ideal, which was demonstrated by winning this year's Team Award for Equity & Community Building. The award is a testament to the actions the Faculty has taken to boost equity and inclusiveness, and the positive impact of these actions on students, faculty and staff. Senior leadership is a critical factor for equity initiatives, and Dean Nicell and his team led by Associate Dean Fabrice Labeau have been at the forefront, implementing relevant strategies such as the eIDEA initiative. The Faculty of Engineering has been making substantial progress at increasing representation by certain equity-seeking groups, such as racialized and ethnic persons, but work needs to continue on boosting gender equality among students and faculty members. The administration looks forward to ongoing collaboration with the Faculty as it forges ahead on this critical path." ■

### > Women in Engineering: 2016 Snapshot

The Faculty of Engineering is playing a major role at increasing female participation.

- Percentage of newly licensed professional engineers in Canada who are female: **17.2**
- Percentage of all professional engineers in Canada who are female: **12.8**
- Percentage of 1st-year engineering undergraduate students at McGill who are female: **31**
- Percentage of all engineering undergraduate students at McGill who are female: **28**



> **Dean's Message**

**We All Need Diversity in Engineering**



This edition of the Dean's Report is devoted to diversity, and let me say right off the bat that I am passionate about this issue. In fact, I would go as far to say that diversity in engineering is one of the most important challenges we face as a profession. Some readers may be skeptical of this assessment, so allow me to explain.

On a personal level, I must admit that I am someone who reacts very strongly to injustice of any kind. I cannot help but feel that ignoring the talents and abilities of large segments of any population who are ready, willing and able to contribute is the height of injustice. More than that, as engineers, architects and urban planners, we can all agree that leaving such precious talents untapped when we are in dire need of them to address the important challenges facing humanity is not only inefficient, but wasteful.

This is something I have seen with my own eyes. Prior to becoming Dean of Engineering in 2013, I was Associate Vice-Principal for University Services, a mandate that extended across the University. Early on, I saw the untapped potential in many people I worked with – engineers, planners, architects, technicians, trades and many others, including the student body that we served. Once released, their collective power when working individually and in teams was immense. What we accomplished together was astounding, as many of you may have seen in the changes made on our campuses over the past 10 years. Much of this happened because of the diversity of people, disciplines, ideas and experience brought to bear on important projects.

Throughout my career, I have seen time and again that people will flourish if you give them the right support and offer them the right challenges. On top of this, universities such as ours have the unique opportunity – and obligation I would argue – to level the playing field and make the opportunity to excel available to all. As we do this, we must also look beyond our respective institutions, and look at the forces at play before our students arrive here, and what happens after they graduate.

You will see that we are indeed taking such a broader view with a host of initiatives that are destined to make the Faculty a more inclusive and supportive work and learning environment. For example, on the incoming side, our eIDEA initiative is in the process of developing study materials for First Nations high schools. And on the professional front, we have sought the views of alumni, such as Patricia Birks (BEng '90) for her views on gender imbalances in Silicon Valley. On this last point, you will see that more work remains to be done, which brings me to the question of challenge – and my message to alumni.

Diversity affects all of us, not simply as students or professionals, but as human beings. The sum total of what we can achieve can be so much greater when more of us can contribute. And as the problems of the world multiply and become increasingly interlinked, we need to find more and more creative solutions. But there is only so much that can be accomplished in the Faculty. We need our professional alumni to stand up for what is right as well. So I urge you to look around your respective workplaces, and ask yourself what you can do to make things more equitable and inclusive. Perhaps you can help guide us in our work at McGill, or perhaps we can help you to make a difference where you are. Let us know! ■

> **POWE: Student Group Promotes Engineering to Female High School Students**

**Engineers Canada, the association that leads the engineering profession across Canada, is seeking '30 by 30.'** It's their target figure for the percentage of newly licensed female engineers by the year 2030. As of 2015, this number was 17% nationally. POWE (Promoting Opportunities for Women in Engineering), a Faculty of Engineering student group, is working to address this gap.

POWE was launched in the Faculty of Engineering in 1990 in response to the tragic shooting of 14 women at the École Polytechnique a year earlier. At the outset, the group pledged to "keep promoting, supporting and mentoring every girl who nestled the ambition to adorn the iron ring, in hopes of seeing a day when no one is held back from pursuing their passion because of their gender."

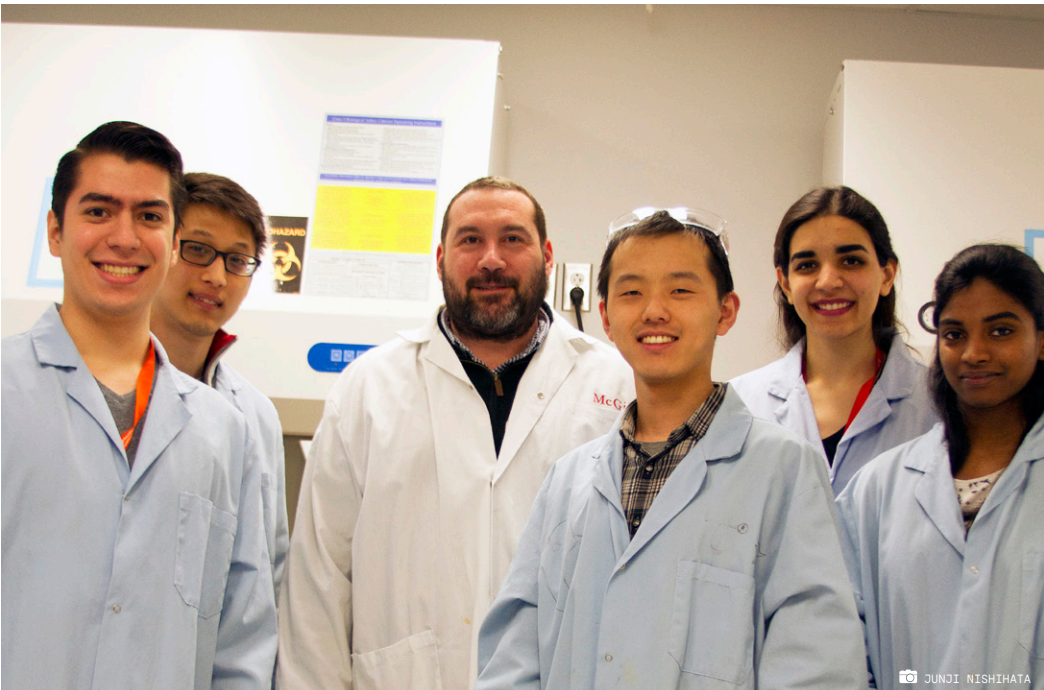
One of their strategic goals is to increase awareness of the possibilities available in engineering and to ignite a passion for STEM (science, technology, engineering and mathematics) education among high-school aged girls, with the ultimate aim of boosting female participation in the engineering profession. Multiple studies have shown that companies with more female engineers are more innovative, and are more likely to identify new opportunities.

To realize this goal, POWE organizes an annual conference for high-school and CEGEP students from across Montreal. This year's event was held on campus February 9th, with 135 participants. Activities included lab tours, a design competition, and a lunchtime networking session with engineering students. "It definitely changed my view on what engineering is and how women can succeed in this field," said Avneet Bhabra, a high-school student from Kuper Academy. "I didn't realize how little I knew about engineering before that day," she added.

It's the kind of response that POWE is looking for. According to President Helen Lin (BEng '18): "If at least one of the girls who attended the conference this year decides to study engineering, all of POWE's hard work will have paid off." ■

< **Professor Jim A. Nicell, Dean of the Faculty of Engineering**

# Printing a Cure for Cancer?



By Junji Nishihata

**N**ovel method for simulating tumours is a new direction for 3D printing. The advent of 3D printing has resulted in a staggering leap forward in a variety of fields, and indeed the creation of whole new domains such as additive manufacturing. The technique has also opened entirely new possibilities in the area of medical treatments, such as bone replacements or skin-tissue generation. But using the remarkable creative potential of 3D printing to look at cancer is a less well-known application of the technology.

"Cancer tissue is extremely heterogeneous," explains Matt Kinsella, Assistant Professor at the Faculty of Engineering's Department of Bioengineering and one of the leaders of a multi-institutional group focused on this new approach. "What this means is that the traditional 2D methods to create cancer cultures for study has limited value, because the synthesized cultures do not resemble the tissues found in the human body. With our methodology, we can generate tissue samples that are much closer to the real thing."

Kinsella and his team are developing methods of 3D printing using alginate (a derivative of algae) and gelatin to create hydrogels. These hydrogels provide a cellular environment that enables the growth of tumours in controlled conditions, which in turn will enable cancer-therapy researchers to develop more effective treatments.

Cancer researchers still rely on the staple technique of countless scientific experiments: mice. But cancer tissue grows and develops much differently in mice than in humans. In particular, human tumours are composed of more dense material, with much greater degree of tissue stiffness than that of their rodent counterparts. As a result, *in vivo* testing on mice has not always translated well into useful therapies for people.

Another feature of Kinsella's technique is the long life span of the printed cultures. Maintained at a constant temperature of 37°C, the cultures can be preserved for as long as 45 days, substantially longer than normal 2D cultures, allowing the team to investigate the ways that early stage tumours develop in the body. But more importantly, the 3D cultures have a much higher degree of bio-mimicry. In particular, the cells are formulated to imitate the types of cells found in triple-negative breast cancers, referring to the types of cancer cells that might go unreported in routine examinations. Such triple negative breast cancer cells are associated with low survival rates and high recurrence; in other words, the most dangerous type of cancer there is.

The other leap forward in Kinsella's research is the ability to precisely control the placement

^ **On the cutting edge of 3D bioprinting: (from left) Salvador Flores Torres, Joyce Jang, Professor Matt Kinsella, Tao Jiang, Jacqueline Kort Mascort, Pooja Pushparaj.**

of different types of cells in specific locations within the gel. This accuracy enables the group to repeat their results and to investigate how different types of cells found in human tumours, such as immune cells, interact with the cancer cells and influence the tumour's response to treatment. Other benefits of this approach are low costs and the ability to create a high volume of samples. All of these qualities, along with the observed migrations and growth patterns of cancer cells within these samples, offer an ideal environment for the testing of treatments, and the discovery of new basic cancer biology that is more applicable to humans.

**A diverse team tackles a thorny problem**  
Like the interconnected and complex problem they are studying, the researchers dedicated to Professor Kinsella's project are also composed of a wide variety of participants. Tao Jiang is a PhD candidate in Mechanical Engineering who joined the group in 2014 as a China Scholarship Council international MEDA fellow. Jacqueline Kort Mascort and Salvador Flores Torres recently came to McGill as Consejo Nacional de Ciencia y Tecnologia (Conacyt) scholars last September from Mexico to pursue PhDs on the masters-PhD fast-track program. The team's composition reflects the international strength of the Faculty as a whole, where over 50% of graduate students and 29% of undergraduates are from overseas.

"Our team has a remarkable mix of people and viewpoints, which has been a huge factor in the pace of progress we have been able to make," explained Kinsella. "I can always count on the group to come up with new ideas and new approaches that none of us would have thought of individually."

So far the unit has trained more than a half dozen undergraduates, visiting students, and research associates from Canada, Mexico, and Iran. In addition, they've been working with collaborators across campus, including the Faculty of Dentistry, Medical Physics, the Montreal Neurological Institute and Hospital, the McGill University Health Centre (MUHC), and the Goodman Cancer Centre.

"Our next challenge will be to automate the processes, so that we can dramatically increase the throughput. Once we achieve that, we can produce even more samples in a short period," added Kinsella, referring to the planned expansion of his team's operations. "We can then commercialize the technology, and hopefully this will spur even more innovations in terms of finding better treatments for cancer than can be developed with current methods." ■



# Turning the Gender Tide in Silicon Valley

by Peter Farbridge

**Media reports are showing that gender bias in Silicon Valley is keeping women from reaching their potential. Engineering alumna Patricia Birks (BEng '90) speaks about her experience as a female hardware engineer in this region famous for its start-up culture.**



When asked in a press conference in January 2015 about his reasons for wanting to assure pay equity between the men and women of Intel Corp, CEO Brian Krzanich referenced his two daughters: "I want them to have a world that's got equal opportunity for them," he told reporters. Intel had just announced a \$300-million investment in support of workplace diversity, which included closing the gender pay gap. Since then, the movement has been spreading through many businesses in Silicon Valley—Google, NetApp and Salesforce.com are all creating their own pay equity policies, and are walking that talk. But will it make things truly fair?

Faculty of Engineering alumna Patricia Birks is reserving judgement. Growing up in Montreal's west-end with an interest in science, and later as an electrical engineering student at McGill, she got used to being one of a few women in a male-dominated field. But after 20 years in the trenches of Silicon Valley's managerial track as a software developer and system engineer for companies like C-Cube Microsystems and

Telegent, she couldn't take the pressure of trying to succeed in an old boys' club.

"One time, a CEO came up to me after a group meeting and said: 'You make people uncomfortable. You should be aware of that,'" recalled Birks from her home in Fremont, California. "But it was just the fact that I was there. If not for the hostile work environment of the Valley, I probably would still be in the workforce today—and I'm a pretty tough cookie."

A quick look at the statistics demonstrates that Birks' experience is far from anecdotal. *Joint Venture*, a business think tank in Silicon Valley, reported in 2016 that men are earning as much as 61% more than their female counterparts. Women in director positions only amount to 10%. Women on boards? 15.7%. Top corporate/business development executives? 16.7%.

"It is true that there are larger corporations that are starting to make changes," Birks added. "One must remember though that they have large HR Departments and the resources to do so. There are many companies, especially the smaller start-ups, that are simply too small and too volatile to address the systemic inequities."

Birks now has two daughters of her own who have both left for college, and she is considering a move back to the workforce. And when she does, she will continue to be a strong advocate for gender parity.

"When I was working at the start-ups Skystream and LSI Logic, I received two different letters from female employees thanking me for setting an example," she explained. "The challenge for young women moving up the ladder is to really pinpoint management environments where your superiors are looking for your success, because they know they succeed when you succeed. It seems so obvious, doesn't it?" ■

# Inclusive Team Aims to Help World's Most Vulnerable



**When it comes to business ideas, sometimes there is no replacement for first-hand experience.** It's certainly the case for Lumbrick, a student start-up focused on alleviating the refugee crisis. One of the five co-founders, Amir Abushanab (BEng '20), was himself a refugee and lived in a camp in Jordan after leaving his native Palestine in 2014. He came to Canada later that year, and began studies at McGill.

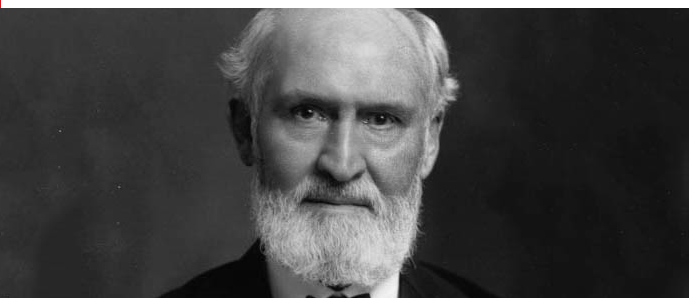
This experience proved pivotal when the Hult Prize theme was announced. An international business competition that provides \$1 million in seed money to the winners, the 2017 edition chose to focus on restoring dignity to refugees. The topic struck home with Amir, and he found willing partners in a diverse group of McGillians who divided up the fledgling company's responsibilities: Judith Li, CEO (International Management), Sarah Pellerin, CIO (Political Science), Ghalia Abdul-Baki, COO (MEng '18), and Line Jaber, CFO (Marketing and Finance). The group went on to win the right to represent McGill at the Hult competition, which is also known as 'the student Nobel prize.'

The team zeroed in on filling the need for simple, reliable and inexpensive fuel for heating and cooking in refugee camps. Typically, refugees rely on donated propane tanks or they cut down neighboring trees for firewood, but both can be difficult to procure or distribute, depending on the camp's location. Moreover, deforestation is also a pressing global issue.

Lumbrick's concept is to transform local waste materials into combustible briquettes. A secondary goal is to help refugees become entrepreneurs by selling the briquettes at competitive prices to end-users. It's an elegant solution that's resonating with socially-conscious investors: in addition to reaching the finals at the Hult competition, in June they won a \$30,000 prize at the World Vision Social Innovation Challenge and they received a grant from the Stardust-Startup Factory.

The company will begin a pilot project in Cameroon in July, using corn waste to create the product (in other regions, rice or wheat husks could be used as a base material to produce the briquettes). There are nearly 300,000 refugees from neighboring countries currently living in Cameroon, so it will provide the perfect setting to test the viability of their approach.

According to the United Nations High Commission on Refugees, there are 21 million refugees in the world today. This is the highest level of forced migration seen since the end of the Second World War, and the trend continues to grow. Lumbrick believes their product could help as many as 10 million users in the next five years. ■



## > The Most Important Profession

*"I look on the engineering profession as one of the most important professions, if not the most important profession, of this or any other country," Sir William Macdonald, 1896. Sir Macdonald was the Faculty of Engineering's greatest benefactor. This column will look at past alumni and compare them with current students.*

### Lorenza Feng (MEng, Chem '61)



In the fall of 1959, there were only a few female undergraduate students in Engineering, but in graduate studies, there was just one woman who signed up for a Master's degree in Engineering: Lorenza Feng (née Lu), at the time recently arrived from the University of Santo Thomas in Manila. She was the first woman to do so in the Faculty's history, earning a degree in Chemical Engineering in 1961. Indeed, there would be no other woman to earn a graduate degree until 1972 – more than a decade later.

Did she encounter any resistance at being such a pioneer? "I wouldn't say there was any discrimination against me," she explained. "It was more that people were surprised to see a woman in the program." She undertook research on water desalination, which she admitted was 'ambitious.' She then completed a PhD at the University of Ottawa and won the Plummer Medal from the Engineering Institute of Canada for her work on heat transfer in fluidized beds.

But perhaps Feng was too far ahead of her time. After several rejections she eventually became a teacher in the English Montreal School Board, and later, Assistant Director of an adult center for the same school board. She was also president of the board of the Montreal Chinese Hospital, where she began as a volunteer, but over the years her sense of responsibility continued to grow until she was eventually its director.

Through it all, however, she was convinced her research background helped her career. "Research teaches you how to learn," she said. "You become more versatile." Now retired, she looks back on her days at McGill fondly – it was where she met her husband, James Feng, who studied law – and is an active participant in her class reunions. "McGill was good to my husband and me. We are very thankful," she said.

### Adeola Odusanya (MEng, Chem '18)



There may be more women undertaking graduate-level studies in the Faculty of Engineering these days – 77 women were awarded Master's or PhD degrees in 2017 – but some gender differences still remain. That's been the experience of Adeola Odusanya, who took her undergraduate degree in Chemical Engineering before entering a Master's program in 2016.

As an undergraduate student, she was a member of the Baja Racing design team for three years, one of four women among a team of 18 members. Coming from Chemical Engineering, which has the highest ratio of female to male students in engineering programs at 44%, she found the dynamics of the team to be different from what she was used to. "There was more strict delegation of roles, and less communicating," she recalled. "It wasn't necessarily better or worse, just different."

Like her counterpart Lorenza, Adeola is also community-minded. She was formerly president of the National Society of Black Engineers, and helped organize a program to help at-risk youth pursue STEM education. Over a two-year period, the group mentored 15 high school students in Montreal's Little Burgundy district.

In addition to her work on social issues, she also has an entrepreneurial streak. She is a founding member of Blühen, a start-up that targets the upcoming market for cannabis. They are developing a dispenser to measure out precise amounts of the substance. "We're aiming to take the stigma out of cannabis consumption and make it easier for people with medical needs to get the exact dosages they require," she explained. They are currently beta testing their product in the Montreal area.

Looking at the careers of these two women – one now complete, the other yet to begin – they both share a sense of community and ambition. But over the past decades, the rise of start-up culture has empowered women to take charge of their own circumstances and build their own path to success. Although Lorenza Feng harbours no regrets, perhaps this was the missing opportunity. ■

< **The Lumbrick team (from left): Ghalia Abdul-Baki, Judith Li, Sarah Pellerin, Line Jaber and Amir Abushanab**



> Cross-institutional Team Targets Chinese Housing Design Competition

This past June, in a parking lot on Concordia's Loyola campus, a team of McGill and Concordia students began constructing a pre-fab house. But this was no ordinary pre-fab unit; this is the Deep Performance Dwelling (DPD), a net-zero energy consuming house that can be adapted to any family's changing needs. It's a bold prediction of the future of housing, and Canada's sole entry in the Solar Decathlon China, a competition to build the smartest, most livable house.

The McGill-Concordia joint project runs under the banner of TeamMTL. The multi-disciplinary team is composed of 40 students working on all aspects of the project, including architecture design, engineering and finance. Building the Deep Performance Dwelling in Montreal is a major milestone for the team, who will then dismantle and reassemble the house in Dezhou, Shandong Province, China in July 2018 for the final competition.

"It is a complex, extraordinary project for the students and faculty involved," says Michael Jemtrud, Faculty Lead and McGill School of Architecture Professor. "We're continuing to bring together numerous public and private sector partners who have a shared concern for building a sustainable world, while simultaneously educating the best and brightest young thinkers and doers from our community."

Inspired by both Montreal row houses and Chinese siheyuan courtyard architecture, the residence is designed to be adaptable and flexible for the contemporary urban family. The ambitious project addresses the pressing global need for low-impact, urban housing. UN Habitat has estimated that by 2030, 60% of the world's population will be living in cities, which translates into 3 billion people who will be in need of affordable and efficient housing.

Supported by a wide range of industry partners, the project has also attracted the support of the Canadian government (Natural Resources Canada), the Quebec government and the China Overseas Development Association. After it is completed in mid-July, the house will remain on Loyola campus for public tours until September. Alumni interested in visiting the DPD can reach out to [info@teammtl.ca](mailto:info@teammtl.ca) to arrange a tour. ■

✓ An artist's rendering of the Deep Performance Dwelling.



# From Zero to Seventy in Two Weeks

McGill Rocket Team Breaks Multiple Barriers

**B**ack in 2014, Aissam Souidi [BEng '18] was a second-year engineering student. A recent immigrant, he had come from Morocco to Montreal at the age of 17, looking to broaden his educational horizons and to live in a bilingual city. One day while discussing hobbies with fellow engineering student Hamza Tikka [BEng '18] who had immigrated to Canada from Pakistan, he realized that there was no club where the two of them could take part in their shared fascination for rocketry.

"We thought it was sad that there was no such team at McGill," Souidi said. "There were three other university teams in Montreal but none at McGill. And there was no one researching the topic at the Faculty level either." The solution was to start their own club. They soon found out they weren't the only ones with a passion for rockets: within two weeks of establishing themselves as a design team, 70 members had signed up. Clearly, there was an interest in rocketry, and it was coming from a diverse student body.

"The ethnic mix really helped us," said Souidi. "We had people with a wide range of experiences, such as launching water rockets in India or flying quadcopter drones in China. We were also one of the few teams with all Departments represented." Importantly, they also brought in students from other McGill faculties, who took on non-engineering dimensions of their work.

Just eight months after starting up, the team entered its 1<sup>st</sup> competition, the Intercollegiate Rocket Engineering Competition (IREC) in Utah.

^ The McGill Rocket Team has soared to over 100 members.

"By the time of the competition, there were only four of us who could attend," he recounted. Although the team did not place well, that was hardly the point. Just taking part was a major success for a team that hadn't existed the year before.

The Rocket team has grown since those early days. It is now the Faculty's 2<sup>nd</sup> largest design team, with over 100 members. They're still focused on the IREC (now known as the Spaceport America Cup), but the team will send over 15 members to take part. And diversity is still a key component.

"The competition is very multi-disciplinary, whether it's the chemistry required for the fuel or the biological components for the payload," said current team president Sandro Papais [BEng '18], who took the reins of the group this past year. "We're trying to promote interest in aerospace across campus, and we've been successful at recruiting members from other faculties like Arts or Science."

Aside from competing, the group also hosts industry symposiums, including one with the European Space Agency, which presented its plans for future travel to the moon and mars. "Even at the industry level, diversity is important," continued Papais. "Creating these future communities will require incredible resources, and the more people who can contribute to them, the better." ■

**Continued from page 1** Despite the sobering pessimism, there are concrete signs of progress; for example, the proportion of female undergraduates in the Faculty has risen over the past decade from 20% in 2006-2007 to 28% in 2016-17. To put this figure in context, according to Engineers Canada the national average for the ratio of undergraduate women registered in full-time engineering programs in 2015 was 20%, so it is fair to say that McGill is leading the way in terms of gender equity.

There is one field in particular that is seeing a high degree of interest from female engineers: the new Department of Bioengineering, where women made up 50% of the over 1,500 applicants

to the new undergraduate program, and 35% of the registered cohort. Nevertheless, in the professional ranks women only make up 17% of registered engineers in Canada as of 2016, so while the Faculty's internal work may be paying off, transferring this success to broader society will take more time (as shown in the experience of Patricia Birks on page 3). Moreover, other groups such as Indigenous people remain extremely underrepresented in both education and industry.

Engineers have long been known for building bridges of the physical variety. Through the efforts of initiatives like eIDEA, they may earn a reputation for building social bridges as well. ■

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