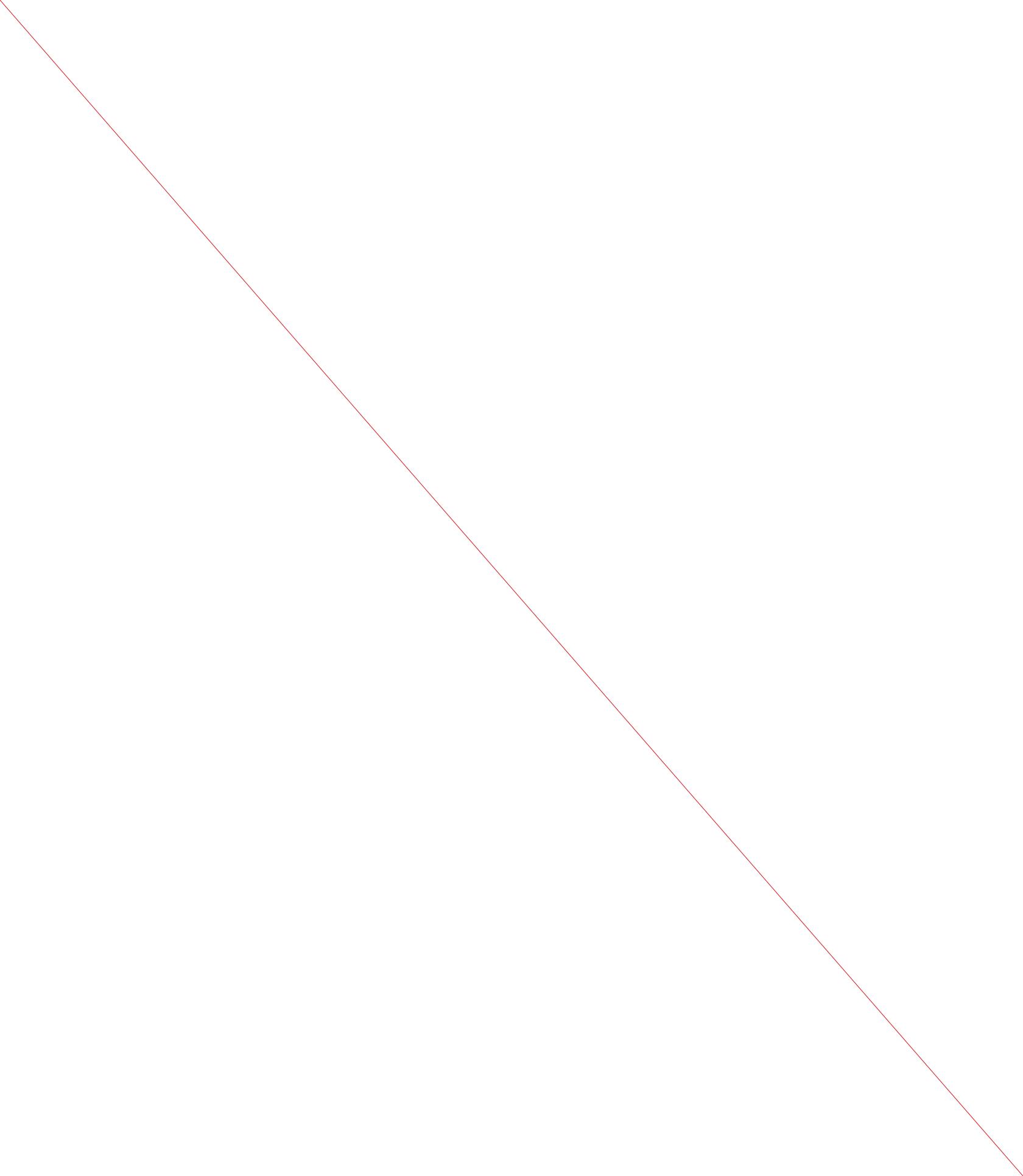


**ENDURING CHANGE:
THE IMPACT OF YOUR SUPPORT**

Faculty of
Engineering
Major Gift
Report 2017
—
McGill
University



"ALL MEANINGFUL
AND LASTING CHANGE
STARTS FIRST IN
YOUR IMAGINATION
AND THEN WORKS
ITS WAY OUT.
IMAGINATION IS
MORE IMPORTANT
THAN KNOWLEDGE."

- ALBERT EINSTEIN



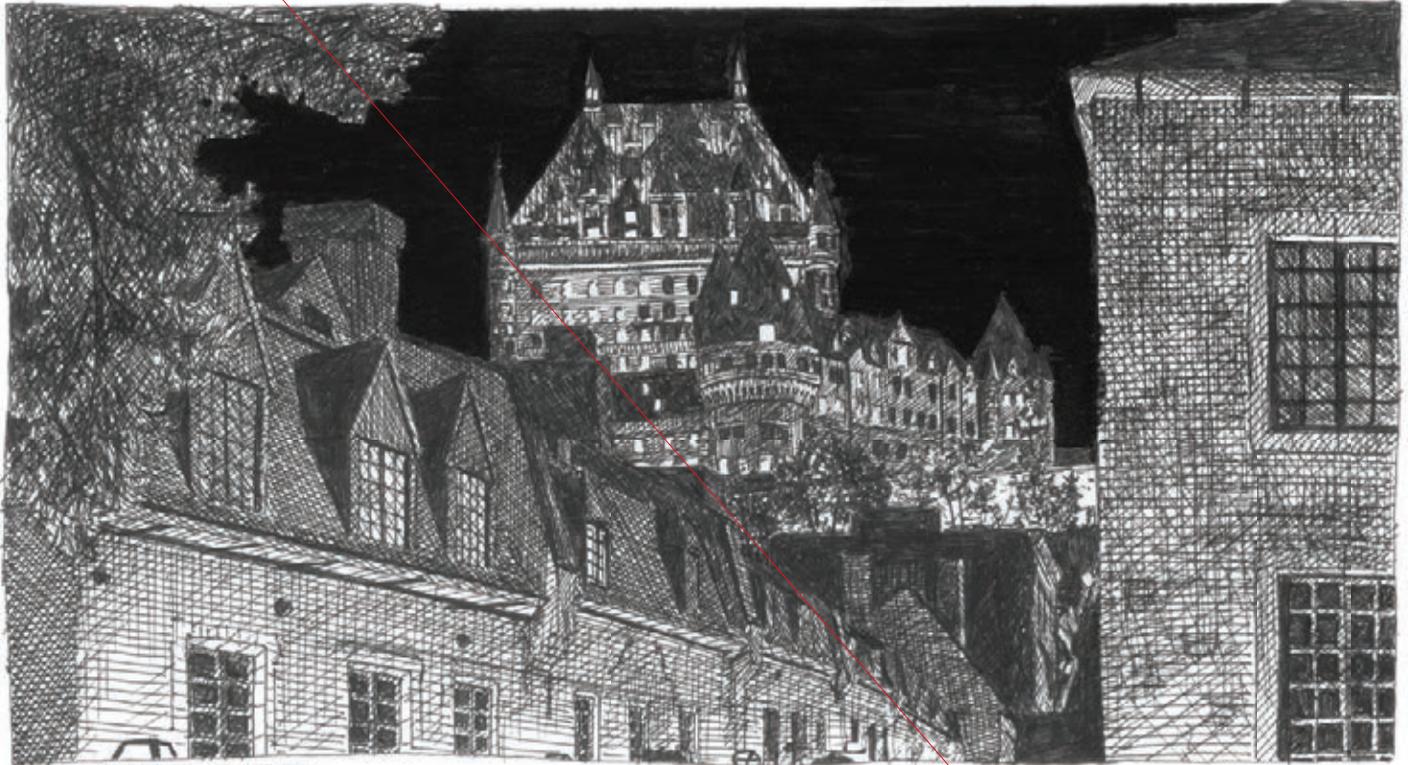
→ An image of Macdonald Engineering building painted in 1959 by Campbell Tinning, a former official war artist with the Historical Section of National Defense Headquarters and member of the Royal Canadian Academy of Arts.



THANK YOU!

Addressing today's engineering and design challenges requires a unique blend of problem-solving skills that must be supported through a new approach to education. With its emphasis on innovative out-of-classroom and pedagogical experiences, the Faculty of Engineering is preparing young engineers, architects, and urban planners for the multidimensional complexities of their professions. And with your generous philanthropic support, you are helping us to create the change-makers of tomorrow.

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S. ASSELIN

Quebec City's Chateau Frontenac, as drawn by 3rd year
Architecture student Sebastien Asselin, during the Sketching
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TODAY



These four initiatives create a student experience in the Faculty of Engineering that is integrated, relevant and beneficial to all of society.

eIDEA : Engineering Inclusivity, Diversity and Equity Advancement

eLATE : Enhancing Learning and Teaching in Engineering

Empower : Leadership, personal and professional development

EngInE : The Faculty of Engineering Innovation and Entrepreneurship Hub

Dean Nicell at the Faculty Club

"Providing students in the Faculty with the tools to become the leaders of the future cannot be done solely in the classroom."

A MESSAGE FROM DEAN JIM NICELL **ENDURING CHANGE**

When I am asked to reflect upon the ways in which the generosity of our alumni and friends has impacted the Faculty of Engineering, including its many engineering departments and its Schools of Architecture and Urban Planning, I often think back to the multiple examples of how they are helping to cultivate an engaged, dynamic and well-rounded student body. While the exemplary teaching and research going on in the Faculty is at the centre of what we do in the pursuit of these goals, I believe that we must remain connected to the value of what our work brings to society—and that goes beyond something we can instill solely through classes and labs.

As design professionals, we are frequently asked to propose solutions to society's problems. In this day and age where complexity is the norm and unintended consequences of our work must be avoided, a really good problem solver will first step back to look at the context of an issue and then ask the right questions to ensure that his or her idea will have a lasting positive effect on its beneficiaries. This is the starting point of what I sometimes refer to as "Big 'I' innovation," which means that we must educate our students to innovate so that society can benefit from our work over the long-term for lasting positive impact. In other words, we must not seek to innovate for innovation's sake but, rather, with meaningful purpose and intent in mind.

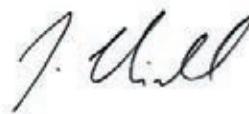
To think and create in this manner requires much more than technical skills; it requires team-building and communication skills, informed risk taking, and collaborating with people from far-flung disciplines. Above all, it requires leadership. Providing students in the Faculty with the tools to become the leaders of the future cannot be done solely in the classroom. They need to be able to put their education into practice and, through this, develop the complementary skills that prepare them to lead. This is why we created the "Empower" program to support out-of-classroom experiences that connect students with each other—inside the Faculty and across McGill.

Empower is part of our strategy of four 'E's—Empower [focussed on leadership, personal and professional development], eIDEA [Engineering Inclusive Diversity and

Equity Advancement], EngInE [the Engineering Innovation and Entrepreneurship Hub] and eLATE [Enhanced Learning and Teaching in Engineering]—programs that many of you are generously supporting through your gifts and involvement. These four intersecting initiatives create a student experience in the Faculty of Engineering that is integrated, relevant and beneficial, not only to the students but to all of society.

In this report, we will show you how philanthropic support of our programs in the Faculty connects directly to the research and innovation that are having a positive impact on the world. In the first section, entitled "Empowered to Change," we explore how extra-curricular experiences are preparing broad-minded students to meet society's contemporary challenges. In our second section, called "Enhanced Learning," we take a look at out-of-the-box pedagogical techniques and student-support activities that exemplify the philosophy of our eLATE program. The section entitled "Innovation and the Earth" will take a look at how these influences manifest themselves in ongoing research emanating from the Trottier Institute for Sustainability in Engineering and Design (TISED), especially with water. And finally, we include a look at how alumni from overseas—specifically, Indonesia—also play an important role in developing the research enterprise and supporting our students' education.

I am sure you already know how much your philanthropic support means to us. Nonetheless, as I leave you with these articles and interviews that testify to the profound impact you are having on the lives of the students and professors of the Faculty of Engineering, I'd like to extend my personal thanks for your generosity and energy.



Jim A. Nicell
Dean / Faculty of Engineering

EMPOWERED TO CHANGE

The McGill Racing Team competing at the Formula Student Germany in Hockenheimring, Germany in 2017.  BERGAN



JOINING A DESIGN TEAM; ORGANIZING
A WORKSHOP ON TEAM-BUILDING;
PLANNING A CONFERENCE ON DIVERSITY
IN ENGINEERING—THE FACULTY OFFERS
EXPERIENTIAL OPPORTUNITIES FOR
STUDENTS THROUGH THE EMPOWER PROGRAM.

Supported through alumni philanthropy,
Empower's mission is to cultivate engaged design
professionals and problem solvers who will
become the future leaders and innovators of an
ever-changing engineering industry and global
community.

THE ROLE MODEL

Mariam Hachem [BEng '16] may be working high up on the 44th floor of a Montreal skyscraper, but she still has her feet firmly planted on the ground. She is the epitome of how extracurricular experiences in the Faculty of Engineering are creating the next wave of Canadian leaders: articulate, passionate and socially principled.

The only difficulty about talking to Mariam Hachem is that it's hard to find a moment to speak with her. For a little more than a year now she's been based at the Montreal office of McKinsey & Company—the global management consulting firm with 14,000 consultants in 120 cities around the world—and she's already serving clients throughout Canada. She could be in Calgary one day, Edmonton the next, Toronto the following day, and back in Montreal the day after. Most of the time, she seems to be getting on a plane.

The twenty-something Hachem is on her way up the McKinsey corporate ladder after finishing a Bachelor's degree in Chemical Engineering in the Faculty of Engineering in 2016. But what makes this Lebanese-born Kuwaiti so impressive is her drive to help other women realize their own potential—and she credits this desire with the out-of-classroom experiences she had in the Faculty.

CHOCK-A-BLOCK SCHEDULE

"I strongly believe that when you graduate from university you have learned that there is always more to learn," says Hachem from her office at René-Lévesque and Peel. "Studying engineering cultivated a curiosity in me to ask questions about how and why things work. But I acquired an

indispensable second skill through experiences I had out of the classroom—being able to work with people, learning how to be empathetic and understanding, and finding different ways of disseminating ideas. I spent a huge amount of time in extracurricular activities and this had a significant impact on my professional career."

A 'huge amount of time' is an understatement in Hachem's case. In her first three years at the university she was part of the Chemical Engineering Students' Society, Promoting Opportunities for Women in Engineering (POWE), the Chem-E Car Design Team, the McGill Chapter of Engineers Without Borders and the Arab Students' Association. As if that were not enough, in her last year at university she became president of the Engineering Undergraduate Society, and co-organized the 2016 Conference on Equity and Diversity.

"When I went home in the summer after my first year at McGill—I had just moved to Canada from Kuwait and I was living all on my own—I asked myself what had given me energy during the year, and I realized it was meeting people. So, I decided to try out a bunch of different extracurricular activities," she explains. "When I look back on my time at McGill, the majority of the skills that I gained, that are contributing to my success and that will make me a good leader, are the skills that I learned from my activities outside of the classroom."

CLOSING THE GENDER GAP

One of the leadership roles that Hachem has defined for herself is to mentor other young women who want to access the usually male-dominated worlds of engineering and finance. She is sensitive to the gender imbalances that can exist in engineering, a disparity that "is even more striking in the professional world of finance," she notes. Hachem is involved in several recruitment projects at McKinsey to encourage young women to pursue their careers there.

"I think gender imbalances in the workplace have a lot to do with media and awareness—the failure to communicate early on that girls can be anything they want. I think these things have a profound influence on what women believe is possible for themselves."



It's precisely this type of perception that the Faculty of Engineering addresses through the Four 'E' initiatives supported by alumni philanthropy. When Mariam learned of alumnus Mohammed Faris' \$1 million contribution to the Empower Initiative in 2017, she was thrilled.

"With that money, philanthropists like Faris are creating the leaders of tomorrow. Not everyone has the same opportunity to take part in extracurricular activities. Not only will this deepen the students' experiences, but it will also increase the number of students that can be impacted."

Mariam Hachem: taking her place at McKinsey & Company.



"My involvement in extracurricular activities and the skills I learned from them propelled my career in ways that I could not imagine at the time."

Rory J. Altman is a Director at Altman Vlandie and Company, a 140-person business strategy consultancy based in Boston, Massachusetts that focuses on the technology, media and telecom sectors.

LEARNING TO LISTEN

When Rory Altman [BEng '92] looks back at his time in the Faculty, he is the first to admit that his communications skills were not one of his strengths. So how is it that today he can handle the interpersonal complexity of consulting for international corporations?

AS A BUSINESS CONSULTANT, YOUR WORK REQUIRES YOU TO COMMUNICATE EXTREMELY WELL IN DIVERSE SITUATIONS. HOW DID THE FACULTY OF ENGINEERING PREPARE YOU FOR THAT?

Rory Altman: One of the things that you get out of an engineering degree, even if you choose not to follow that profession, is that you learn about logic and problem-solving. That's incredibly valuable and it's applicable to all sorts of situations, not just classical engineering problems. But there's no use in solving a problem or innovating if you can't persuade the people around you to adopt your solution. And one of the things that the curricula of engineering schools don't do is help young students to be more effective communicators in teams. Students need to find ways to develop that capacity, and I think that this has to happen outside the classroom.

BUT WHEN YOU SPEAK, YOU SOUND LIKE SOMEONE WHO IS A NATURAL COMMUNICATOR.

Altman: To be candid, when I think back to those days at McGill, I had less ability to self-edit, I had less ability to persuade, I was a poor listener, I didn't know how to work with other people, I was over-confident. For sure, I had creativity, energy and enthusiasm. I had crazy ideas and I got stuff done. But I didn't have any of the maturity and social skills to put any of that to work.

AND YET YOU WERE A PART OF THE EXECUTIVE OF THE ENGINEERING UNDERGRADUATE SOCIETY.

Altman: What I learnt from my involvement in the EUS, through many fun and occasionally painful experiences, is that the best ideas do not come from a single person's mind, but rather they come from a collection of fabulous ideas from different minds that somehow fits into a whole and appeal to the greatest number of people. I learnt this at the EUS, but also through all my extracurricular activities at McGill Engineering. I failed a lot, I fell on my face a lot, but I had great mentors and friends to help me contribute, despite all those failings. Over time you get smarter, and you learn how to work with people—that's the value of all these extracurricular activities. It's not about throwing the best party [although we did, I assure you]. You get to work with people to do something new and creative, where everyone has fun doing it—that's the real value.

THE RORY J. ALTMAN STUDENT INITIATIVE FUND SUPPORTS EXTRACURRICULAR LEARNING IN THE FACULTY'S EMPOWER PROGRAM. WHY ARE YOU TARGETING YOUR FUNDING IN THIS WAY?

Altman: My involvement in extracurricular activities and the skills I learned from them propelled my career in ways that I could not imagine at the time. McGill Engineering is not just about the classwork and the academics: it's about applying that learning in teams by trying things, being entrepreneurial, trying to have an impact outside of the classroom, and challenging yourself to work with others. I wish other donors would reflect upon their experience at McGill, think about what experiences were successful that helped propel them forward in their careers and their lives, and did their best with time or money to reinforce those avenues and opportunities for today's students.

Rory Altman's yearbook photo. He was Vice-President of the Engineering Undergraduate Society



WHERE ARTS AND SCIENCE CONVERGE

Mohammed Faris [BEng '59, MEng '62] believes in the interconnectedness of disciplines—for him, education, the arts, business and science all contribute to a healthy society. This spirit of giving touched the lives of students in the Faculty of Engineering this year with his remarkable \$1 million dollar contribution to the Faculty's Student Initiative Funds, part of the Empower program.

It was an extraordinary act of generosity that took place over 60 years ago that first gave Mohammed Faris an appreciation for what it truly means to need a little help once in a while. Faris was in the Faculty of Engineering in the 1950s, a young student recently arrived from Beirut, Lebanon who was surviving on his own and living on a shoestring. Things got noticeably tougher when a money transfer he was hoping to receive from his father didn't arrive on time. He started to eat infrequently, and one day fainted in class. When former University Chaplain and Student Counsellor Reverend Clifford Knowles found out what was going on, he took the 18-year-old down to the accounting department and arranged for a \$200 advance to tide the young engineering student over. It was an act of caring that Faris would never forget.

Faris revived this memory through his million-dollar gift this year for out-of-classroom activities in the Faculty of Engineering. Together with his late wife, the dynamic Yulanda (née Azan), he has helped many lives at McGill, and the lives of many others through various Canadian institutions in fields such as science and education, to arts and gender equality.

THE CINDERELLA STORY

From those modest days as a student struggling to make ends meet, Faris went on to become a major figure in Vancouver real estate development. After graduating, he worked as a professional engineer in the oil and gas industry in Canada and the Middle East during the 1960s and 70s. Later on, he founded three companies out West: Intrawest, Intergulf Investments, and Cascadia Land Corporation. All three became leaders in their respective fields.

In addition to being the starting point of his career, McGill University was also the scene of another important chapter in his life. It was there that Faris met his future wife, the effervescent Yulanda who came to Canada from Spaldings, Jamaica, to study in 1957. The two wide-eyed teenagers bonded over a mutual love for music and dance that they carried with them throughout their lives. Over the course of their 55-year marriage, which ended only with Yulanda's passing in 2015, the couple raised three children, and their lives were subsequently enriched by the arrival of six grandsons from 1992 to 2002. Mohammed and Yulanda have left an indelible mark on Canada's arts and education scene through their gifts.

"My father loves this country," says Reema Faris, the eldest of their three daughters (Ramona and Yasmeen are the other two). "Both my mother and my father were very aware of their good fortune to have been able to come to Canada and to go to McGill."



AZAN, YULANDA MICHAEL
"Do justly, love mercy and walk humbly with thy God."
Born July 2, 1937, in Jamaica, W.I. Attended Knox College. Entered McGill, 1957. Activities: West Indian Society 57-58; Arab Club 58-59, 59-60; Psychology Club 58-59.

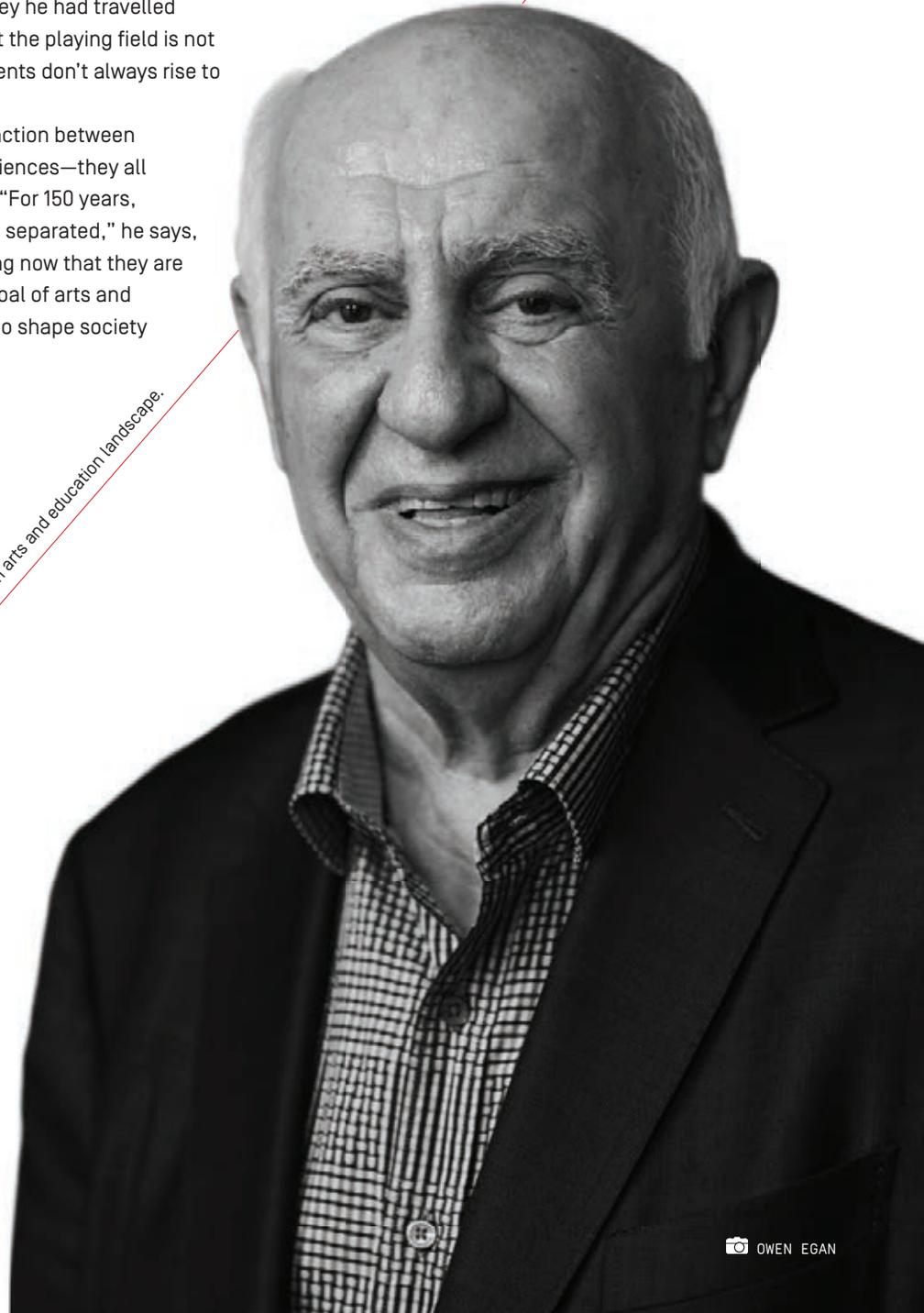
DYNAMIC DUO

Over the years, the Farises gave to education and arts institutions across Canada: the Scotiabank Dance Centre, the Vancouver Opera, and the National Arts Centre, to name only a few.

“I think that having come from a less fortunate country, my father was very aware of the journey he had travelled on,” adds Reema. “He recognizes that the playing field is not always level and that the greatest talents don’t always rise to the top without some kind of help.”

For Mohammed, there is little distinction between offering that help to the arts or the sciences—they all strengthen society in essential ways. “For 150 years, these fields of arts and sciences were separated,” he says, “but I think everybody is understanding now that they are all the same thing at their core. The goal of arts and science—and of business as well—is to shape society through professional diligence.”

Mohammed and Yulanda Faris have left their mark on the Canadian arts and education landscape.



ENHANCED LEARNING

Each year for the past 10 years, students in the Faculty of Engineering explore their creativity by taking part in the Engineering Photo Contest. Ryan Wong won the Self-Expression category with this shot taken at Britannia Beach in British Columbia, Canada.

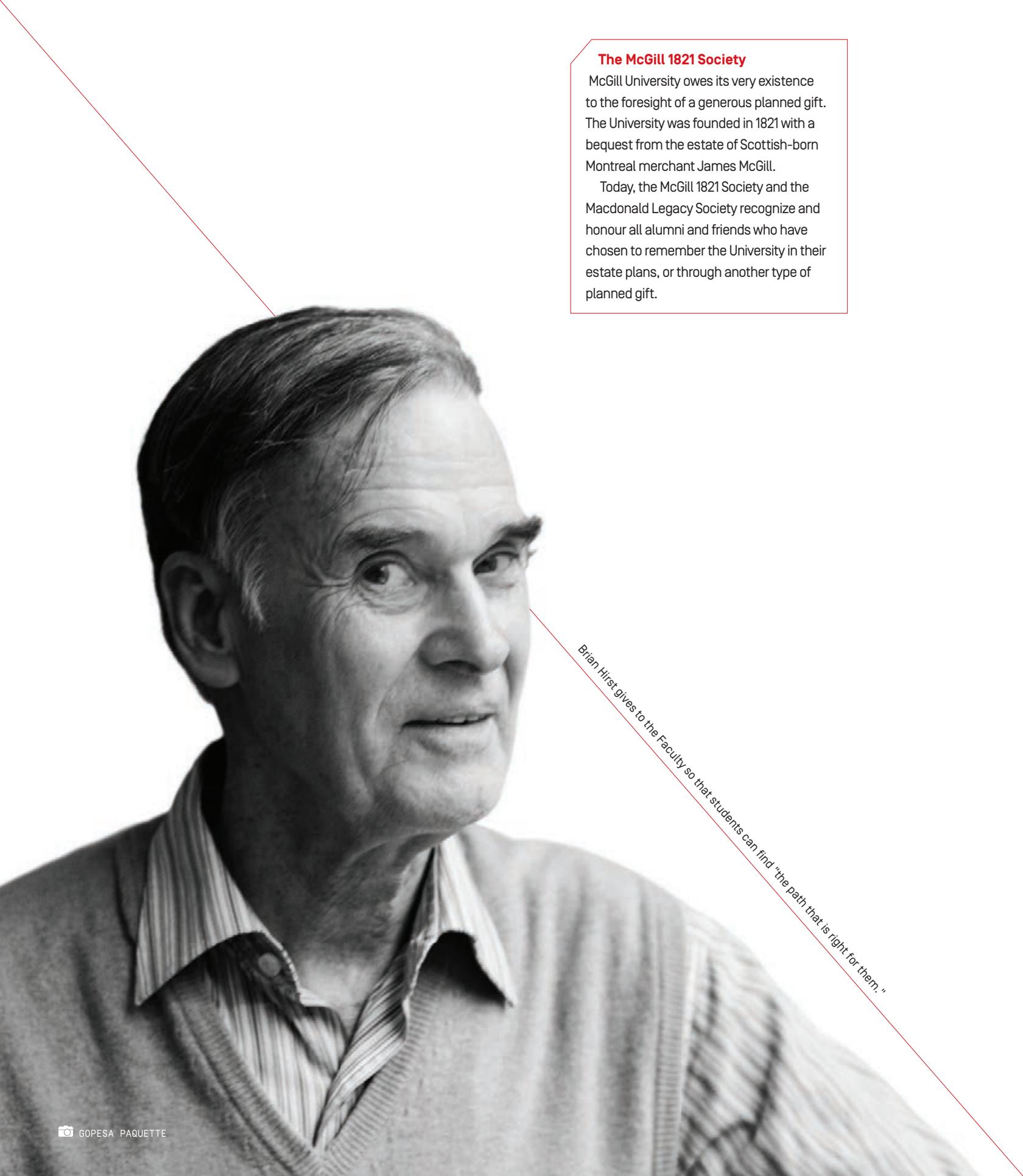
THE EDUCATION OF ENGINEERS,
ARCHITECTS AND URBAN PLANNERS
CAN TAKE MANY FORMS—INCLUDING
EXPERIENCES THAT ARE BEYOND
TRADITIONAL CLASSROOM ENVIRONMENTS.

Thanks to alumni support, the Faculty of Engineering's eLATE [enhancing Learning and Teaching in Engineering] initiative is creating a culture of lifelong learning, and challenging professors and students alike to find better ways to advance the study of engineering, architecture and urban planning. Whether it is by sketching outdoors or international exchanges, the Faculty is helping students map their own paths to the future.

The McGill 1821 Society

McGill University owes its very existence to the foresight of a generous planned gift. The University was founded in 1821 with a bequest from the estate of Scottish-born Montreal merchant James McGill.

Today, the McGill 1821 Society and the Macdonald Legacy Society recognize and honour all alumni and friends who have chosen to remember the University in their estate plans, or through another type of planned gift.



Brian Hirst gives to the Faculty so that students can find "the path that is right for them."

DO YOUR OWN THING

Brian Hirst [BEng '76] carved out his career path in his own inimitable manner. His story paints a history of contemporary Canada, from the Cold War to the Digital Age, and shows young engineers what it means to learn throughout their lives.

Brian Hirst did not enter this world with a silver spoon in his mouth. His father was a navy veteran from World War II, and his mother worked as a secretary. He was the first of his family to study at university. But that would be just the beginning of Hirst's trailblazing. His life has been one of creating his own path by doing what is right for him, for society and for the planet. Now in his sixties, Hirst is using the consciousness that he has acquired from this journey to expand the young minds of students in the Faculty of Engineering.

It was his father who sparked his interest in engineering. In the mid-1950s, the young Hirst would visit his dad at work in the Canadian Vickers Shipyard. Watching the launch of a Canadian Navy destroyer impressed the seven-year-old Brian deeply. "Those visits gave me an early perspective on how interesting and complicated heavy construction really was," he recalls. "It's why I am so enthusiastic about engineering to this day."

The same shipyard later became the site where Montreal's first MR63 metro trains were built in the mid-sixties, trains that became symbols of the city's modernization. The first cars were probably undergoing their finishing touches when Hirst first entered the Faculty of Engineering in 1966.

SOCIAL CHANGE AND SELF-DESIGN

There was no shortage of tumult in those years. Hirst describes a few highlights: "I attended a McGill Student Council meeting the night the tanks rolled into [the former] Czechoslovakia; I studied during the Vietnam War, during the FLQ crisis, and when Montrealers marched demanding McGill become a French-language university. There were many different circles of hippies, and I joined the anti-war circles. It has left its trace."

Perhaps the clearest sign of his passage through the multiple social revolutions of the 60s and 70s is Hirst's steadfast desire to live his life differently. He prefers bicycling around Montreal

to motoring; he consumes frugally; and he communicates best face-to-face. Hirst defies the image of the stereotypical engineer: he's unplugged and very sociable.

During the 1960s, earning a Bachelor's degree in Engineering took a minimum of five years, but Hirst took twice as long because he alternated each year of study with a year of work. He explains his rationale for this approach with a wry smile.

"I was a hard-headed son of a brisket-basket," he says. "By alternating study at McGill with practical engineering experience, I could confirm I was training for something I really wanted. A lot of students nowadays receive their degree deeply in debt. What is the big hurry, I thought at the time? Why not make the right choices and get experience at work to motivate myself?"

That approach to learning carried on through his career: after drafting and estimating northern hydro projects, he designed buildings in Alberta ("when jobs in engineering were as thick as cod used to be on the Grand Banks of Newfoundland"). When oil prices collapsed, Hirst inspected and renovated Alberta and Ontario schools. He certified British Columbia logging road bridges and telecom infrastructure.

In addition to his various work experiences, Hirst also put his beliefs in social justice into practice. While in Alberta, he was an active member of a community housing project that eventually saw three of its members being elected to public office. Later on, he volunteered at distress centres and for municipal and federal election campaigns in jurisdictions across Canada. "Meeting other people who take time for their community reassures me," he explains.

YOUNG, OPEN MINDS

With this history of community service behind him, Hirst began to get involved with his alma mater. His first commitment was to create a planned gift to the University in 2009, after which he was inducted as a member of the **McGill 1821 Society** (see sidebar). But through his involvement with the Faculty, and perhaps also due to his unique career path, he eventually began to support the Engineering Career Centre and later created a SURE Award in Sustainable Engineering and Design.

Through his support, Hirst offers young people the freedom to consider their options and choose a career path that helps them form deep relationships with the society around them. "I give to the Faculty of Engineering because my career was wildly unorthodox, highly out of the ordinary," he says. "I think students who come through the Faculty may not always imagine what is possible in their lives. A little help can go a long way to setting them on the path that is right for them."

PERCEPTIONS OF PLACE

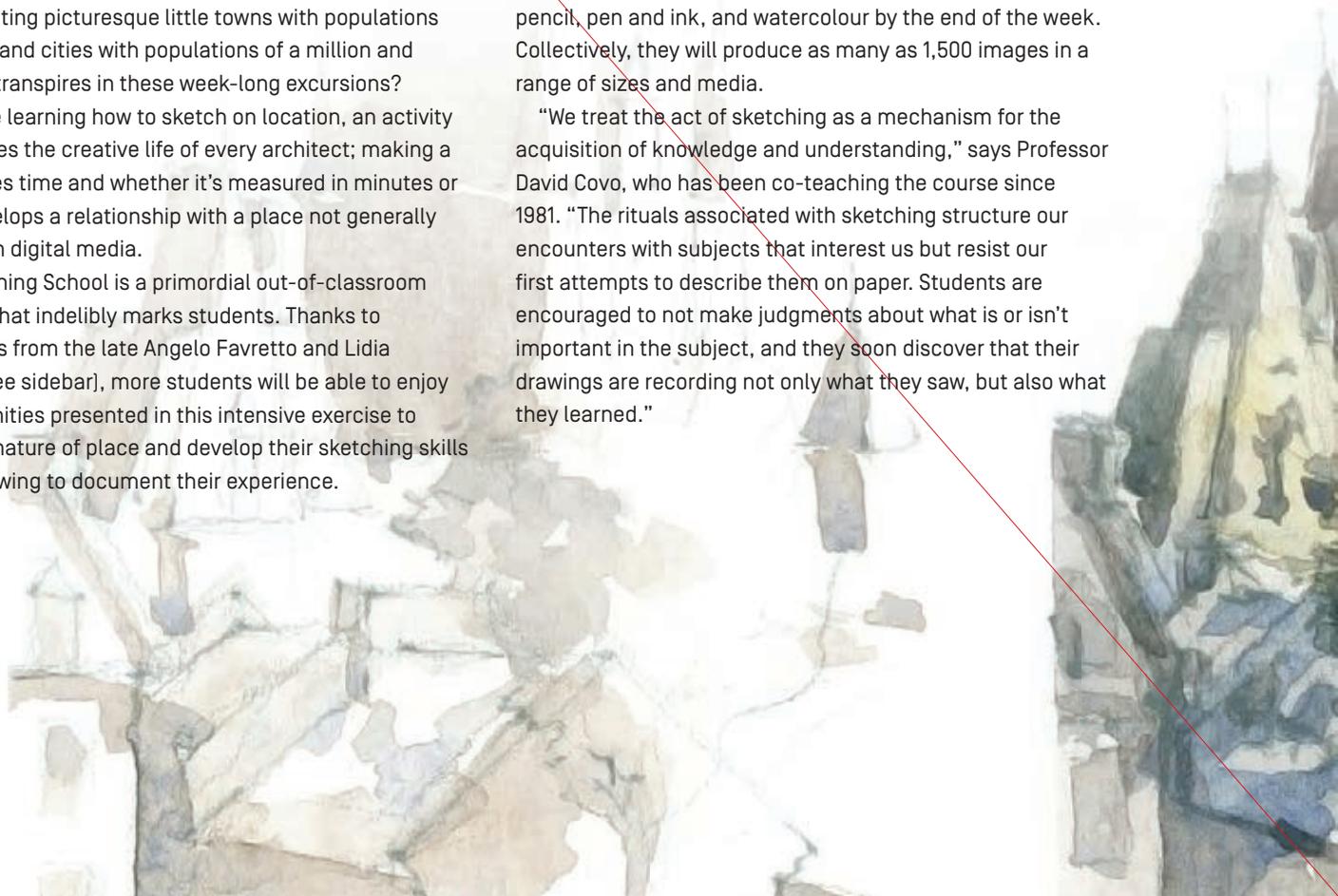
Inaugurated in 1921, Sketching School is an exercise that is rarely found these days in architecture schools. Every year, 80 architectural students travel to a distant town or city, putting onto paper their interpretations of the buildings and landscapes they find.

Continuing tradition almost a century old, students from the Peter Guo-hua Fu School of Architecture disappear for a week every summer to Ontario, Quebec, Newfoundland, Nova Scotia, New Brunswick, as well as parts of New England, visiting picturesque little towns with populations under 2,500 and cities with populations of a million and more. What transpires in these week-long excursions? Students are learning how to sketch on location, an activity that nourishes the creative life of every architect; making a drawing takes time and whether it's measured in minutes or hours it develops a relationship with a place not generally possible with digital media.

The Sketching School is a primordial out-of-classroom experience that indelibly marks students. Thanks to contributions from the late Angelo Favretto and Lidia Minicucci (see sidebar), more students will be able to enjoy the opportunities presented in this intensive exercise to explore the nature of place and develop their sketching skills by using drawing to document their experience.

Sprinkled over the grassy Plains of Abraham, with the St. Lawrence River arching over the horizon, students huddle over sketchbooks and watercolour blocks. They fan out through the capital, alternating comfortably between pencil, pen and ink, and watercolour by the end of the week. Collectively, they will produce as many as 1,500 images in a range of sizes and media.

"We treat the act of sketching as a mechanism for the acquisition of knowledge and understanding," says Professor David Covo, who has been co-teaching the course since 1981. "The rituals associated with sketching structure our encounters with subjects that interest us but resist our first attempts to describe them on paper. Students are encouraged to not make judgments about what is or isn't important in the subject, and they soon discover that their drawings are recording not only what they saw, but also what they learned."



SKETCHING SCHOOL SUPPORTERS

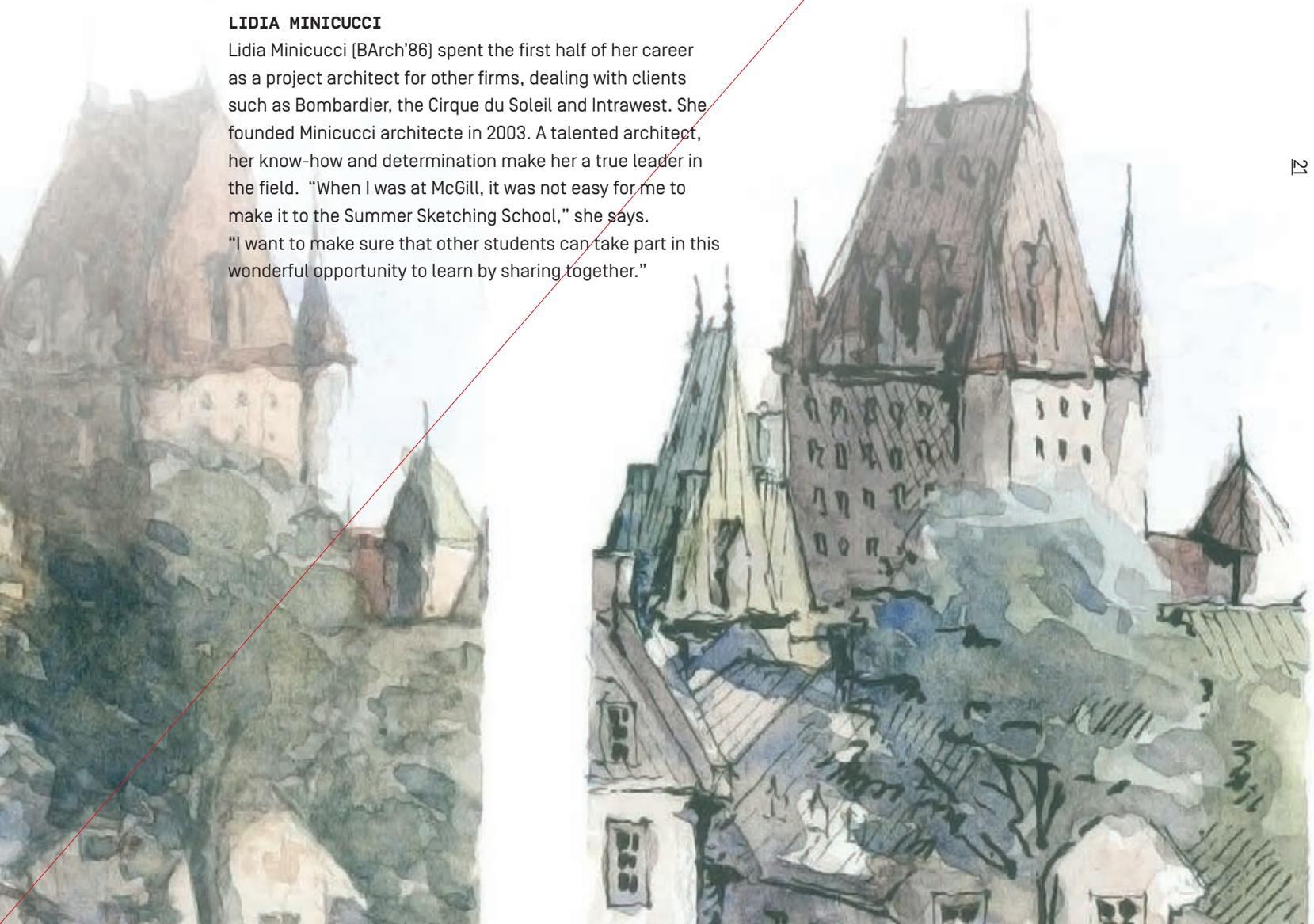
ANGELO FAVRETTO

In 1992, the late Angelo Favretto (BArch'47) bequeathed a \$300,000 endowment to the School of Architecture that would eventually perennialize the Summer Sketching School. Angelo, who passed away in 2001, took part in the School of Architecture's Summer Sketching School in the 1940s and became an accomplished water-colour artist in his later years. His 40 years in construction and real estate with Dominic Supports, the company established by his father-in-law, would see him construct many of Montreal's architectural icons, including Place Victoria, the Olympic Village, Place Desjardins, numerous metro stations, the James Bay LG3 project and Montreal's Olympic swimming pool. He is survived by his wife Yolanda Favretto and sons Dario and Maurizio.

LIDIA MINICUCCI

Lidia Minicucci (BArch'86) spent the first half of her career as a project architect for other firms, dealing with clients such as Bombardier, the Cirque du Soleil and Intrawest. She founded Minicucci architecte in 2003. A talented architect, her know-how and determination make her a true leader in the field. "When I was at McGill, it was not easy for me to make it to the Summer Sketching School," she says. "I want to make sure that other students can take part in this wonderful opportunity to learn by sharing together."

Sketches of the Château Frontenac by Keyan Ye



Eyewitness Report: Schefferville

"It took us two days to get to Schefferville. We traveled there via bus, ferry and train, traveling through Quebec City, Charlevoix and Sept-Îles. As it was still early April, the further north we got, the colder it got, and the more snow there was. When we got out of the train in Schefferville, it was amazing to see the reactions of the Israeli students to the snow, their eyes bugging out, falling to their knees in the white stuff. The Israelis were tasked with developing their designs for a new research station at Schefferville. Their research had begun even before the trip, but there had also been a day of conferences on the North before we left the Faculty, with experts on the North talking about climatic problems in relation to architecture, including Professor Wayne Pollard, head of the McGill Research Station in Schefferville. Of course, we visited Pollard's station while we were there, but we also had a host of other meetings with local Innu groups and industries, such as Tata Mining. One of the most significant memories from the trip for many students was the encounter with the Innu. Personally, it was great to see those relationships and cultural exchanges forming, as designing in the region must take the indigenous people into account. For me this project is a unique research and teaching framework for advancing design ideas in a world that calls for an international dialogue among a new generation of architects. This studio is a perfect example of how that process can and needs to take place from an early stage in an architect's training."

Martin Bressani, Director,

Peter Guo-hua Fu McGill School of Architecture

Eyewitness Report: Dead Sea

"I'll never forget the long, winding road through the mountains to get there, my ears popping all the way down, and the first time I saw the Dead Sea open up in front of us, the mist dissolving over its surface. It was such a striking, beautiful and mysterious landscape. There were 15 of us graduates from the School who traveled to the region. We had already spent a few days exploring Tel Aviv and Jerusalem, getting used to the Israeli context with our host Professor Aaron Sprecher from the Technion, before heading out for three days to the Dead Sea region. We had researched tourism, ecology and industry in the area before coming, but being there was so important, as we got to see first-hand the impact of industry—the shrinking of the Dead Sea and the appearance of sinkholes. Seeing the impacts of industry on the water definitely influenced how I dealt with water in my design."

Mark Melnichuk, Student,

McGill Peter Guo-hua Fu School of Architecture



WHEN SEEING IS LEARNING

To understand how to design for different geographical environments, professional architects must fully assess the social, cultural and environment context of the location in question. This takes collaboration with experts from various domains, cultures and communication styles. Building these skills at the Peter Guo-hua Fu School of Architecture is one of the principal goals of extracurricular programs supported by the alumni philanthropy.

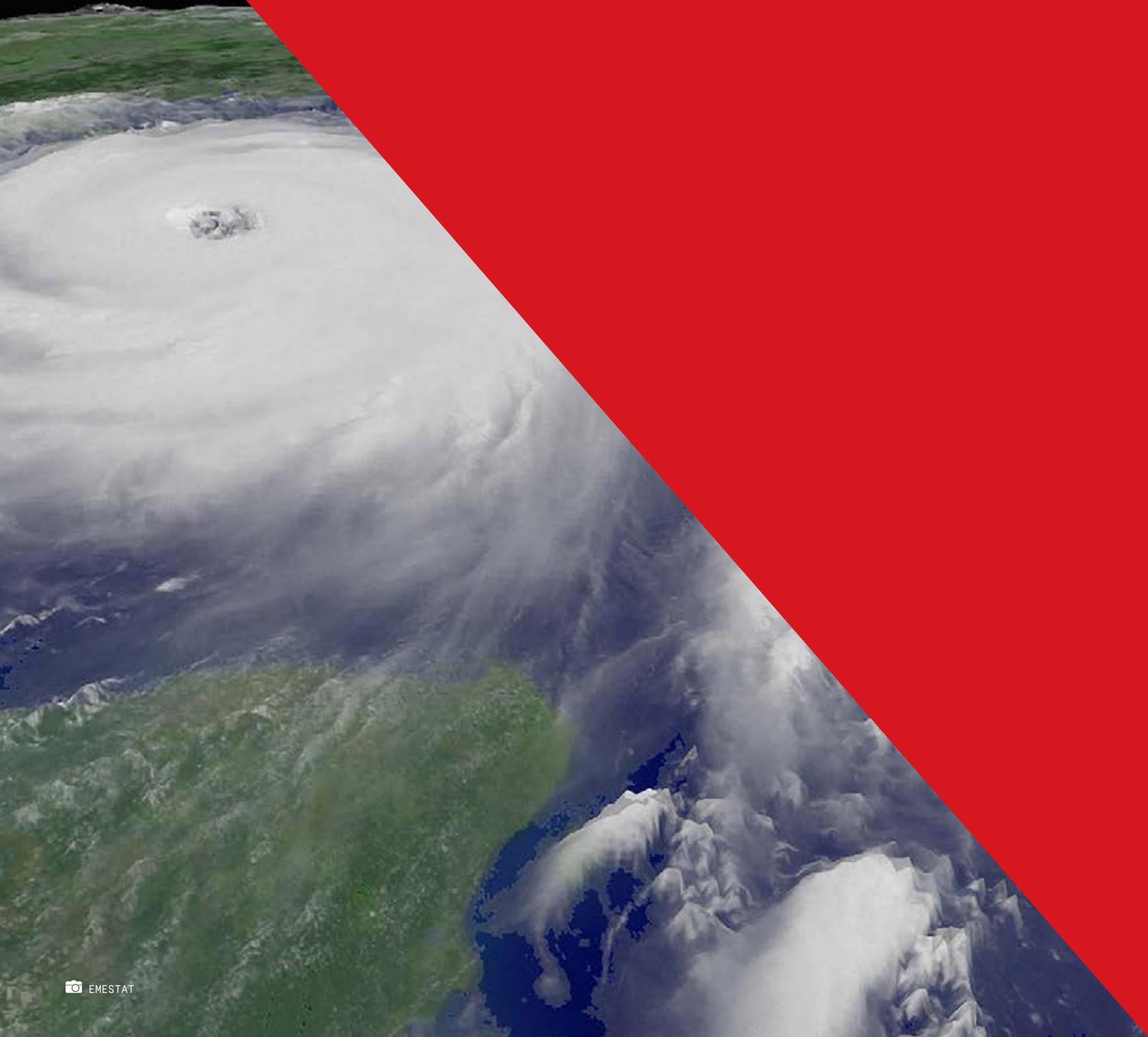
The Azrieli Global Studio provides an exchange platform for students and professors. The studios promote understanding between young Canadians and Israelis, exploring architectural themes in the age of climate change, resource scarcity, technological progress, social and cultural interactions. In the pilot project, which took place in the winter/spring of 2017, the program focused on extreme environments. Canadian students studied the southern desert by the Dead Sea, with the aim to develop ecotourism resort designs, and the Israeli students studied the North, in the region of Schefferville, Quebec to elaborate their design concepts for a new research centre.

A rendering of the Bathing Station Tower, a design concept for an ecotourist destination by 3rd year Architecture student Mark Melnichuk.



The Azrieli Foundation was established in 1989 to realize and extend the philanthropic goals of the late David J. Azrieli, CM, CQ, MArch. The mission of the Foundation is to empower individuals, facilitate innovative outcomes for institutions and increase knowledge and understanding in the search for practical and novel solutions. It encourages creativity and artistry, and ensures Jewish heritage, memory and a vibrant Jewish future in Israel and the diaspora.

INNOVATION AND THE EARTH



THROUGH FELLOWSHIPS, SCHOLAR-
IN-RESIDENCE OPPORTUNITIES AND
DOCTORAL AWARDS, ALUMNI ARE
CONTRIBUTING TO TOP-NOTCH RESEARCH
IN THE FACULTY OF ENGINEERING.

One example is the work of Ram Panda and Lorne Trottier, whose gifts culminated in 2013 with the establishment of the Trottier Institute for Sustainability in Engineering and Design (TISED), which has now become a leading centre for sustainability research. One key focus for TISED is water, as water scarcity and pollution are persistent global problems, and research offers a tremendous source of hope. And the Faculty of Engineering, again with help from alumni, is positioning these advancements to move beyond the lab and into the real world, through new programs like the Innovation Fellowships, which help researchers turn their ideas into commercial realities.

ALL THINGS GREAT AND ENVIRONMENTALLY SUSTAINABLE

Pedro Alvarez [BEng '82] was a Scholar-in-Residence at the TISED, until October 2017. His research into nanotechnology could play a huge role in the water decontamination systems of the future.

YOU GAVE A NUMBER OF TALKS AT TISED ON NEW MATERIALS THAT CAN BE USED IN ADVANCED WATER PURIFICATION TECHNIQUES. CONSIDERING THE NUMBER OF PEOPLE AROUND THE WORLD WITHOUT ACCESS TO CLEAN WATER, WHAT CAN NANOTECHNOLOGY SOLUTIONS OFFER?

Pedro Alvarez: I think nanotechnology can offer unprecedented water security. In the case of water filtration in the developing world, sand filters do a very good job of removing bacteria and other suspended solids, but they don't do very well at removing metallic contaminants. However, when we coat these sand particles with relatively inexpensive iron oxide nanoparticles, they can do wonders to trap carcinogens like arsenic.

THEN WHAT PREVENTS THEIR IMMEDIATE USE IN THE DEVELOPING WORLD?

Alvarez: There must be a convergence of several things: a need for the current technology, policy support, social acceptance, and low cost. In the developing world, cost is the most important of these, but there are ways to reduce this cost, through immobilization of the nanoparticles and working with nanomaterials of slightly less purity.

DESPITE THE POTENTIAL OF THIS INNOVATION, THERE MUST BE SOME CONCERN ABOUT THE SECONDARY EFFECTS OF INTRODUCING NANOMATERIALS INTO THE ECOSYSTEM. WHAT IS BEING DONE TO ENSURE THAT THESE INNOVATIONS ARE BENIGN?

Alvarez: Over the past 10 years, there has been a growing consensus that the environmental risks of engineered nanomaterials are far less of a concern than initially thought. These materials undergo transformations in the environment that reduce their bioavailability, their reactivity and their

toxicity. However, that is not an excuse to stop us doing risk assessment. We must select particles that are intrinsically safe and that have been immobilized. Often there are trade-offs: in Montreal, we have the luxury of worrying about things that could kill you in 30 years, such as the chlorine we use in water disinfection; in the developing world, we have to worry about things that could kill you tomorrow. I honestly believe that the benefits of nanomaterials that we have seen so far, vastly outweigh their cost and risk.

HOW WILL THIS RESEARCH BE CONTINUING AT TISED?

Alvarez: The director of TISED, Subhasis Ghoshal, and I have identified several areas for further collaboration. For example, we want to develop enhanced procedures to remove fluorinated organic chemicals from the ecosystem. These are chemicals used in products like fire retardants, and there is a significant worry about these chemicals showing up in newborn babies. We're going to look at a couple of ways of destroying these pollutants through nanotechnology.

YOU' ARE AT THE END OF YOUR SIX-MONTH TISED SCHOLAR-IN-RESIDENCE STAY. WHAT WAS IT LIKE TO WALK THE HALLS OF MCGILL AGAIN, AFTER 35 YEARS?

Alvarez: It was a spiritual gift to come back to McGill, to see some of my old mentors again, and to meet new people who are doing so well. It was a chance for me to be creative, to write, to organize workshops and to introduce some new people to the Faculty as well. There is a lot of intellectual entrepreneurship floating in the air in the Faculty of Engineering, both at the student and faculty level. All in all, it was a very productive trip.

"There is a lot of intellectual entrepreneurship floating in the air in the Faculty of Engineering, both at the student and faculty level."

Dr. Pedro J. J. Alvarez is the George R. Brown Professor of Civil and Environmental Engineering at Rice University, where he also serves as Director of the NSF ERC on Nanotechnology-Enabled Water Treatment (NEWTE).



*Andrew Benedek and Diana Mourato-Benedek during the inauguration
of the Benedek Integrated Laboratories in Environmental Engineering in 2010.*

**“I have this fundamental belief we
are living in a world of wonders,
and that science and human
ingenuity can solve any problem.”**



Andrew Benedek [BEng '66, Hon. DSc '05] is convinced that the power of science can create a better future for humanity. Together with Diana Mourato-Benedek [BSc '81, MEng '83, PhDEng '90], his philanthropy has brought research into water purification in the Faculty of Engineering to a new level.

Andrew Benedek likes to tell the story about the day he decided to become an environmentalist. It was back in the late 1960s, shortly after Rachel Carson wrote her seminal work, *Silent Spring*, about the impact of pesticide use. Benedek had just completed his third year of chemical engineering and had begun working for a small chemical factory outside of Shawinigan. He was tasked with identifying the source of a foul smell that was being reported by residents downstream of the factory.

"I realized over the course of that summer they weren't going to do anything about the problem. And I thought how unfair it was to the people living downstream to have to live with that pollution. In my next job, with Imperial Oil, the same thing was happening: we were polluting the St. Clair River. I realized the company didn't understand what to do about the water pollution, was not trying to find solutions, and that there was no external expertise on what to do. So one day I quit Imperial Oil and went on to graduate school to try to get the expertise to do something about the problem."

He did just that. With audacity and drive, this McGill alumnus, a refugee from Hungary on his own since the age of 13, would help transform the industry of water purification.

A VISION THAT SUSTAINS

Benedek went on to become a professor of water chemistry at McMaster University. He then founded Zenon in 1980, through which he brought some of the most disruptive technologies

to the water purification market: low-pressure membrane bioreactors (MBRs). Within fifteen years, MBR technology went from an industry side discussion to becoming a commodified product. Benedek believed that membranes, the same technique that nature uses to purify water, were the world's answer to water shortages, overuse and pollution.

"It was our vision that sustained us," remembers Benedek. "It wasn't the money. It wasn't even a success. For the first 10 years, everyone thought we were crazy. 'Membranes in wastewater are you crazy?'" By now the company has installed hundreds of systems in more than 45 countries.

Looking for new challenges, Benedek sold Zenon in 2006 and joined the Scripps Institution of Oceanography, where he learned about the effect of climate change on the oceans. Reducing climate change became his new passion.

"I have this fundamental belief we are living in a world of wonders," says Benedek, when asked about his shift of focus, "and that science and human ingenuity can solve any problem. It is up to us to find cost-effective solutions so it can become sustainable."

By 2008, Benedek had sufficient knowledge in low-cost energy production to create a new company, Anaergia, which creates clean energy, fertilizer and recycled water from organic waste. The company provides comprehensive waste sorting and waste-to-energy solutions for countries around the world.

CHANGING THROUGH PHILANTHROPY

Together with his spouse, Diana Mourato-Benedek, who is also recognized for her leadership in water treatment technologies, Benedek established a long history of philanthropy consistent with his desire to create meaningful change. This eventually led to their gift in 2010 to the Faculty of Engineering when they established the Benedek Integrated Laboratories in Environmental Engineering. The labs are tackling a number of environmental engineering challenges, including water purification.

"Our gift to the Faculty of Engineering enables research, but that's just the beginning for us," says Benedek. "Capable and bright students make the world go around, but I think in the future, once we establish Anaergia, Diana and I can be helpful to encourage the commercialization of ideas in the Faculty."

LIGHT, ELECTRICITY, CLEAN WATER

Saloumeh Ghasemian's [PhD '17] research explored a new generation of electrode coatings for electrochemistry-based water treatment. It's an example of the kind of innovations that are being developed in the Faculty through philanthropist-supported research fellowships.

30

As Saloumeh Ghasemian's plane taxied down the runway for takeoff from Montreal's Pierre Elliott Trudeau Airport in March 2017, the cabin steward made an announcement that there would be no hot beverages served on the flight because the City of Dorval had declared its water unfit for drinking. While the passenger beside her gave a disgruntled snort, Ghasemian was unfazed — it was an issue she was well familiar with. The Tehran native, who came to Montreal in 2012, is researching enhanced municipal water-treatment systems.

Her doctoral work in the Faculty of Engineering focused on advanced oxidation processes (AOPs). These processes combine light and electricity to convert persistent organic contaminants such as pharmaceuticals, bacteria and heavy metals into harmless compounds such as carbon dioxide and water. This technique has been around for some time, but scientists like Ghasemian are looking for the magic combination of purification effectiveness, low energy consumption, and

component durability that can make the technology affordable for use on city-wide scales.

Ghasemian's research in the Faculty was supported through the McGill Engineering Doctoral Awards (MEDA), which she credits with bringing her to McGill. She received another boost in the last year of her doctorate, when she won the opportunity to present her findings in front of a crowd of 100 students, scientists and members of the public for the first edition of 'SEDTalks!', the science communication program initiated in 2016 by the Trottier Institute for Sustainability in Engineering and Design (TISED). After receiving six weeks of training in public speaking, Ghasemian was able to get out in front of the audience and talk about her research in an engaging way.

"McGill was an opportunity for me to deepen my roots in Montreal," says Ghasemian "and to create a network of research partnerships that will eventually lead to my post-doctoral research... still at McGill, I hope!"

Saloumeh Ghasseini in the Benedek Integrated Laboratories for Environmental Research at TISED (see page 28 for a story on how the Benedek labs came to be).

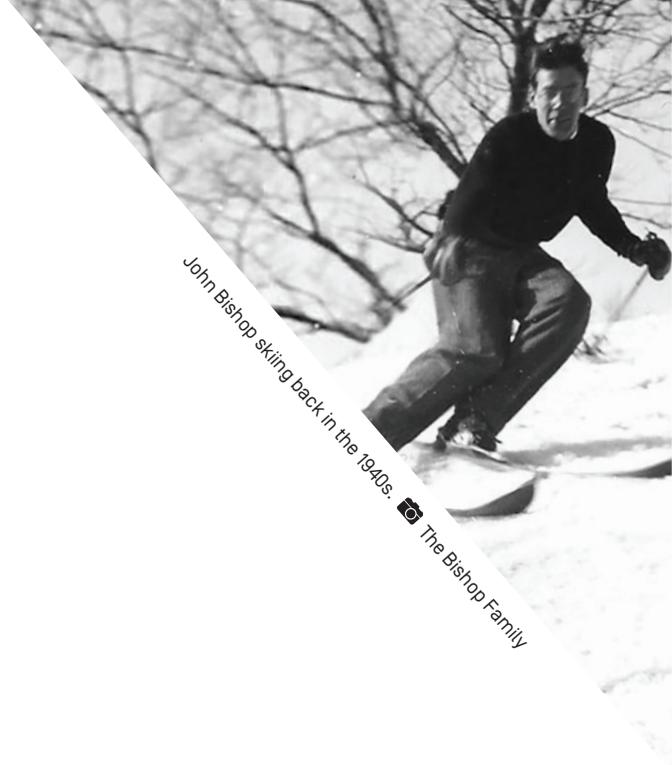


**The James McGill Circle
and the Donor Wall**

The James McGill Circle was created in 2013 for those benefactors whose generosity mirrors that of the University's Founder. Membership in this group is extended to donors whose gifts are in excess of \$1 million, and includes the option of having a benefactor's name displayed on the James McGill Donor Wall, which is located in the Leacock Building. Over 160 names are on display, as a reminder and inspiration to others.



John Bishop has been giving to the Alma Mater Fund (now called the McGill Fund) since 1949.



John Bishop skiing back in the 1940s. 📷 The Bishop Family

THE ENVIRONMENTALIST

By taking only as much as he needed, John Bishop [BEng '47] found a way to give much to others, including multiple gifts to the Faculty of Engineering. It is proof of his commitment not only to his alma mater, but also to the environmental causes that have defined his life.

It is winter 1934, and Upper Belmont Avenue in Westmount, Quebec is nothing more than a long sloping field of snow dotted with trees. On this cold February evening, a young skier appears on the hill, slaloming through a foot of fresh powder that looks like a pale blue blanket in the crisp moonlit night. He swings past a line of thin maple trees, breath steaming up his goggles, and descends towards the lights of a distant limestone house. Thirty seconds later with one last swooping turn, he lands at the side door, spraying snow on the wall. This is John Bishop Jr., at 10 years old.

John Bishop [BEng'47] never lost his passion for skiing, although in later years his focus on the alpine type gave way to cross-country, which he continues to enjoy on the trails around his Laurentian cottage at the age of 93. The appreciation for the outdoors, combined with his values of community and sharing, are the keys to understanding Bishop's ongoing support of education and sustainability in the Faculty of Engineering.

FAMILY VALUES

If you ask him where those values come from, he'll credit the Scouts, the Church, and the Rotary Club, but most of all, his family, who taught him early on the importance of self-sacrifice and sharing. These qualities were part of Bishop's formative years in the middle of the Great Depression.

"My father [ed: John Bishop Sr., BEng'16] was an industrialist who started a metal manufacturing company in the 1920s after he graduated from McGill Engineering," Bishop recalls. "During the Depression, the demand for metal products plummeted, and he could not afford employ all his workers for the same hours. But he spread out those hours as evenly as possible. My mother would offer the workers meals and food, even when our family didn't have enough."

The Bishop family made it through thanks to the parsimony they extended to every resource: they would turn out the lights

when not needed; they were careful about running water; and they reused paper products (Bishop still reuses the envelopes from his mail for note paper to this day). "It's about doing the right thing," says Bishop. "Resources are finite. Why take more than you need?"

ENGINEERING SOLUTIONS

Steeped in these values, Bishop set out to make a difference in his career, and beyond. His first sense of the enormity of the sustainability issue began in the mid-1970s with the oil crisis, and the realization that energy would be a fundamental problem for future generations. It was a problem that Bishop felt engineers could and should solve.

"Engineers take action," he says. "They can solve complicated problems. Once there is a focus—as there is right now on sustainability—engineers can find many different ways to make our products, processes and lifestyles more sustainable."

Bishop made environmental causes his personal duty, and campaigned to protect green spaces in Montreal such as Meadowbrook Park, a 47-hectare area in the west end of Montreal. Over a period of 25 years, Bishop played an important role in winning Meadowbrook's status as a public park in Montreal. It's this type of leadership that forms the basis of Bishop's principled life.

Another root for his sense of duty is The Rotary Club, where he has been a member for over 30 years. He still keeps the club's Four-Way Test on his bedroom wall: "Is it the truth?", "Is it fair to all concerned?", "Will it build goodwill and better friendships?", "Will it be beneficial to all concerned?" For Bishop, it's a test that applies to sustainability in engineering. It is also integral to his sense of philanthropy.

Since 1949, he has unfailingly supported the Faculty's Alma Mater Fund (now known as the McGill Fund). Over the years, he has given to support the position of a Faculty Scholar, created Fellowships and SURE awards, and recently has been seminal in the Faculty's launch of a Master's level program in Sustainable Engineering and Design. In honour of his remarkable generosity, he was invited to join the **James McGill Circle** (see sidebar) in 2017.

"My father has always been proud to support McGill," says Susan Bishop, the eldest of John Bishop's two surviving children. "He feels a great deal of respect and loyalty to the University, and values the community of alumni and staff. This is one of the main reasons why he has been such a faithful contributor."

"Engineers are privileged to receive the education and training they get," concludes Bishop. "They have a responsibility to use those skills and their knowledge to improve the world for future generations. I have always felt that my life has been enriched by trying to do this."

ROCKING THE TECH WORLD

When he is not banging out guitar licks with his rock band, tech entrepreneur Pat Di Pierro [BEng '76, MBA '80] supports young innovators from the Faculty of Engineering. He established the first Innovation Fellowship Award this year; his contribution to making sure that great tech ideas of the Faculty of Engineering stay in Montreal.

Pasquale (Pat) Di Pierro is pretty unassuming about his talents as a musician. His band “Head Office” plays fundraising gigs around town—to pretty good reviews, in fact—but his real passion is for the tech industry. As a supporter of young engineers in the Faculty, his interest is to help those who have a penchant for business to find their legs.

After finishing his bachelor’s degree in Electrical Engineering and then his MBA at the Desautels Faculty of Management, Pat has been at the cutting edge of everything tech in Montreal. Pat is the founder and president of Fonex Data Systems, a telecom equipment supplier that has leveraged innovative technologies to help internet service providers optimize their products for over 25 years. It’s this entrepreneurial experience that he wants to bring to students in the Faculty—to encourage young entrepreneurs to innovate and stay in the city that he loves.

“Montreal has an ecosystem of universities that produces a lot of innovation,” says Di Pierro from his offices in Ville St. Laurent. “Over the past 20 years, there’s been a groundswell

of tech activity with the new focus on gaming in the city. A few years back, I found out that McGill Engineering has also put a lot of emphasis on innovation and entrepreneurship. I can align myself with that vision, as I took a self-starter approach to my career.”

INNOVATION HUB

Di Pierro’s wish is to invest into ideas and give students an environment in which they can put them to test. Just this year he helped launch a new \$50K Innovation Fellowship designed to help enterprising engineering students stay on in the Faculty after graduate studies to commercialize their technologies. The program allows the Faculty of Engineering to provide the researcher access to facilities and entrepreneurial support. The Fellowship will help maximize investments and keep brains in McGill and in Montreal.

His philanthropic impulse began way back in 1979 with a donation to the Faculty’s Annual Fund (now called the McGill Fund). This was followed by the establishment of a scholarship in his family’s name in 2010. But it was with DiPierro’s gift to the first-ever Innovation Awards in 2015 that his desire to help melded with his appreciation for innovation.

In particular, he was intrigued by a company called Ora, the audio-tech brainchild of former McGill Engineering graduate student Peter Gaskell (PhD’17), along with Robert-Eric Gaskell and Jung Wook Hong (two PhD students from the Schulich School of Music). Ora’s GQ Headphones use a patented graphene technology that swaps currently used carbon-based speaker diaphragms for high-quality graphene oxide diaphragms, providing unparalleled fidelity. The Ora team went on to win an Innovation Award and, after launching a highly successful Kickstarter campaign, will soon bring their headphones to the market.

“I am amazed at the types of innovations coming out of McGill, but I think anything that improves the quality of sound is close to my musician’s heart,” says Di Pierro. “McGill enabled me to become myself, to have an outward looking and critical mindset, and to pursue my career; be successful. I credit this to training, environment McGill produced, and that gave me access to people of different backgrounds, different mindsets.”

“McGill enabled me to become myself, to have an outward looking and critical mindset, and to pursue my career; be successful.”

Pet DiPierro began giving to the Faculty in 1979, and in 2015 his gift helped launch the first-ever Innovation Awards.



FROM JAKARTA TO MONTREAL

Alumni from the Faculty of Engineering have spread far and wide, living in all four corners of the globe. But no matter where their careers may have taken them, they all share a feeling that their years at McGill had a profound effect on their lives—something they are eager to share with the next generation of students. In Indonesia, a cluster of alumni keep their ties to McGill alive, and support future graduates through their philanthropy.

DJATI WALUJO [BENG '73] - JAKARTA, INDONESIA

Djarti Walujo remembers that before he came to study at McGill, a visiting US politician referred to Jakarta as a “big village.” It was a statement that Walujo didn’t necessarily disagree with: modernization had not yet arrived in the largely agrarian nation.

“Indonesia was a developing country at the time. Spending time in Canada and at McGill opened both my eyes and my horizons,” says Walujo over the phone from Jakarta. “Canada was one of the most technologically advanced countries in the world.”

Walujo was determined to see a change in Indonesia, and this desire stuck with him through the 10,000-km trip he made to Canada to receive his education. He discovered role models and received an education at the McGill Faculty of Engineering that would inspire him to help foster change in his native country.

“McGill taught me the analytical and practical skills that have helped me in business. Even my associates comment on my logical, line-by-line approach to business. What I learned from the school and from my summer jobs in British Columbia played an important role in making my future business successful.”

The business that Walujo eventually founded is HSI, one of the largest manufacturers of high-quality ceramic tableware in Indonesia. It’s a business he built from the ground up (“But it was not always smooth sailing,” he is quick to add with a laugh). Today, with over 1,500 employees and customers around the world including major brands such as H&M, John Lewis, Starbucks and many others, HSI is an industry leader whose expansion has mirrored the growth of Indonesia over the past forty years.

Global alumni:

Our graduates live in every corner of the globe

Africa

136 alumni

Asia

1165 alumni

Australia

82 alumni

Europe

572 alumni

Indonesia

27 alumni

North America

23,885 alumni

South America

205 alumni

Even though Walujo considers himself to be an “old-school” businessman, he lacks no appreciation for the disruptive innovations that are present in the world today. As an example of this, he points to one of his own sons, Sugito Walujo, an executive with a private equity investment firm. One of his investments, a ride-sharing firm called Gojek, is a phenomenon in the Indonesian economy that is now seen as a rival to American giant Uber.

“University education has been essential to upgrade people’s knowledge and to train leaders of society to think differently,” says Walujo, whose endowment created the Irma and Djarti Walujo Scholarship in Engineering in the Faculty. “When I give to the Faculty, I know that I am helping students to become these leaders.”

Spotlight on Indonesia

Although they sit on opposite sides of the earth, strong bonds continue to connect McGill and Indonesia. Through networks such as the Montreal Indonesian Society, McGill alumni who have returned to Indonesia remain in touch with each other and relive their student days. The society was launched in 1977 by Faculty of Engineering alumnus Rully Tashman-Nuhlman [BEng '76], who reached out regularly to the friends he made while at McGill, and also to students who had attended other Montreal-area colleges and universities. With over 100 members, the group continues to meet (in person and online – they are highly active on WhatsApp), and keeps the connection to Montreal and McGill alive and well.



FACULTY BENEFACTORS

IMPLEMENTING MEANINGFUL INITIATIVES, DEVELOPING LIFE-CHANGING INNOVATIONS,
CONDUCTING GROUNDBREAKING RESEARCH: THE ONE CONSTANT IN ALL OF THESE CRUCIAL
ACTIVITIES IS THE INVOLVEMENT AND CONTRIBUTIONS OF OUR DEDICATED ALUMNI.
THANKS TO YOUR SUPPORT, WE ARE FACING TOMORROW'S CHALLENGES, TODAY.
THE FOLLOWING LIST RECOGNIZES INDIVIDUALS, CORPORATIONS, AND FOUNDATIONS WHO
HAVE MADE A GIFT OF \$25,000 OR MORE TO OUR FACULTY SINCE MAY 1, 2013.

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Mr. John M Bishop [BEng'47]

Mr. Robert G H Lee, CM [BEng'47]

Mr. Alexander Anderson McGregor [BSc'48]

Mr. Kenneth J Radcliffe [BEng'48]

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Mr. John D Thompson [BEng'57]

Mr. Ian A Soutar [BEng'58] and Mrs. Helgi Soutar [BSc'58]

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Dr. Toby Gilsig [BEng'61] and Mrs. Clare E Gilsig

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Mr. Toomas Paasuke [BEng'64]

Mr. Seymour Schulich, OC [BSc'61, MBA'65]

Mr. Robert Andrew Walsh [BEng'65] and Mrs. Denyse Walsh

Mr. Rubin Gruber [BSc'65]

Dr. Eric L Adler [PhD Eng'66] and Mrs. Lee Adler

Mr. Howard Stotland [BEng'66] and Mrs. Vivian Miller

Dr. Choong Kong Chen [BEng'67, PhD Eng'72]

Mrs. Leondra Adler [MA'67]

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Mr. Salvatore Furino [BEng'72] and Mrs. Joanne Furino-Remillard

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and Mrs. Karen Mackinnon [BCom'86]

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Mr. Paul Cmikiewicz [BEng'86]

Mrs. Alina Osorio [BEng'90] and Mr. Jorge Osorio [BEng'89, MEng'91]

Mr. Feng Lu [MEng'90]

M. Mark Levine [BEng'91] and Ms. Candice Alper



A phoenix rising from the flames on the south wall of the Macdonald Engineering Building reminds us of the terrible fire in 1907 that destroyed the original structure. The building we know today was rebuilt and re-opened in 1909, once again with the support of Sir William C. Macdonald.

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Generous Benefactors Remembered

The Faculty of Engineering is profoundly grateful for the bequests, both large and small, that it has received from alumni and friends. Following is a list of bequests that the Faculty received through to the end of the last fiscal year, which ended on April 30, 2017.

Estate of Beatrice and Jason Waller [BEng'36]
Estate of Hugh Lamb [BEng'40]
Estate of John L Darby [BArch'41]
Estate of Paul Tudor [BEng'48]
Maurice Corbeil [BEng'55]
Estate of Livio DeSimone [BEng'57, DSC'94]
Estate of Henry E Golba [BArch'60]
Estate of Christian M Feise [BArch'65]
Estate of Sonya Ward

THE FACULTY AT A GLANCE: HOW YOUR GIFT MAKES A DIFFERENCE

GIVING

5,409

INDIVIDUAL DONORS (INCLUDING ANNUAL FUND DONORS) SINCE 2013

162

MAJOR GIFTS SINCE 2013

8

COUNTRIES OF DONOR ORIGIN

20

CHAIRS, FACULTY SCHOLARS AND PROFESSORSHIPS WERE SUPPORTED

FUNDING DISTRIBUTED TO

UNDERGRADUATE STUDENTS IN 2016-2017

Scholarships	\$1,161,097.00
Bursaries	\$2,203,228.00
Loans	\$1,051,428.00
Research (SURE)	\$710,250.00
Total	\$5,126,003.00

FUNDING DISTRIBUTED TO GRADUATE

STUDENTS IN 2016-2017

University provided Graduate/ Postdoctoral Studies funding	\$4,700,000.00
Faculty donor funding	\$1,600,000.00
Supervisor funding	\$922,250.00
Total	\$7,222,250.00

PHILANTHROPIC IMPACT IN

THE 2016/17 ACADEMIC YEAR

199

STUDENTS WERE SUPPORTED BY SCHOLARSHIPS

65

DONOR-FUNDED SURE TRAINEESHIPS WERE AWARDED

126

DONOR-FUNDED FELLOWSHIPS WERE AWARDED

130

STUDENTS RECEIVED ENTRANCE SCHOLARSHIPS

243

STUDENTS RECEIVED BURSARIES

In 1864, after a decade of inadequate public support, McGill was forced to eliminate Engineering from its course offerings for lack of funding. In 1871, a special fundraising effort was undertaken to re-establish Engineering. Thanks to commitments from Peter Redpath, John H.R. Molson, G.H. Frothingham and others, \$12,000 was committed to ensure the security of the Faculty of Applied Science and its Engineering courses for years to come.



THE FACULTY TODAY

151

PROFESSORS

6

DEPARTMENTS

- Bioengineering
- Chemical Engineering
- Civil Engineering and Applied Mechanics
- Electrical and Computer Engineering
- Mechanical Engineering
- Mining and Materials Engineering

2

SCHOOLS

- Architecture
- Urban Planning

3

INSTITUTES

- Trotter Institute for Sustainability in Engineering and Design (TISED)

- McGill Institute for Aerospace Engineering (MIAE)
- McGill Institute for Advanced Materials (MIAM)

6

RESEARCH CENTRES

- Centre for Advanced Systems & Technologies in Communications
- Centre for Intelligent Machines
- Brace Centre for Resource Management
- Plasma Technology Centre

- McGill Aerospace Materials & Alloys Development Centre
- Yan P. Lin Centre (with Faculty of Arts)
- Systèmes, technologies et applications en radiofréquence et communications (STARaCom)

GRADUATE PROGRAM

DEMOGRAPHICS

1,209

GRADUATE STUDENTS

54%

INTERNATIONAL STUDENTS

28%

STUDENTS FROM QUEBEC

17%

STUDENTS FROM THE REST OF CANADA

31%

FEMALE STUDENTS

UNDERGRADUATE PROGRAM

DEMOGRAPHICS

3,403

UNDERGRADUATE STUDENTS

34%

INTERNATIONAL STUDENTS

45%

STUDENTS FROM QUEBEC

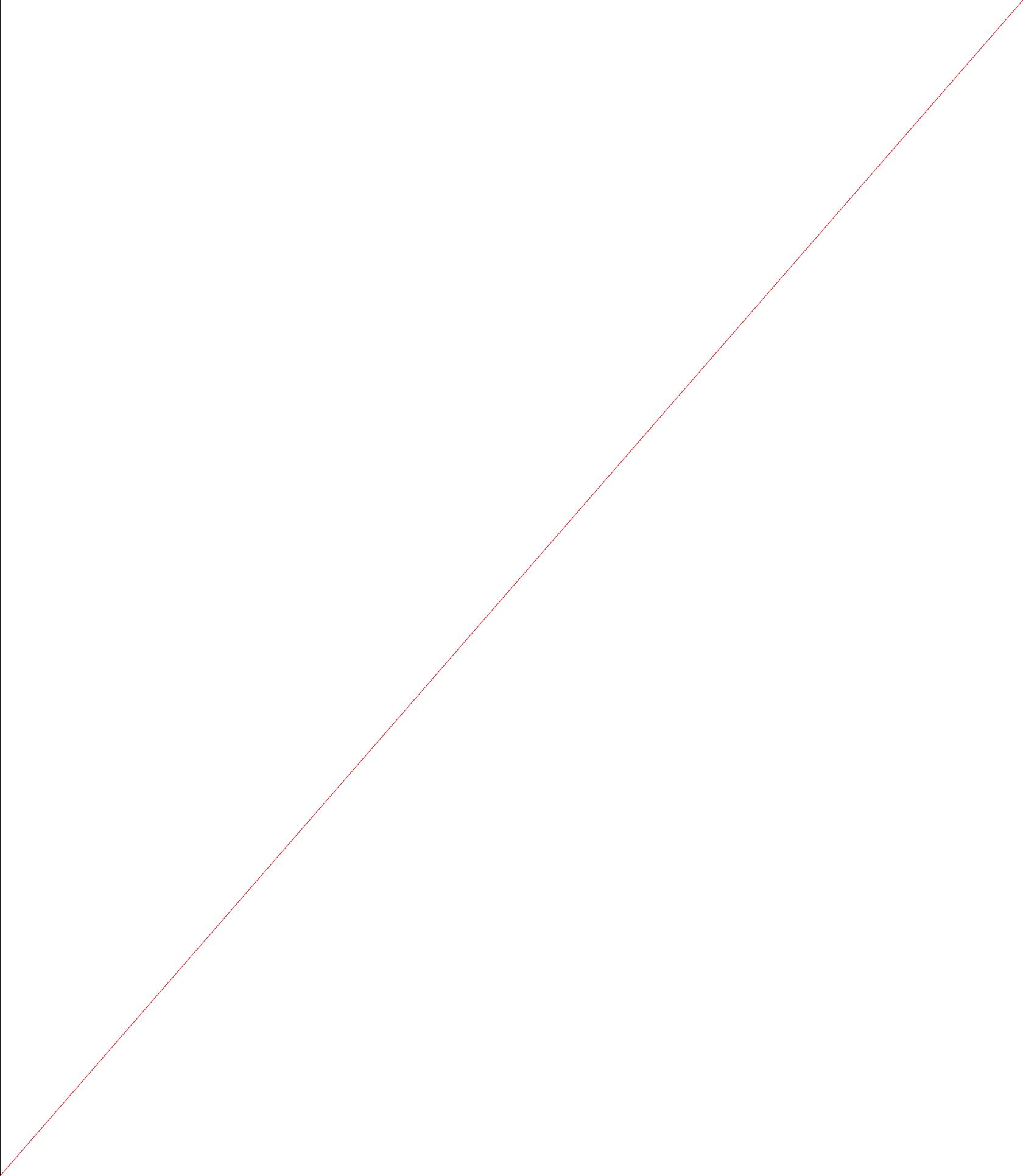
21%

STUDENTS FROM THE REST OF CANADA

30%

FEMALE STUDENTS

THANK
YOU.





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