

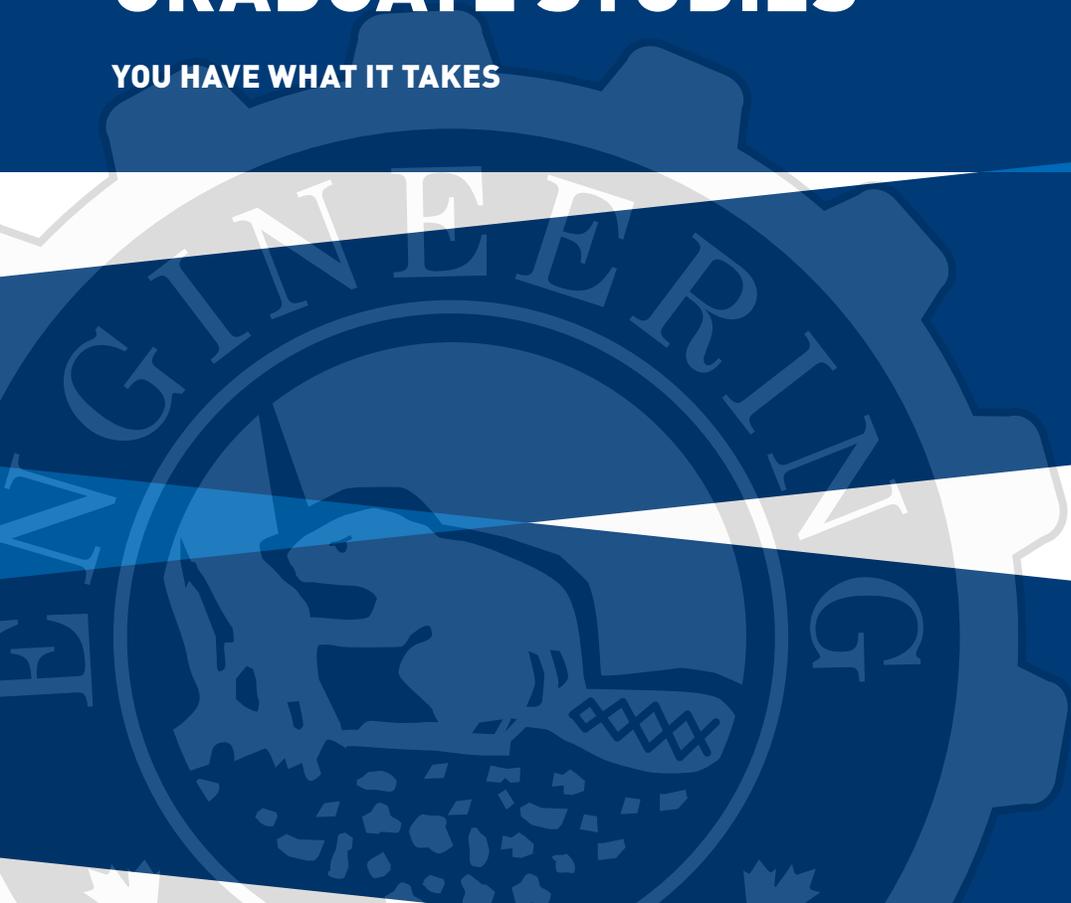


UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING



GRADUATE STUDIES

YOU HAVE WHAT IT TAKES





When it comes to changing the world, the best place to start is with an engineering graduate degree from the University of Alberta.

You're ready for this

Further your studies. Strengthen your technical skills. Build your professional network. Take charge of your future.

Located in the heart of Western Canada, the University of Alberta is ranked as one of the top five universities in Canada. Our engineering programs are among the very best, world-wide.

Grad school is a journey that can change the trajectory of your career, open doors to exciting opportunities, and increase your earning potential.

This is an investment in your future.

Earning your MSc, PhD or MEng at the University of Alberta is the first step in building a rewarding career that includes leadership positions in industry, government and academia.

Discover where your career in engineering can take you.

Visit uab.ca/engineering for more information.

Do the research—you'll find we have a lot to offer

We are the home of research excellence in Canada, and the place to be for leading-edge, interdisciplinary research in engineering.

With over 200 professors and roughly 1,600 graduate students, the University of Alberta Faculty of Engineering is a vibrant research community that attracts over \$65 million in sponsored research funding from external sources annually. The Faculty is one of the most successful in attracting Natural Sciences and Engineering Research Council of Canada (NSERC) funding and leads the country in securing NSERC Industrial Research Chairs.

The Faculty of Engineering is home to:

- 16 Canada Research Chairs
- 16 NSERC Industrial Research Chairs—more than any engineering faculty in Canada
- 2 Foundation Supported Chairs
- 16 Endowed Chairs and Professorships

Research conducted by our faculty members fall into six clusters:

- Nanotechnology and Nanoscience
- Biological/Physical System Modelling and Science
- Information and Communications Sciences and Technology
- Advanced Materials and Structures
- Resource Management
- Design and Manufacturing

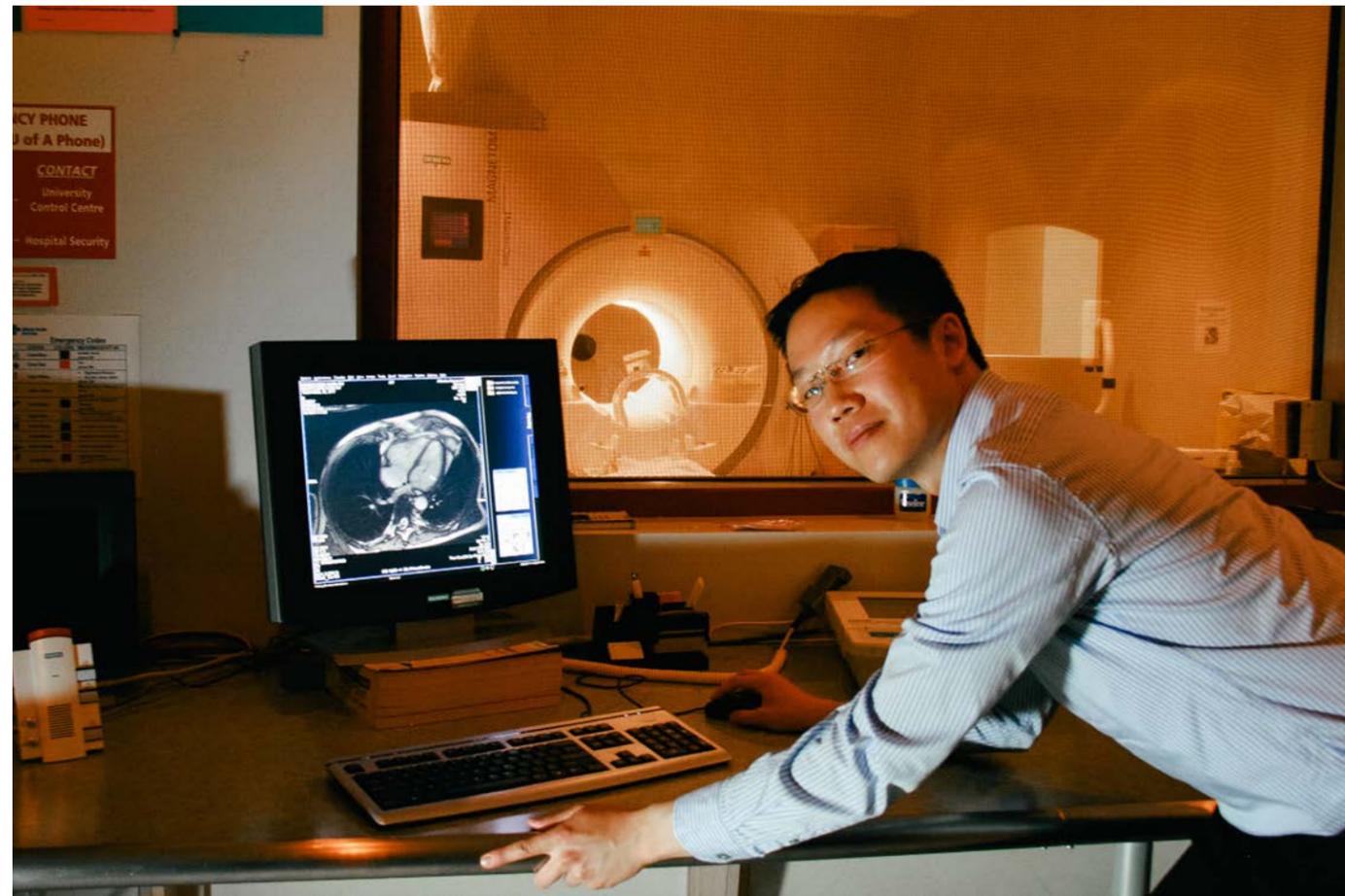
Our engineering professors are accomplished researchers, with a top five collective research publication record across North America. The university is a world leader in energy- and environment-related research publications. In addition:

- Over 60 engineering professors are conducting research into safe, smart and sustainable communities. This includes waste water, construction, transportation, building materials and more.
- More than 40 faculty members are working directly on nanotechnology-related research projects.
- Nearly 60 engineering professors are researching areas related to information and communications technology, including sensing, signal processing, artificial intelligence, cybersecurity and more.
- Almost 40 engineering faculty members are involved in biomedical research, including regenerative medicine, medical diagnostic systems, drug delivery, advanced prosthetics and more.

Visit uab.ca/engresearch to learn more about the research opportunities available. Applications for master's and PhD programs are handled by the Faculty of Graduate Studies and Research, and individual departments.



The Geomechanical Centrifuge Experimental Research Facility boasts a 50g ton beam centrifuge.



The Peter S. Allen Magnetic Resonance Centre is a dedicated medical imaging biomedical research facility.

Places to go, things to do

You're an engineer. You have a good idea of the interesting and challenging work you want to dive into. Here are a few of the research facilities you might find yourself working in at the University of Alberta. It's like a playground for really curious people—like you.

nanoFAB

While primarily supporting graduate-level research and training, this open-access facility also caters to undergraduate and industrial users. nanoFAB specializes in micro- and nano-scale fabrication and characterization. Its advanced suite of tools include Canada's only Jeol 200kV Cs-corrected atomic resolution TEM and one of only three Helium Ion Microscopes in Canada. nanoFAB is the largest facility of its kind in Canada, enabling researchers and industry to turn innovative ideas into finished products. Visit www.nanofab.ualberta.ca to learn more.

Nanotechnology Research Centre

Our campus is home to the \$52M Nanotechnology Research Centre. This facility houses the National Research Council-UAlberta Nanotechnology Initiative and offers opportunities for you to conduct research with some of the foremost experts in the world.

Learn more about our research environment at uab.ca/engresearch

Oil Sands Tailings Research Facility

Located in Devon, Alberta, this facility supports substantial fundamental tailings research at a pilot scale and accommodates multiple, concurrent interdisciplinary research projects. Visit uab.ca/ostrf to learn more.

Peter S. Allen Magnetic Resonance Research Centre

Part of the Department of Biomedical Engineering, this is a 100 per cent research dedicated, state-of-the-art MRI facility located inside the University Hospital. Expanded through a \$17.5M grant from the Canada Foundation for Innovation, the centre houses 1.5 T, 3 T and 4.7 T full-body MRI systems. Visit www.mri.ualberta.ca to learn more.

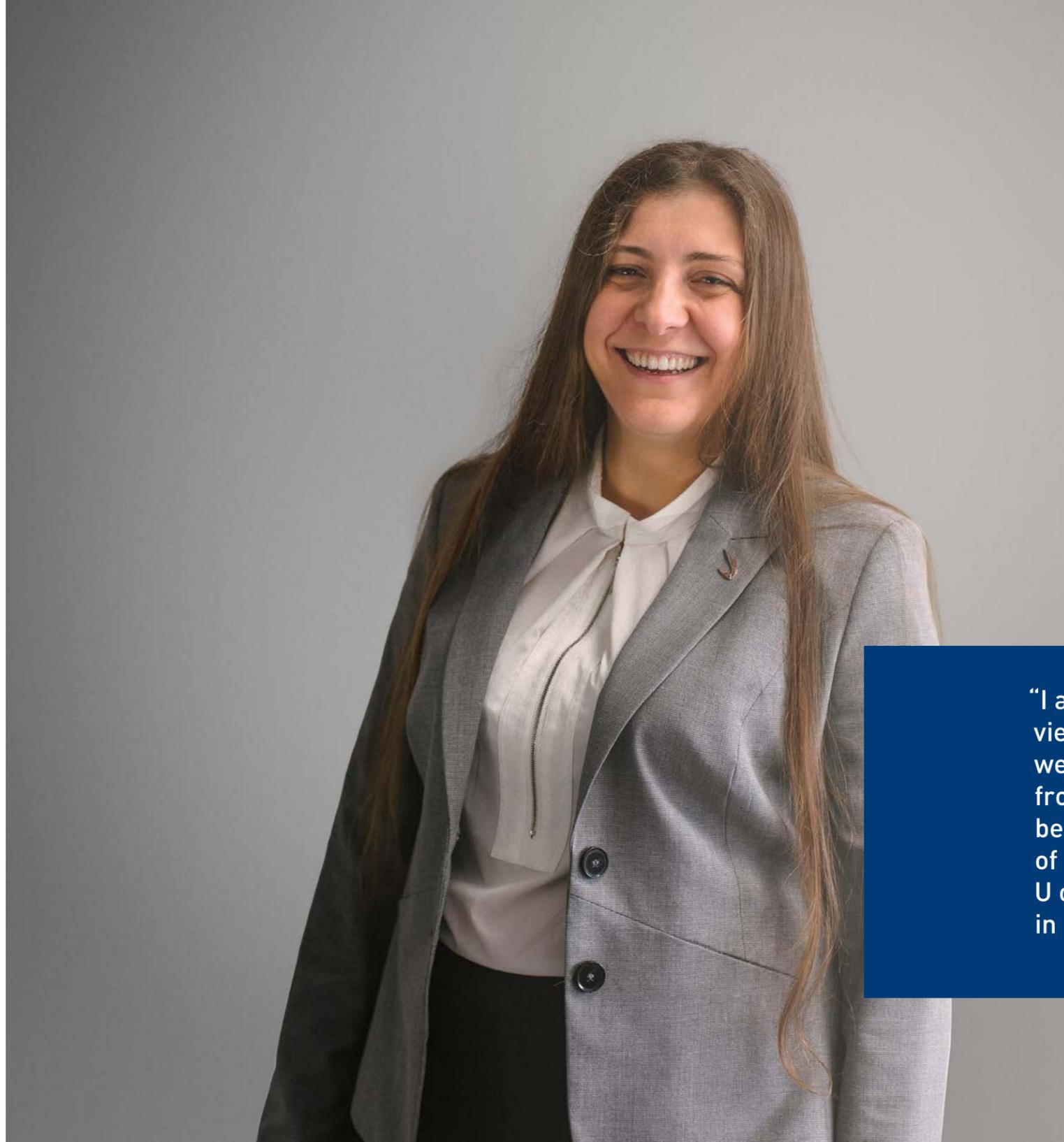
Learn more about our research environment at uab.ca/engresearch



Based in the Electrical and Computer Engineering Research Facility, nanoFAB is an open-access centre equipped with \$85M worth of infrastructure and research tools.



The U of A campus provides a fun, vibrant life as well as outstanding educational and research opportunities.



Why did the engineer go back to school?

ELENA ZABOLOTNII, PEng

PhD candidate in Geotechnical Engineering

MEng in Geoenvironmental Engineering '16

BASc in Environmental Systems Engineering '11

“I always took the viewpoint that we need to learn from the very best. In my field of specialization, U of A is a leader in Canada.”

“Since I was young, I enjoyed building things with my hands,” said Elena Zabolotnii. “When I moved to Canada, I realized that I could do whatever I enjoyed doing, even if this meant a less gender-traditional occupation like engineering.”

Engineering appealed to Elena because it allowed her to design and build things—meaningful things—something she is certainly doing in her PhD studies in geotechnical engineering at the University of Alberta.

Elena chose to specialize in Geotechnics because, as she said, “It is a perfect marriage of geology and civil engineering, two fields I am interested in. I have a particular interest for landslides and slope failures.”

Her research has been focused on the 2014 dam failure at the Mount Polley Mine in British Columbia, and in the engineering behaviour of the natural and man-made earth materials involved in the failure.

She also noted that geotechnical engineers spend a lot of time in the field, and for someone who does not like stuffy buildings it provides a good balance between being outdoors and working indoors. “When I worked in

consulting engineering, I got to jump into my work truck and visit my project sites all summer long,” adds Elena. It was during her work as a consulting engineer that she was able to acquire good practical experience. Elena says that the training at the University of Alberta helped her understand the theoretical underpinnings of many of the engineering practices she was exposed to. “My field work taught me the ‘how’ and the U of A showed me ‘why,’” she said.

Elena says proudly that she truly has the mind of an engineer, admitting to redesigning things around her all the time to function better, function differently, or just for the fun of seeing what will happen. This need to improve things around her may have been one of the reasons she was chosen as a recipient of the prestigious Vanier Canada Graduate Scholarship, awarded in recognition of academic excellence and leadership.

Now in the process of finalizing her research, Elena is looking to transition into academia and is working toward her goal by teaching classes as a sessional instructor in the summers.

Visit uab.ca/enggrad for more information

Carving an entrepreneurial path in robotic vehicles

NICOLAS OLMEDO

PhD candidate in Mechanical Engineering

BSc in Mechanical Engineering '10

As a young boy from Quito, Ecuador who liked to build his own toys, Nicolas Olmedo always knew engineering was where he'd end up—especially after learning engineers were the ones who build everything. Today, he's pursuing his PhD in mechanical engineering at the University of Alberta, specializing in field robotics for environmental monitoring.

It was during his undergraduate studies, with the University of Alberta Aerial Robotics Group, that he met two like-minded individuals that would become his colleagues in both grad school and beyond. Not only did Nicolas, Stephen Dwyer and Jamie Yuen enjoy competing against other universities, they found they worked really well together. The trio's fourth-year capstone project won a national prize for designing a drill for a Mars exploration vehicle.

Nicolas chose the University of Alberta for his post-graduate degree because of the people and the research topic. Prior to completing his undergraduate degree, he'd already worked with

professor Michael Lipsett, one of his current supervisors. "The research projects Dr. Lipsett had going on were also particularly interesting to me," said Nicolas. "I always thought robotics was a very promising field that could change how things are commonly done."

Nicolas' research expands on technologies developed for Mars exploration and tailors them for investigating terrains too dangerous and expensive to send human workers, such as oil sands tailings. But that's not the only iron he has in the fire. Along with his graduate studies, Nicolas founded Copperstone Technologies with Dwyer, Yuen and Lipsett. Copperstone offers autonomous amphibious robots for environmental monitoring, specifically for harsh environments.

"Graduate studies provides the time and structured learning to learn high-level topics and the opportunity to apply them in solving very challenging problems," said Nicolas.



"I chose to specialize in field robotics for environmental monitoring because I knew it was going to be an interesting area in research and was going to have high industrial impact."

He's had the chance to present research results in academic conferences, industry conferences and innovation summits, and meet industry sponsors and collaborators.

What's next for Nicolas, whose career goal is to lead an established high-tech development company? He answered, "Finish my PhD and then work full-time on the startup."

It's a matter of degrees

If you currently hold a degree in engineering or a related field and are considering entering a master's or doctoral program, the Faculty of Engineering offers a number of post-graduate degrees through our five departments—**Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, and Mechanical Engineering.**

Master of Science (MSc) is a full-time, research-based degree concentrating on one area of study, developing more advanced skills and knowledge that will benefit you as you enter or re-enter the industry.

Doctor of Philosophy (PhD) is a rigorous, research-oriented degree that takes specialization to the next level, builds on your analytical skills, and leads to careers in academia or corporate research and development.

Master of Engineering (MEng) is a course-based degree intended for the working professional and internationally trained professionals interested in becoming familiar with North American industry.

The **Engineering Management MEng, MSc and PhD** degrees provide unique graduate opportunities that allow you to broaden your management knowledge and expertise for leadership in technical organizations.

Visit uab.ca/engprograms for a full list of the degrees we offer.

MBA/MEng combines advanced engineering knowledge with managerial skills for a competitive advantage in the global marketplace. This degree program is offered jointly with the Alberta School of Business.

Master of Science in Internetworking (MINT) is a two-year course-based degree focused on Internetworking leadership training. This degree program is offered jointly by the Departments of Electrical and Computer Engineering and Computing Science.

The **MD-PhD** program allows you to earn both **MD** and **PhD** degrees, preparing you for a career as a medical research scientist. To be accepted into this program, you must have already been accepted into the MD program, and have the approval of the MD/PhD Committee. This combined degree program is offered jointly by the Faculty of Engineering and the Faculty of Medicine & Dentistry.

Opportunities and support

Faculty of Graduate Studies and Research

All graduate students at the University of Alberta register through the Faculty of Graduate Studies and Research. The FGSR works with faculty, students and staff across the university to promote excellence in graduate education.

Visit uab.ca/gradstudies to find out more about FGSR.

Scholarships and awards

The University of Alberta has one of the most generous awards and financial aid programs in the country, and among the highest graduate student funding rates in Canada.

Visit uab.ca/gradawards to learn more about funding your graduate studies through a myriad of scholarship and award opportunities.

Financial support

Our professors are highly successful at attracting research funding ensuring, in most cases, that students receive financial support for their research-based graduate programs. Financial aid is available for students who need additional financial support beyond awards, scholarships and prizes.

Visit ualberta.ca/graduate-studies/awards-and-funding/financial-support for information on bursaries, student loans and tuition payment options.

Enhanced professional development

Professional development is the active acquisition of skills, knowledge and mindset to realize your strengths and potential in all environments—setting you up for success within the context of a changing world.

Visit uab.ca/gradpd for information about the mandatory professional development component for all University of Alberta graduate degrees.

Graduate Student Internship Program

The Graduate Student Internship Program allows graduate students to gain valuable work experience through paid, meaningful internships in the private, public and not-for-profit sectors. GSIP provides funding for employers to hire graduate students to support a business need.

Visit uab.ca/gsip to learn more about the program.

Mitacs employment opportunities

Mitacs is a national organization focused on research and training for domestic and international undergraduate, graduate students and postdoctoral fellows within universities, industry and government in Canada.

Visit mitacs.ca

Networking that works

We're talking about making connections here, real working relationships with people you can learn from, and who can help shape the course of your career.

During your graduate studies at the University of Alberta Faculty of Engineering, you're destined to meet people who will change your life. You'll work alongside some of the best and brightest minds anywhere—our student researchers, professors, supervisors and faculty. The networks and friendships you build will carry forward into your personal and professional life.

Visit uab.ca/engprofs for the directory of engineering professors, searchable by department and research area.

Working well with others

Partnerships between the Faculty of Engineering, industry, and engineering professionals enrich your learning and research programs offered and have far-reaching impacts. These partnerships support 16 NSERC Industrial Research Chairs and 16 additional endowed chairs and professorships.

Visit uab.ca/echr to learn more about our industrial partnerships.



"I'm Diné (Navajo) and part of our culture is to respect Nahasdzáán ("our mother" or earth). I wanted to do something that could be of benefit to everyone and the earth."

Respecting values, protecting the environment

CHELSEA BENALLY

PhD in Environmental Engineering '18

MSc in Chemical Engineering '04

BSc in Chemical Engineering '02

Chelsea Benally had always liked science and math in school and knowing that there were fewer women and Indigenous people in engineering was just added motivation to learn. After earning her BSc and MSc degrees at the University of Arizona and then working as an engineer, she decided to pursue her PhD in environmental engineering at the University of Alberta.

Environmental engineering was an area that Chelsea was keen to work in. She had an ongoing interest in water remediation, which is very important in the southwestern United States where she's from. Her research entailed working to clean Oil Sands Process-affected Water (OSPW) using two different methods: membrane filtration and adsorption. "For the

membrane work I made the membranes, characterized them, and then used them to filter the OSPW," adds Chelsea. "For the adsorption work I

used a carbonaceous material that was already made by a post-doc in our group."

Chelsea's grad studies certainly afforded her some good networking opportunities. She participated in a number of conferences that helped expand her network in the area of water remediation, and through her classes she took advantage of networking opportunities with fellow students. "I like that my program had many different people from all over the world," said Chelsea. "There are so many intelligent and helpful people that I got a chance to work with."

When asked what her plans were going forward she answered, "I just started a post-doc with Dr. Ania Ulrich in the Civil and Environmental Engineering department at the University of Alberta. I'd like to eventually do work that's connected to water and to Indigenous communities here in Canada and in the United States."

Learn by doing the work

Engineering graduate studies at the University of Alberta is more than theories and ideas—it's about rolling up your sleeves, testing your ideas and doing the work, strengthening your technical skills alongside leading researchers and professors in your field.

One of the key benefits of your engineering graduate studies is that you will be pushed to develop technical skills and specialized knowledge. You'll elevate your level of expertise and open up professional opportunities for yourself.

Gain technical skills doing meaningful research in large-scale, long-term collaborative research programs. Some of the research centres you can be part of are shown here.

Canadian Centre for Clean Coal/Carbon and Mineral Processing Technologies

This research and education centre supports sustainable and responsible energy and mineral development. Research at C⁵MPT addresses clean coal, mineral processing and carbon capture. Visit uab.ca/cmpt to learn more.

Helmholtz-Alberta Initiative

This international research partnership between the Helmholtz Association of German Research Centres and the University of Alberta jointly develops

solutions to major challenges in energy and the environment, ecosystem and resource informatics, and health. Visit helmholtz-alberta.org to learn more.

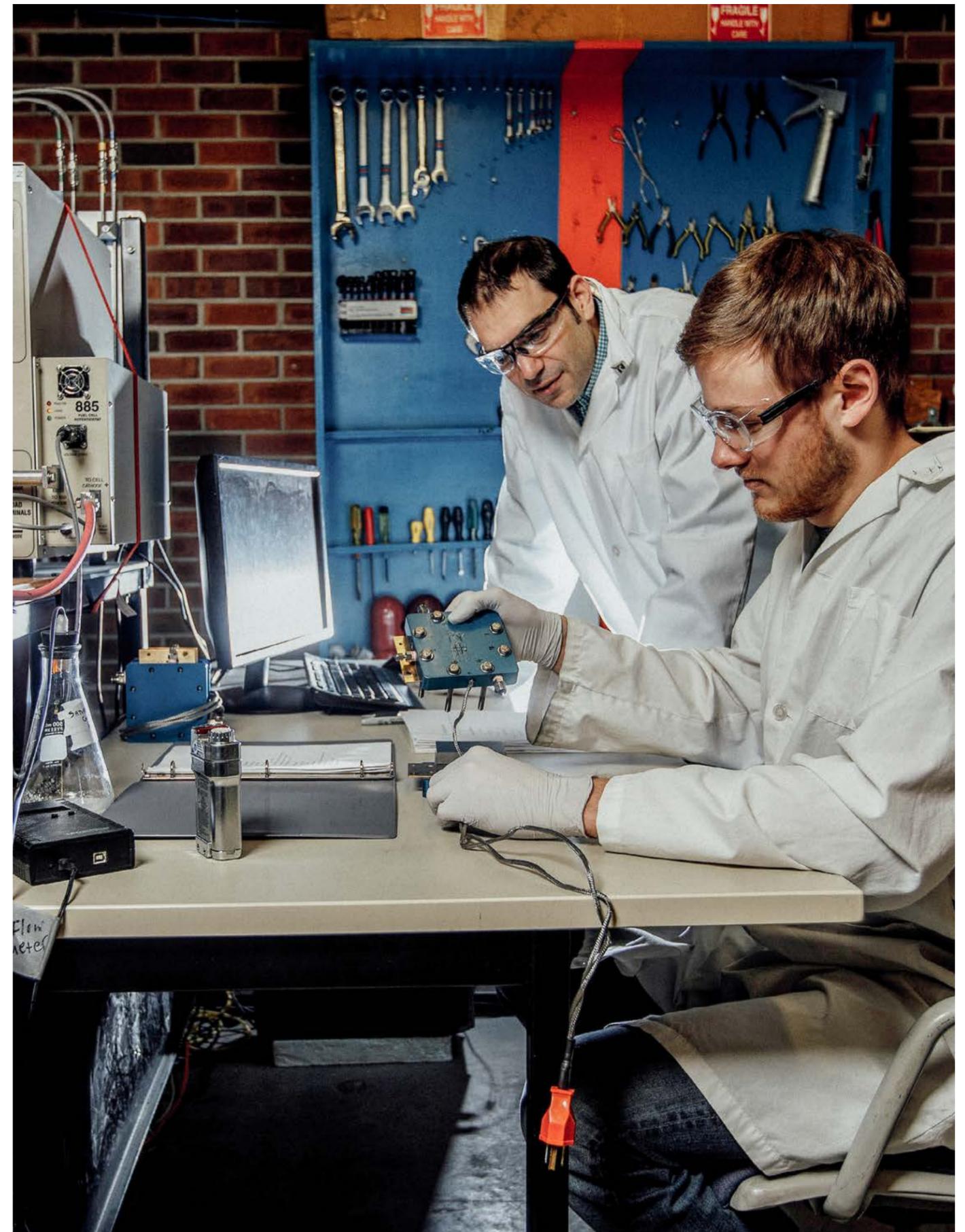
Institute for Oil Sands Innovation

This \$50M multidisciplinary research centre focuses on developing the oil sands production facility of the future—one that uses little or no water, consumes less energy, occupies less area, integrates upgrading operations, and costs less to build and operate. Visit uab.ca/iosi to learn more.

Future Energy Systems

With \$75M in funding from the Canada First Excellence Research Fund, the Future Energy Systems research program cuts across virtually every faculty at the University of Alberta. Faculty of Engineering researchers play a crucial role in over a dozen projects aimed at energy efficiency and environmental protection. Visit futureenergysystems.ca to learn more.

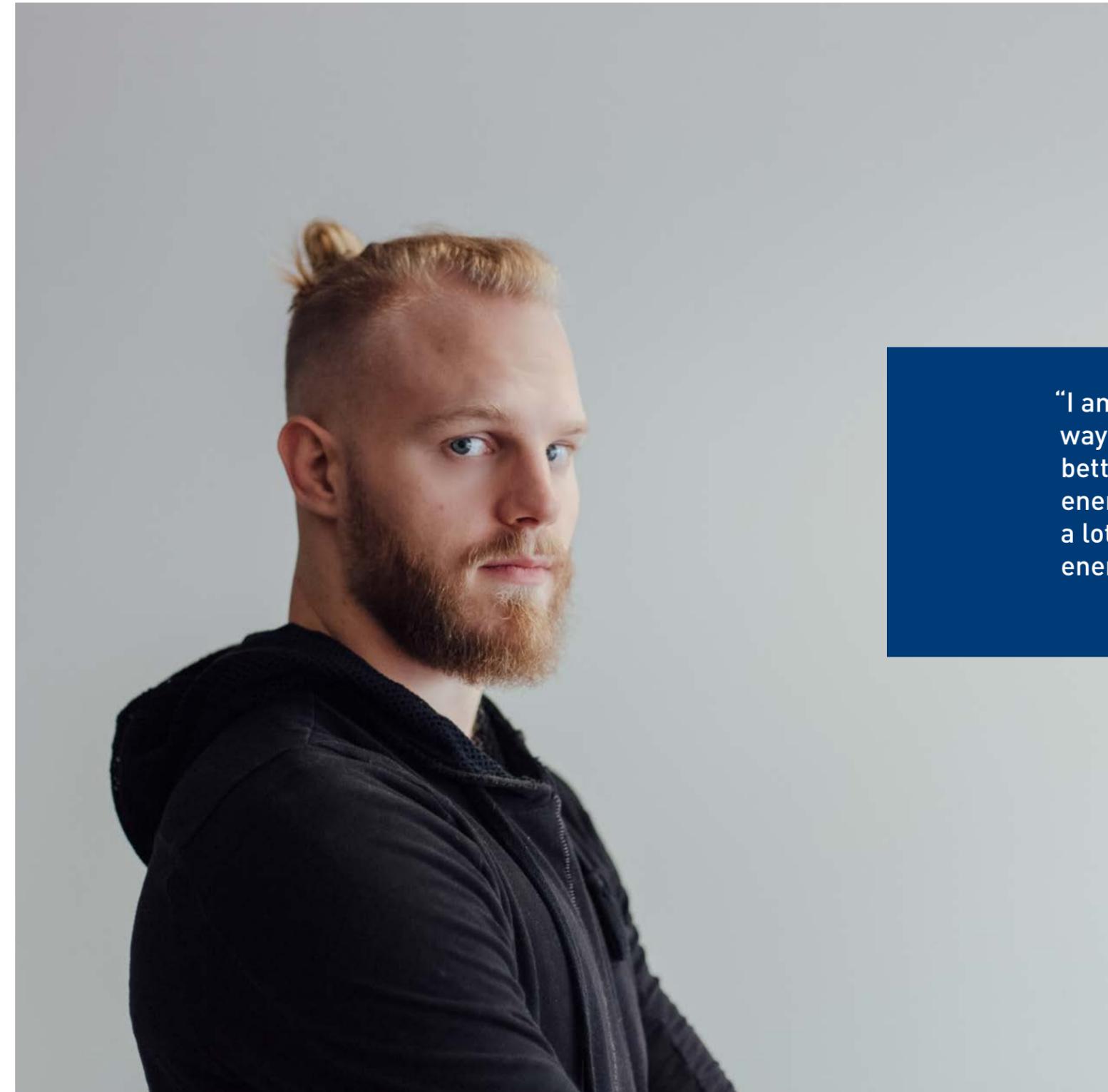
Visit uab.ca/engresearch to learn more.



Future Energy Systems researchers tackle grand challenges around responsible resource use, technology for sustainable energy, and environmental stewardship.



Visit uab.ca/enggrad for more information



“I am researching ways to enable better control of energy systems with a lot of renewable energy supply.”

Focusing his energies on controlling renewable energy

DANIEL MAY

PhD candidate in Electrical and Computer Engineering

MSc in Electrical and Computer Engineering '16

BSc in Electrical and Computer Engineering '13

After completing his master's degree at the Technical University of Munich, Daniel May came to the University of Alberta for his PhD. Compared to other opportunities he had, Daniel chose Edmonton as it was a better fit for himself and his wife. “I essentially got

the opportunity to pick exactly what I want to research and just go with it,” said Daniel.

Daniel always liked physics while growing up and, after building a guitar amplifier but not having any idea how or why it worked, he figured electrical engineering might be the place to start. He admits that during his undergrad, his interests

were all over the place. “But, during my master's, I honed in on renewable energies and got super into system control. The transition to machine learning/artificial intelligence-based control is really straightforward from there, at least to me,” he said.

Daniel is currently working on a deep learning time-series model that can forecast photovoltaic generation, residential load and more, in a more accurate and representative way than classic methods. Along with colleague Steven Zhang, Daniel is working on building an integration framework/technology stack for distributed energy resources, which can be used in things like electric vehicles and residential photovoltaics. “That collaboration kind of came together in my first year here, so I am excited to see how this will go,” Daniel said.

Daniel acknowledges that his technical skills have definitely grown, mostly in programming and in his understanding of artificial intelligence. “My long-term goal would simply be to be in a position where I am financially well rewarded for doing the stuff I like, which is solving problems,” he said.

Leaders are made here

Pursuing your graduate degree in engineering at the University of Alberta is an empowering experience. Not only will you open up career opportunities for yourself, you'll be able to foster your own personal growth through the acquisition of skills, knowledge and the ability to see your strengths and potential in all environments.

Working with and leading multidisciplinary teams, mentoring undergraduate students, making presentations at conferences and to industry, and exploring opportunities for startups and other entrepreneurial endeavours gives you the confidence in your abilities to succeed wherever your career takes you.

Your involvement in extracurricular groups, as well as the mandatory professional development requirement and the Graduate Student Internship Program (GSIP) provides you with the experience that will make you a well-rounded professional.

Visit uab.ca/gradpd to learn about the enhanced professional development sessions and initiatives such as the Graduate Student Internship Program.



Visit uab.ca/enggrad for more information

Becoming a world leader in biomedical engineering

NIR KATCHINSKIY

PhD candidate in Electrical Engineering

BSc in Electrical Engineering (Biomedical Option) '12

Engineering always seemed to be in the cards for Nir Katchinskiy. While growing up in Israel, he wanted to do something practical like designing a product and prototyping. And it certainly didn't hurt that he was good at math and physics. After getting his undergraduate degree at the University of Alberta, Nir is pursuing a PhD in electrical engineering.

He first met his supervisor, professor Abdul Elezzabi, during his undergraduate classes. "It was an easy choice, I liked and respected him," said Nir. "We had discussed research opportunities, and it was a good match." Nir's research mainly focuses on the application of femtosecond laser pulses toward biomedical applications. "I always wanted to work and research something in the medical field," he added. "I want to do something that helps other people."

During his research, Nir developed two main technologies. The first is a precise technique to attach biological cells, such as neurons, to each other.

Nir and his supervisor were the first in the world to achieve this. The second is a new method of cancer treatment using cancer-targeting gold nanorods and femtosecond laser pulses. Nir notes that when you're trying to develop new technologies that no one has worked on

"We are currently exploring opportunities for a startup around my research using femtosecond laser pulse technology in the treatment of various eye conditions."

before, you can't just google a solution. "This really allowed me to learn how to tackle problems, and be independent," he adds. "I think that makes me a better engineer."

As for the future, Nir says, "I am drawn into working in the industry. I'm also a business-oriented person, and therefore am considering opening my own startup."

Edmonton thrives

In addition to being home to the University of Alberta, Edmonton is simply a great place to live, learn, and succeed.

Alberta's capital city is a safe, welcoming metropolis that values inclusion and multiculturalism. There's a strong entrepreneurial spirit and vibrant "maker" culture here, harkening back to the region's pioneer past. With the youngest population in the country, Edmonton is a place where innovation is celebrated, and where futures are made every day. Some 1.3 million people

call the Edmonton area home, and it continues to be one of Canada's fastest growing cities. The city offers a myriad of year-round leisure and recreational opportunities, and is home to Canada's largest urban park system. With over 160 kilometres of maintained pathways and 20 major parks, the North Saskatchewan River valley offers a wealth of natural beauty for all to enjoy. The University of Alberta's main campus is located on the south bank of the North Saskatchewan River. From there, you can travel easily to other parts of the city using the light rail transit and extensive bus network. Downtown Edmonton is roughly 10 minutes away by transit and is home to some of Canada's largest engineering firms, many of which closely collaborate with the Faculty of Engineering. Edmonton's diverse and robust economy comprises a range of knowledge-based and resource-driven industries that include oil production, petrochemicals, agriculture, forestry, mining, construction, a world-renowned health and medical research sector, and a rapidly growing tech sector.

The University of Alberta campus is also a short walk from Old Strathcona, a historical district that features some of Edmonton's most unique shops, theatres, restaurants and coffee houses.

As Canada's Festival City, Edmonton hosts over 30 cultural festivals and events throughout the year in celebration of the arts, music, food and professional sports teams. These include the Edmonton International Street Performers Festival, K-Days, Interstellar Rodeo Music Festival, the Edmonton International Film Festival, the Silver Skate Festival, Taste of Edmonton, Canadian Birkebeiner Ski Festival, the Edmonton Folk Music Festival, and North America's largest Fringe Theatre Festival.

Edmonton is also located within easy reach of Alberta's majestic Canadian Rockies. Just a few hours drive west on the Yellowhead Highway brings you to Jasper National Park, where you can enjoy the breathtaking natural beauty, wildlife viewing, camping, hiking, mountain biking, whitewater rafting and world-class skiing.

Edmonton is served by the country's fifth largest airport, Edmonton International Airport (EIA), which offers non-stop air service to over 50 national and international destinations.

Visit edmonton.ca for more information about the City of Edmonton. You should also check out Edmonton Tourism's site, exploredmonton.com for information on festivals and events, things to see and do, and great places to eat.

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"I like Edmonton especially during the summer and how there are many events like Heritage Days and the Fringe Festival. I also like the university area and river valley very much. In general, it's a really nice area to live, study and meet people."

Nicolas Olmedo, PhD candidate in Mechanical Engineering



Engineering advanced bionic limbs with artificial intelligence

DYLAN BRENNEIS, EIT

MSc student in Mechanical Engineering

BSc in Mechanical Engineering '16

"I didn't really know what engineering entailed when I first got into it. I had this vague notion of building bridges or engines or similar things," said Dylan Brenneis, who is pursuing his master's degree in mechanical engineering. "I ended up getting lucky and finding a real passion for engineering design."

It was during his second co-op term, when he worked with a research group developing more intuitive prostheses for upper-limb amputees, that Dylan had the opportunity to design and build the HANDi Hand—a robotic hand that would enable its control computer to perform machine-learning algorithms. "I was given a lot of freedom for self-direction with the project, which was simultaneously freeing and overwhelming," said Dylan. He was able to take the project all the way from ideation to prototyping, and eventually an open-source release that has seen the HANDi Hand being used by researchers in Utah, Zurich and Munich.

When it came to choosing where to go for grad school, Dylan notes, "The people I worked with in the Bionic Limbs for Improved Natural Control (BLINC) Lab during my undergraduate

degree were such an amazing blend of support, encouragement, friendship, and knowledge that it was difficult to imagine going anywhere else."

While his research is mainly mechanical engineering, there's a little bit of biomedical, electrical and computer science disciplines mixed in to keep things interesting. BLINC Lab focuses on making upper-limb prostheses more intuitive to use, taking various approaches such as sensorimotor integration, machine learning and novel control systems.

Dylan's project specifically focuses on the control of prosthetic wrists. As most commercial prostheses don't allow for direct, active wrist control, he's proposed an alternative wrist control method that removes some control burden from the user and uses the wrist to keep the orientation of the hand constant as the arm moves around. Dylan has worked on developing the control algorithms, the hardware to test the system with able-bodied people, and the evaluation of movements using this system compared to conventional control schemes.



"The U of A offered support for my research in terms of resources and funding that I wasn't able to find matched at other universities."

As one who learns best by doing, Dylan's graduate studies allow him to focus a lot of time on challenging technical problems. In developing an automatically levelling wrist, he enhanced his skills at computer coding, PID control and human interaction design. In addition, he is learning many skills involved in the research process, including design of experiments, ethical experimentation, statistical analysis and academic publication.

"The next step in my career path involves an internship with a prominent tech company here in Edmonton, which I was able to arrange thanks to the connections, knowledge and skills I've gained during my time in grad studies here at the U of A," said Dylan. "I'm interested in learning more and working more with robotic systems for artificial intelligence research, since that is a field full of the high-level, interdisciplinary design needs that I've come to enjoy."

Applying for admission

To enrol in graduate studies in engineering, start by contacting the department offering the area of study you are interested in.

Individual departments may have variable application and entry dates, as well as different application procedures. To learn more about an individual department, check out its departmental site:

- Department of Biomedical Engineering: uab.ca/biomed
- Department of Chemical and Materials Engineering: uab.ca/cme
- Department of Civil and Environmental Engineering and School of Mining and Petroleum Engineering: uab.ca/civil
- Department of Electrical and Computer Engineering: uab.ca/eceng
- Department of Mechanical Engineering: uab.ca/mece

Please note that all graduate students are registered in the Faculty of Graduate Studies and Research regardless of their area of study. Visit uab.ca/gradstudies for more information on applying to graduate programs at the University of Alberta.



International students

The University of Alberta has signed agreements to co-sponsor international student admission into several graduate programs. The agreements promote collaboration in a variety of fields. See International Admission Agreements for details. Visit uab.ca/ega for more details.

Following your research interests

Finding the right supervisor and the right project is key for your graduate education. For more information on the research strengths in the Faculty of Engineering, visit each department's site. You can also go to uab.ca/engresearch for information on our strategic research areas and visit uab.ca/engprofs to find a supervisor or research area.

Fees

Please visit uab.ca/gradfees for information and advice about fees for graduate students, including details about Fall/Winter and Spring/Summer fees, cost of living estimates, sample fee assessments, and information about your fee status and fee liability.

Manipulating materials to store energy and protect people from injury

NICOLE FURTAK, EIT

PhD in Human Ecology and Chemical and Materials Engineering '18

MSc in Textile Engineering '12

BSc in Materials Engineering '08

"My dad is an engineer, and from about three years old I wanted to be a mechanical engineer just like him. Though he was quite disappointed when I decided on materials," laughs Nicole Furtak. As Edmonton is home for Nicole, she was looking forward to staying put for a little while after completing her MSc at the University of Ghent in Belgium. "From my undergrad, I knew that the U of A would be a good place to be," said Nicole. "Since I wanted to

socks. "The characterization method is directly applicable to many other materials," adds Furtak. "I developed, constructed and validated a test method based on image capture and analysis."

Nicole held a Mitacs Accelerate Fellowship, which allowed her to work with an industrial partner and see the real-world applications of her research first-hand.

"The resources that the Faculty of Engineering has are phenomenal," said Nicole. "I had a number of opportunities to attend conferences while in grad school, with funding from the U of A. Attending conferences really helped to expand the connections that I have." She currently works as the standards and testing manager at Superior Glove Works, a position Superior created as a result of her textiles background.

"Grad studies has improved my ability to think critically and analyze data."

specialize in textiles, it was the only university in Canada with a textiles grad program."

For her PhD studies, she developed a new method of characterizing the movement of liquid moisture within knit structures, specifically focusing on



ELAHEH DAVARI

PhD in Materials Engineering '17

MEng in Materials Engineering '12

BSc in Materials Engineering '08

Following her undergraduate in Iran, where she was encouraged to study engineering, Elaheh Davari earned her master's degree at the University of Windsor before coming to the University of Alberta for her PhD in materials engineering, and then on to starting her career as a process engineer for the Intel Corporation in Hillsboro, Oregon.

When asked why she chose the U of A for her PhD, Elaheh answered, "My decision was made during a discussion with one of my teachers at the University of Windsor. He suggested I contact Dr. Douglas Ivey (my PhD supervisor at U of A) since I was planning to find a project related to energy storage devices." Elaheh believes that developing state-of-the-art energy storage devices is crucial in moving to a world powered by low-carbon energy. While at the U of A, she conducted research in the field of energy storage devices specified on zinc-air batteries, which are emerging as promising replacements to traditional lithium-ion batteries.

Her research included investigating a vast range of novel electrocatalysts, such as Mn-Co mixed oxides, Mn-nitride, carbon coated-nitrogen doped Fe_3O_4 and hollow mesoporous carbon. She also took on a leadership role in professional development. "What I enjoyed most was organizing a couple of workshops and networking sessions as a part of

ABCampus," said Elaheh. "It was a great chance to get out of labs and spend some time with people from different disciplines and listen to funny stories." ABCampus is a student organization with over 600 members, aimed at facilitating connections between industry professionals and students. Working with ABCampus, she learned how to organize a series of events related to business, micro and nanotechnology, networking mixers with industry representatives, and other professional development events.

It all worked out perfectly. "Being a leader for an event with a lot of participants pushed me to adjust to the graduate student life, be proactive, spend effective time in lab and make better connections," she adds.

"My goal was to join industry, and I was able to join Intel Corporation right after graduation."

"As an international student, I owe most of my achievements to my four-year involvement with ABCampus student group."

Visit uab.ca/enggrad for more information



Having good chemistry with your supervisor is key

KIERAN McDONALD, EIT

MSc student in Chemical Engineering

BSc in Chemical Engineering '17

A big reason Kieran McDonald chose to pursue a post-graduate degree was meeting his chemical engineering professor, Dominic Sauvageau. Kieran was interested in the professor's research projects and jumped at the chance to work with him as a graduate student. "Having professors like Dr. Sauvageau makes everything much easier and more enjoyable," he said. "We

were also provided opportunities to go to prestigious conferences, use specialized equipment, and have great access to many scholarships that can help a lot with getting through your degree."

The Red Deer, Alberta native

is now working towards his master's degree in chemical engineering. "I chose biochemical engineering research because I always had an interest in

biology as well as engineering," said Kieran. "I had taken as many biology electives as I could during my degree, and this was a way to combine the two."

His research is focused on the conversion of single carbon sources, such as methane or methanol, into value-added products like biofuels or bioplastics using bacterial biomass. "Specifically, I am working on adaptation of methanotrophs—bacteria that use methane or methanol as a food source—to lower pH so that they can be used in industrial settings such as forestry waste streams," he said.

After graduation, Kieran plans to work in the oil or chemical industry. "I plan to do the Graduate Student Internship Program which allows you to work in industry while completing your research, as this seems like a great way to network within industry," said Kieran. Eventually he would like to come back to pursue a PhD, working on the same kind of project he is working on now.

"I had always wanted to continue school and do some research, and knew that staying at the university would give me many opportunities."

Visit uab.ca/enggrad for more information

Student services

Faculty of Engineering graduate students are provided with excellent support, helping you succeed in your academic career. Student advisors are available to assist you with program planning, course selection and much more.

Your life as a student and your well-being are interconnected—everything from feeling financially secure to managing your time has an impact. University of Alberta student services, resources and support are there to help you find balance, grow and build your success as a student.

Important links

Academic services and resources: Develop your academic skills at any stage of your degree by incorporating academic services and resources.

Financial support: Find out what scholarships and awards you are eligible for as a current student, and learn more about bursaries, emergency funding, and student loans.

Health and wellness resources: Take care of your mental and physical health by integrating campus wellness resources and services into your day-to-day.

Housing and transportation: Explore your options for housing on and off campus, as well as your transportation and parking choices as a student, maps and routes, and information about your public transit U-Pass.

Campus life involvement: Get involved with student groups and associations, volunteer opportunities, and more to make friends, gain experiences and contribute to the campus community.

Career and professional development: Gain valuable skills and experiences throughout your degree that will enrich your career throughout your professional life.

Safety and security: Help maintain a safe campus community by knowing what to do in an emergency, learning how to prevent crime, and accessing safety resources.

Records, registration and fees: Find information on tuition and fees, course listings, class schedules, transcripts, exams and more.

Immediate 24-hour services: If you do need help now, know that help is available to you through community supports and on campus.

Visit ualberta.ca/current-students for a full list of available services

Study with us

The University of Alberta Faculty of Engineering provides graduate students with an outstanding education. Our role is to prepare you for a challenging and rewarding career in industry, research or academia.

Graduate school is an investment in your future. You'll have the opportunity to learn from some of the greatest minds in their fields, conduct research both inside and outside the classroom, and work with fellow students on projects, in clubs, and in the community.

The Faculty of Engineering is consistently recognized as one of the best in Canada and the world. A graduate degree in engineering from the University of Alberta can make all the difference in the trajectory of your career—unlocking rewarding career opportunities.

Take the first step on a career path to leadership positions in technology companies, consulting, research and development organizations, advanced design houses, government, policy development and academia.

Visit uab.ca/engineering to learn more about the Faculty of Engineering at the University of Alberta.

Our graduate students:

- Acquire technical, problem solving, professional development and communication skills critical for the workforce.
- Work with highly respected faculty members who publish in prestigious journals and collaborate with international leaders.
- Interact directly with industry partners, bridging industry and academia, to build their professional networks.
- Collaborate on- and off-campus with world leaders in multidisciplinary projects.
- Use state-of-the-art facilities, including world-class resources for nanofabrication, high performance computing, magnetic resonance imaging, patient rehabilitation and surface characterization.
- Have access to significant research funding (over \$50M per year) and student financial support (\$19M per year).
- Feel welcomed, safe and supported in the University of Alberta and Edmonton communities.
- Enjoy all the professional and lifestyle advantages offered by living in Edmonton and the province of Alberta.

I'm going to change the world in

Faculty of Engineering
2-300 Donadeo Innovation Centre for Engineering
9211 116 Street NW
University of Alberta
Edmonton, Alberta Canada T6G 1H9

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enggrad@ualberta.ca

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 [linkedin.com/school/ualbertaengineering/](https://www.linkedin.com/school/ualbertaengineering/)

Engineering

About the University of Alberta

- Ranked as one of the top universities in the world, and one of the Top 5 in Canada.
- Located in the heart of Western Canada—Edmonton is the home of one of the fastest growing, most vibrant economies in the world. You have easy access to the natural environment, opportunities for an active lifestyle, and world-renowned festivals events, ensuring a balance between your professional and personal life.
- Has one of the highest graduate student funding rates in Canada, on average.
- Is a leader in sustainable energy and waste management, with a goal of diverting 90 per cent of waste to recycling streams.

Find a Researcher

Search our directory to find a supervisor or research area:

uab.ca/engprofs

About the Faculty of Engineering

- Is one of the largest engineering schools in North America, with about 4,400 undergraduate students, 1,600 graduate students, over 200 professors and more than 30,000 alumni. Our programs are ranked among the very best in the world.
- Provides engineering students with significant research funding (more than \$50M per year) and student financial support (\$19M per year).
- Attracts approximately \$65M in external research funding every year.
- Is home to 16 NSERC Industrial Research Chairs—more than any other entire university in Canada—as well as one Canada Excellence Research Chair Laureate, 16 Canada Research Chairs, 2 Foundation Supported Chairs and 16 Endowed Chairs and Professorships.
- Is developing multidisciplinary programs to create entrepreneurial engineering leaders.



UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING

Engineering

Key Research Facilities

The nanoFAB is a centralized \$85M open-access research and development facility specializing in micro- and nano-scale fabrication and characterization—the largest of its kind in Canada. (nanofab.ualberta.ca)

Our campus is also home to the \$52M Nanotechnology Research Facility, which houses the National Research Council—UAlberta Nanotechnology Initiative. It offers unique opportunities to conduct research using leading-edge tools, alongside world experts. (nint-innt.ca)

The Oil Sands Tailings Research Facility located in Devon, Alberta is designed to support substantial fundamental tailings research at a pilot scale. (uab.ca/ostrf)

The Peter S. Allen MR Research Centre, part of the Department of Biomedical Engineering, is a state-of-the-art MRI research facility located inside the University Hospital. The centre houses 1.5T, 3T and 4.7T full-body MRI systems. (www.mri.ualberta.ca)

Faculty of Engineering Graduate Programs

Master of Science (MSc)

Doctor of Philosophy (PhD)

Master of Engineering (MEng)

uab.ca/enggrad



UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING

Services Available to Graduate Students

- Access to the Engineering Employment Centre and to other professional development resources.
- A Graduate Student Internship program connecting students to employers on and off campus.
- Access to national programs such as MITACs internships connects students to employers to solve real-world engineering challenges.

Contact Us

Faculty of Engineering
Donadeo Innovation Centre for Engineering
9211 116 Street NW
Edmonton, Alberta Canada T6G 1H9

For contact information visit uab.ca/enggrad



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Biomedical Engineering

The bridge between Medicine and Engineering

In Biomedical Engineering, researchers actively apply engineering advances directly to patients in collaboration with medical practitioners.

Home to a dedicated, state-of-the-art Magnetic Resonance Imaging (MRI) facility

Unique within Canada, the Peter S. Allen MR Research Centre has three MRI systems for human imaging with field strengths of 1.5T, 3T and 4.7T—all located inside the University Hospital. The facility was recently expanded through a \$17.5M grant anchored by the Canada Foundation for Innovation.

Professors directly affect patient care and industry practice

The work being done in the department is making a difference in people's lives through engineering advances in nanostructured biomaterials and MRI for neurological, psychiatric and cardiovascular diseases.

Focused on mentorship

Eight core professors and 40 adjunct professors from across campus are available to supervise graduate students.

Research Strengths

Nanostructured Biomaterials
Spinal Cord Injury and Rehabilitation
Magnetic Resonance Imaging (MRI)
Magnetic Resonance Spectroscopy



UNIVERSITY OF ALBERTA
DEPARTMENT OF
BIOMEDICAL ENGINEERING

Biomedical Engineering

Funding

Thesis-based graduate students receive financial support through research assistantships provided by the supervisor's research grants. Graduate students are also encouraged to apply for external scholarships and awards.

Application Deadlines

CANADIAN & U.S. APPLICANTS

July 1 for September (Fall) Admission

November 1 for January (Winter) Admission

At least one month is required to process applications.

APPLICANTS FROM THE PEOPLE'S REPUBLIC OF CHINA

May 1 for September admission

September 1 for January admission

January 1 for May admission

March 1 for July admission

OTHER INTERNATIONAL APPLICANTS

July 1 for September admission

November 1 for January admission

March 1 for May admission

May 1 for July admission

Programs

Master of Science (MSc)

Doctor of Philosophy (PhD)

MD-PhD Program

(joint with the Faculty of Medicine and Dentistry)

Contact Us

Biomedical Engineering

13-203 Donadeo Innovation Centre for Engineering

9211 116 Street NW

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uab.ca/engprofs

uab.ca/biomed



UNIVERSITY OF ALBERTA
DEPARTMENT OF
BIOMEDICAL ENGINEERING

Chemical & Materials Engineering

Home to three major research centres

The Canadian Centre for Clean Coal/Carbon and Mineral Processing Technologies, the Canadian Centre for Welding and Joining, and the Institute for Oil Sands Innovation.

Home to the Engineering Safety and Risk Management Program

The first of its kind in Canada.

Research Strengths

Biochemical Engineering
Biomedical and Regenerative Medicine
Corrosion and Wear
Fluid Dynamics
Materials Characterization and Processing
Mathematical and Molecular Modelling
Nanomaterials and Nanofabrication
Oil Sands Energy
Process Control and Systems Engineering
Reactions and Catalysts
Surface Science and Interfacial Engineering
Thermodynamics
Welding and Metallurgy

Research prowess

More than 50 faculty members hold in excess of 25 prestigious provincial, national and international research awards and chair positions, including six NSERC Industrial Research Chairs, four Canada Research Chairs, and a Canada Excellence Research Chair.

Partnerships with local companies

Research partnerships mean graduate students can spend extended periods at industrial sites. Industrial participation in graduate training allows graduates to transition seamlessly into industry or entrepreneurial endeavours.

Collaboration with the National Institute for Nanotechnology (NINT)

Researchers work closely with the NINT, a joint venture with the National Research Council Canada (NRC) that hosts world-leading nanotechnology facilities and research programs.

Focus on teaching and learning

Faculty members prioritize mentoring and teaching. CME faculty members hold numerous teaching awards including the Engineers Canada Medal for Distinction in Engineering Education and the APEGA Excellence in Education Award.



Chemical & Materials Engineering

Funding

Thesis-based graduate students receive financial support through research assistantships provided by the supervisor's research grants. Graduate students are also encouraged to apply for external scholarships and awards.

Application Deadlines

CANADIAN APPLICANTS

August 15 for September (Fall) Admission

December 1 for January (Winter) Admission

INTERNATIONAL APPLICANTS

April 1 for September (Fall) Admission

October 1 for January (Winter) Admission

Programs

Master of Science (MSc)

Master of Engineering (MEng)

Doctor of Philosophy (PhD)

Contact Us

Chemical and Materials Engineering
12-203 Donadeo Innovation Centre for Engineering
9211 116 Street NW
Edmonton, Alberta
Canada T6G 1H9
Phone: +1.780.492.3321
chemmat@ualberta.ca

Find a Researcher

Search our directory to find a supervisor or research area:

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UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING

Civil & Environmental Mining & Petroleum Engineering

The largest civil engineering graduate program in Canada

Our program boasts more than 500 graduate students from over 40 countries.

Research Strengths

Advanced and Smart Materials
Construction Engineering Simulation
Cold Region and River Ice Engineering
Emerging Technology in
Nanocellulose Fibres
Enhanced Oil/Heavy-Oil Recovery
Oil Sands Tailings Management
Petroleum Geomechanics
Road Infrastructure and Underground
Trenchless Technology
Slope Stability and the Cyclic Loading
of Embankments
Safety and Intelligent
Transportation Systems
Water and Waste-water Treatment
Structural Health Monitoring and Modelling
Human Biomechanics
Oil Sand and Oil Reservoir
Simulation Research
Geostatistics in Mining Engineering
Building Engineering
(joint program with MEC)

Industrial partnerships that support student learning

We have built strong relationships with local, national and international organizations, including PCL Construction, Syncrude Canada, Suncor, Shell, CN, CP, CNRL, Teck and BP.

Specializations

We offer graduate studies in eight areas of specialization—Construction Engineering and Management, Environmental, Geotechnical, Petroleum, Mining, Structures, Transportation, and Water Resources Engineering.

Home to internationally recognized research leaders

Our faculty includes seven NSERC Industrial Research Chairs, the Canada Research Chair in Natural Resources Uncertainty Management, and Endowed Chairs in nanofibre research, steel structures, and masonry systems.

Home to the new Canadian Rail Research Laboratory (CaRRL)

CaRRL works to address key challenges in the Canadian rail sector, including safety and security, long travel distances, sparse population, and extreme climates.

Home to the Foundation CMG Research Chair in Reservoir Geomechanics for Unconventional Resources

This \$15M research program fosters discovery in cleaner, more efficient techniques to convert Canada's unconventional hydrocarbon sources to marketable energy supplies.



UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING

Civil & Environmental Mining & Petroleum Engineering

Funding

Thesis-based graduate students receive financial support through research assistantships provided by the supervisor's research grants. Graduate students are also encouraged to apply for external scholarships and awards.

Application Deadlines

CANADIAN APPLICANTS

July 1 for September (Fall) Admission
September 10 for January (Winter) Admission

INTERNATIONAL APPLICANTS

April 30 for September (Fall) Admission
July 31 for January (Winter) Admission

Programs

(all areas of specialization)
Master of Engineering (MEng)
Master of Science (MSc)
Doctor of Philosophy (PhD)

Contact Us

Civil and Environmental Engineering
School of Mining and Petroleum Engineering
7-207 Donadeo Innovation Centre for Engineering
9211 116 Street NW
Edmonton, Alberta Canada T6G 1H9
Phone: +1.780.492.4235
cgradvis@ualberta.ca
civilgradapps@ualberta.ca

Find a Researcher

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uab.ca/civil



UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING

Electrical & Computer Engineering

State-of-the-art facilities

We have top-notch facilities in all areas of Electrical and Computer Engineering, including the nanoFAB, a 600-square-metre nano- and micro-fabrication facility with capabilities unique in Canada.

Research Strengths

Biomedical Engineering
Communications
Computer Engineering
Control Systems
Electromagnetics and Microwaves
Energy Systems
Integrated Circuits and Systems
Microsystems and Nanodevices
Photonics and Plasmas
Signal and Image Processing
Software Engineering and Intelligent Systems
Solid State Electronics

Internationally recognized faculty members

The department maintains active international collaborations, including close ties with the \$52M Nanotechnology Research Centre and the NRC-UAlberta Nanotechnology Initiative, located on the University of Alberta campus. These collaborative relationships give students access to many top national and international research facilities.

Strong research output

Our faculty members and their students have published the largest number of peer-reviewed publications of any Electrical and Computer Engineering department in Canada (2006 to 2012). Many of those publications are in prestigious journals such as IEEE Transactions, Physical Review Letters and Nature and Science.

Partnerships with industry

Our relationships with industry partners give graduate students the opportunity to work in real-world scenarios and build their professional networks. Motivated students have been supported in starting successful spinoff companies.

Outstanding graduate students

Many of our graduate students have earned prestigious academic, research and leadership awards, such as Vanier Canada Graduate Scholarships, Izaak Walton Killam Memorial Scholarships and Andrew Stewart Memorial Graduate Prizes.



Electrical & Computer Engineering

Funding

Thesis-based graduate students receive financial support through research assistantships provided by the supervisor's research grants. Graduate students are also encouraged to apply for external scholarships and awards.

Application Deadlines

CANADIAN APPLICANTS

May 1 for September (Fall) Admission*

September 1 for January (Winter) Admission*

*However, applications will be accepted until positions are filled

INTERNATIONAL APPLICANTS

May 1 for September (Fall) Admission

September 1 for January (Winter) Admission

Find a Researcher

Search our directory to find a supervisor or research area:

uab.ca/engprofs

Programs

Master of Science (MSc)

Doctor of Philosophy (PhD)

Master of Engineering (MEng)*

Master of Science in Internetworking (MINT)*
(joint with the Department of Computer Science)

MBA/MEng

(joint with School of Business)*

*Course-based programs

Contact Us

Electrical and Computer Engineering
11-203 Donadeo Innovation Centre for Engineering
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Edmonton, Alberta Canada T6G 1H9

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(Nona McDonagh, Graduate Admissions Advisor)

ivan.fair@ualberta.ca

(Dr. I. Fair, Associate Chair Graduate Studies)

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UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING

Mechanical Engineering

A top Canadian school for Mechanical Engineering

The Department of Mechanical Engineering at the University of Alberta is among the most productive, recognized, well-funded and reputable Mechanical Engineering departments in Canada.

Four Canada Research Chairs, two NSERC Industrial Research Chairs

Department faculty include two Endowed Research Chairs, four Canada Research Chairs, two NSERC Industrial Research Chairs, two CSME Fellows, an ASME Fellow, two Engineering Institute of Canada Fellows, an American Association for Aerosol Research Fellow, and several editors of top-ranking journals.

Research Strengths

Biomechanical, Biomechanics and Human Mechanical Systems

Design and Manufacturing

Energy and Environment

Engineering Management

Fluid Mechanics and Systems

Mechanical Systems and Control

Mechanics and Materials

Reliability Engineering, Standards,

Safety Engineering

World-class facilities and equipment

The department has invested in cutting-edge, modern equipment and infrastructure that are unique in Canada. The facilities are complemented with computational and production capabilities and serve research, teaching and industry initiatives.

At the forefront of innovation, research and scholarship

Our academics have established industrial and international collaborations that focus on real-world issues, while advancing knowledge, satisfying scientific curiosity, and developing novel solutions to difficult problems.

A focus on graduate student mentorship and education

Our goal is to prepare students to meet the demands of academia and industry in a well-supported, collegial and interdisciplinary environment—as evidenced by a heavy focus on experiential research training and co-ordinated teaching assistant training programs.

Located in the heart of Western Canada

Edmonton is the home of one of the fastest-growing, most vibrant economies in the world. It offers easy access to the natural environment, opportunities for an active lifestyle, and world-renowned festivals and events—ensuring a balance between your professional and personal life.



UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING

Mechanical Engineering

Funding

Thesis-based graduate students receive financial support through research assistantships provided by the supervisor's research grants. Graduate students are also encouraged to apply for external scholarships and awards.

Application Deadlines

CANADIAN APPLICANTS

Thesis based:

May 15 for September (Fall) Admissions
September 15 for January (Winter) Admissions

MEng: January 15

INTERNATIONAL APPLICANTS

Thesis based:

March 15 for September (Fall) Admissions
July 15 for January (Winter) Admissions

MEng: January 15

Programs

Master of Science (MSc)

Master of Engineering (MEng)

Master of Science (MSc) in
Engineering Management

Doctor of Philosophy (PhD)

Doctor of Philosophy (PhD) in Engineering
Management

Contact Us

Mechanical Engineering

10-203 Donadeo Innovation Centre for Engineering
9211 116 Street NW

Edmonton, Alberta Canada T6G 1H9

For thesis-based admissions:

mece.grad@ualberta.ca

For course-based admissions:

mecmeng@ualberta.ca

Find a Researcher

Search our directory to find a supervisor or research area:

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uab.ca/mece



UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING

Edmonton

About Edmonton

Edmonton is Canada's fastest-growing city and boasts the youngest population in the country. Some 1.3 million people call the metro Edmonton area home. The city has a youthful, entrepreneurial spirit that powers the province's traditional economic strengths—natural resource and technology industries—and propels it forward with a world-renowned health and medical research sector and a rapidly growing tech sector.

Edmonton is undergoing a massive redevelopment and by 2020 will see \$5.5 billion invested in residential towers and retail spaces, office towers, new hotels, educational institutions, arts and culture facilities, and light rail transit. That's more investment and growth than any other major market in North America.

As the capital city of Alberta, Edmonton ranks in the top three cities in Canada for growth, net migration and average income.

About the Faculty of Engineering

- Is one of the largest engineering schools in North America, with about 4,400 undergraduate students, 1,600 graduate students, over 200 professors and more than 30,000 alumni. Our programs are ranked among the very best in the world.

There's an energy here

Living in Edmonton offers you all the amenities of a major city, along with easy access to natural settings. Edmonton has the largest urban park in Canada, with more than 160 kilometres of maintained pathways and 20 major parks, the city's river valley is a natural wonder for all to enjoy.

Edmonton is known as Canada's Festival City. Throughout the year, artists, musicians, actors and artisans travel to the city from all over the world to amaze and entertain visitors and citizens alike. The city is also located near Alberta's majestic Canadian Rockies, where you can enjoy the spectacular natural beauty, wildlife viewing opportunities, hiking, mountain biking, whitewater rafting and world-class skiing.

About the University of Alberta

- Ranked as one of the top universities in the world, and one of the Top 5 in Canada.

uab.ca/engineering



UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING

Edmonton

A Knowledge Economy

We're big on nanotechnology.

The National Institute for Nanotechnology (NINT), located on the University of Alberta campus, houses world-leading nanotechnology facilities and research programs.

nanoFAB Lab

This national open-access training, service and collaboration centre focuses on academic and industrial applications in the micro- and nano-scale fabrication and characterization. Located at the University of Alberta Faculty of Engineering, nanoFAB has more than \$84M in specialized equipment and infrastructure, and more than 200 pieces of equipment in a 25,000 square foot lab space.

Canada's Health City

Building on a provincial endowment established in the 1970s to attract and retain world-easing health researchers, Edmonton is leveraging its world-class health research and technology sector. The Health City strategy brings new energy to building health and medical technology capacity, increasing access to capital and adding support to technology and research commercialization.

TEC Edmonton

A world leader in technology commercialization, TEC Edmonton is a project of the City of Edmonton and the University of Alberta aimed at speeding the growth of new technology-based ventures.

Faculty of Engineering Graduate Programs

Master of Science (MSc)

Doctor of Philosophy (PhD)

Master of Engineering (MEng)

Contact Us

Faculty of Engineering

Donadeo Innovation Centre for Engineering

9211 116 Street NW

Edmonton, Alberta Canada T6G 1H9

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UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING

A Few Simple Steps

Four ways to start your Master's Research

1. September or January Start Dates

Begin the MSc program in one of the traditional start dates in September or January.

Ensure that, if eligible, you apply for the NSERC Canada Graduate Student—Master's scholarship on time. Funds can be disbursed in the following May or September, and will be apportioned over a one-year period.

2. May Start Date

Starting your program in May allows you to begin your MSc research early, gather results that can be used in support of grant and scholarship applications, and focus on research exclusively for four summer months before the start of classes.

Use the results of your summer research to draft a strong proposal for the NSERC Canada Graduate Student—Master's scholarship.

3. NSERC Undergraduate Student Research Award + MSc

Begin your MSc program in January or February.

Apply for NSERC USRA funding (visit the uab.ca Office of the Registrar to find EARLY deadlines—typically January to March). If successful, begin the preliminary research work for the MSc in the summer, or during the term before your MSc begins.

This option allows you to begin your MSc research early, gathering results in support of grant and scholarship applications, and focus on research exclusively for four months before the start of classes.

Use the results of your summer research to draft a strong proposal for the NSERC Canada Graduate Student—Master's scholarship. Funds can be disbursed in the following May or September, and will be apportioned over a one-year period.

uab.ca/enggrad



UNIVERSITY OF ALBERTA
FACULTY OF ENGINEERING

A Few Simple Steps

4. July Start Date

Consult with your potential supervisor about the beginning the MSc program in July or initiating the research project towards the MSc in July.

This option will allow you to begin the preliminary aspects of the MSc research, gather basic results that can be used in support of grant and scholarship applications, and focus on research exclusively for two months before the start of classes.

Ask your potential supervisor about opportunities with industry through the Mitacs program (mitacs.ca).

Faculty of Engineering Graduate Programs

Master of Science (MSc)

Doctor of Philosophy (PhD)

Master of Engineering (MEng)

Contact Us

Faculty of Engineering

Donadeo Innovation Centre for Engineering

9211 116 Street NW

Edmonton, Alberta Canada T6G 1H9

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FACULTY OF ENGINEERING