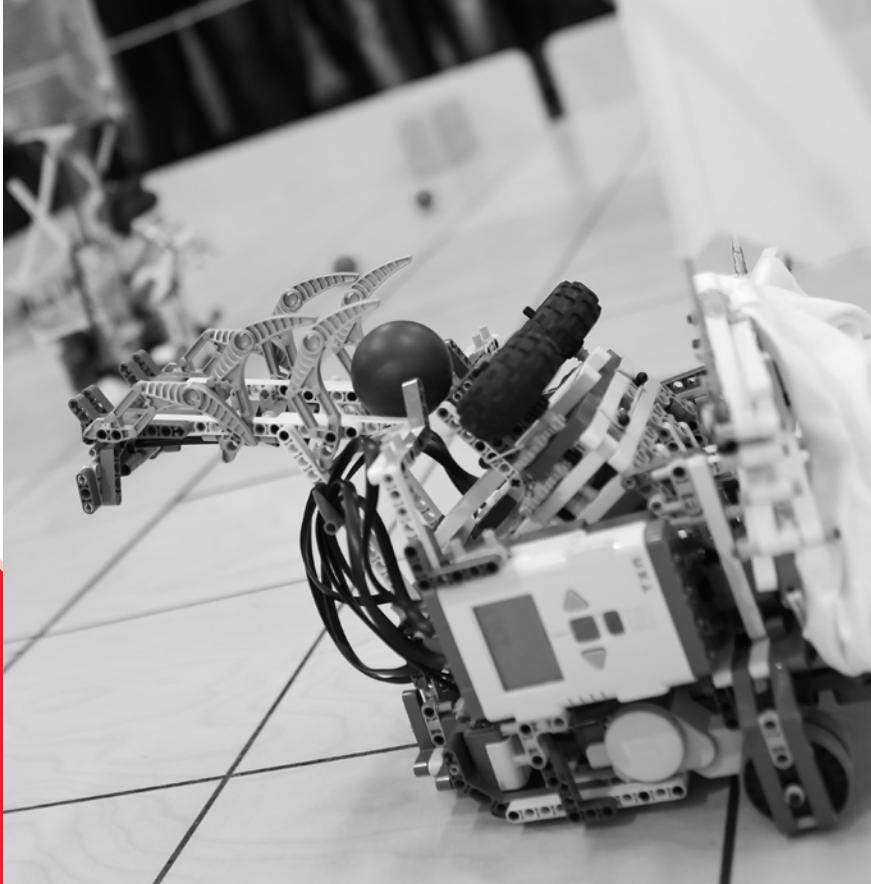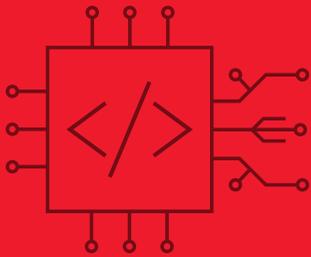# Bachelor of Engineering

Electrical, Computer, and Software Engineering

What is **electrical, computer, and software engineering?**

Electrical, computer, and software engineers are creative thinkers and problem solvers who are good at math, science, and computers. They design and develop the computer hardware and electrical and software systems that are behind the technologies for self-driving cars, robots, cell phones, video games, automation, and powering homes.

Is one of these program **for me?**

The Department contains three separate, but coinciding, undergraduate programs: Electrical, Computer and Software Engineering. These programs have a significant overlap in early years, however, they become specialized based on program in subsequent years. Students in our programs are responsible team players and effective communicators, all of which

are important as they typically work in teams.

Electrical Engineering provides a broad background in a wide variety of domains, including electrical and electronic systems, and hardware and software design. **Computer Engineering** provides skills needed to research, design, develop, and test computer hardware, including computer chips, circuit boards, computer systems and related equipment, as well as how to develop computer software. **Software Engineering** provides skills needed to design and develop complex computer software systems.

Coursework and research areas

The first year includes general science courses in math, chemistry and physics. Québec CEGEP students typically receive one-year advanced standing. Students in all programs take similar courses in their first few years, but later in their degree, they take different technical

courses depending on their program (with some overlap):

Electrical Engineering: Students take electrical engineering courses in different areas of specialization: telecommunications, photonics, integrated circuits and electronics, control and automation, power engineering.

Computer Engineering: Students take courses in computer and electrical engineering, with a strong focus on computer hardware design and computer software.

Software Engineering: Students take courses in computer and electrical engineering focused on cultivating skills in designing and developing complex software systems. In later years, the program becomes more focused on specific issues in software engineering.

McGill | Faculty of Engineering

Prof. AJung Moon
Assistant Professor, Department of Computer and Electrical Engineering Director, RAISE lab

Prof. AJung Moon is an experimental roboticist and an Assistant Professor in the Department of Electrical and Computer Engineering. She directs the Responsible Autonomy and Intelligent System Ethics (RAISE) lab, where her research team investigates how robots and AI systems influence the way people move, behave, and make decisions in order to inform how we can design and deploy such systems more responsibly. Prior to joining McGill, she served as Senior Advisor for the UN Secretary-General's High-level Panel on Digital Cooperation, CEO of an AI ethics consultancy, and founder of the Open Roboethics Institute (a Canadian non-profit think tank). Outside the office, you'll find her nerd out about house plants, crocheting, or being a foodie.

Why McGill?

McGill's Department of Electrical and Computer Engineering has an international, diverse, and vibrant student population. Its three distinct programs are tailored to different interests and goals, and each provides students with the opportunity of paid internships with members of the industry, giving them hands-on, practical work experience before they graduate. Upon graduation, students in all programs receive accreditation as professional engineers.

How do I apply?

Admissions information:

www.mcgill.ca/engineering/future-students/how-apply

What can I do when I graduate?

Students graduating from any of our programs are equipped to work in a wide variety of high-tech industries, including artificial intelligence, video games, Web applications and interfaces, information technologies, telecommunications, robotics, medical technologies, biomedicine, automotive industry, aerospace industry, microelectronics and electronic systems, power systems and energy.

Recent graduates from the program have gone on to exciting careers in a wide variety of industries such as:

Google
Software Developer

Amazon
Software Development Engineer

CAE
Systems Engineer

Environment Canada
Software Developer

Keyence
Technical Sales Executive

Morgan Stanley
Technical Associate

Teradyne
Software Engineer

Student life and engagement

The Faculty of Engineering provides several opportunities to participate in a variety of clubs, activities, and student government. Below are a few groups students can join to connect with others and enhance their life outside of the classroom:

- ▲ Electrical, Computer, & Software Engineering Student Society (ECSESS)
- ▲ Engineering Undergraduate Society (EUS)
- ▲ Institute of Electrical and Electronics Engineers (IEEE)-McGill student branch
- ▲ Promoting Opportunities for Women in Engineering (POWE)

Contact us

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