ADVANCING INNOVATION
BUILDING INSPIRATION
JOIN THE ENGINEERING AND COMPUTER SCIENCE CAMPAIGN
BUILDING A RESILIENT FUTURE

Our vision is to construct world-leading green buildings, ones that combine passive house design features with a mass timber structure, heat pumps, and green and solar roofs. These facilities will be at the forefront of new building design—buildings that will be regenerative and resilient, as well as technology demonstrators. Through this expansion, the Faculty of Engineering will increase its capacity for next-generation engineering—enhancing our reputation for excellence in research, teaching and innovation to drive economic development and social well-being.

The campaign for Engineering and Computer Science aims to inspire $12 million in philanthropic investments in two new, highly advanced green buildings where we will educate future-ready professionals to tackle global challenges, helping to ensure sustainable prosperity for generations to come.

COVER PHOTO: Civil engineer Madeleine McPherson champions decarbonization solutions as the principal investigator of the Sustainable Energy Systems Integration and Transitions Group. Research by McPherson and her team will change the future of integrated energy systems, ensuring a cleaner Canada for tomorrow.
“UVic strives to be a global exemplar in vital causes that hold the key to our future. Through the expansion of our engineering and computer science facilities, we are leading by doing—advancing green building design and construction, fostering innovation and technologies to create new jobs and prosperity for the province, and deepening our commitment to climate action and sustainability on a local, national and international level.”

– Dr. Kevin Hall, President, University of Victoria
Our communities are facing dramatic environmental, economic and social transformation. The only way forward is to adapt and grow. As a Canadian university with a long history of leadership in sustainability, the University of Victoria meets these challenges by advancing innovation for a brighter future. We invite you to join us.

After graduating with a degree in biomedical engineering, Azra Rajwani landed a job at StarFish Medical, where she works as a quality assurance specialist. Here, she spins down a low-serial dilution of E. Coli cells to be used in a lab tests.
DELIVERING EDUCATION FOR THE FUTURE

Our vision is to be the Canadian research university that best integrates outstanding scholarship, engaged learning and real-life involvement to contribute to a better future for people and the planet. That’s why we educate our students to have the expertise, curiosity and courage to create innovative solutions for today’s—and tomorrow’s—urgent issues.

Now, more than ever, UVic’s engineers and computer scientists are being called upon to solve the critical challenges of our time. From developing new energy sources, healthcare solutions and sustainable technologies, to the intelligent analysis of big data, our researchers, students and graduates are making a positive impact on our local and broader communities. Centering social issues throughout our curriculum as pervasive challenges to be addressed, our programs educate the next generation to innovate with the health of people and places top of mind.

The Faculty of Engineering’s award-winning researchers, outstanding students and proven record of innovation are just some of the reasons UVic consistently ranks as one of the top comprehensive universities in the country. Based on our past success and driven by a significant talent shortage in one of the largest and fastest-growing Canadian industries—BC’s tech sector—we are now in a period of remarkable and necessary growth.

We seek co-visionaries to invest in a physical expansion for the Faculty of Engineering—purpose-built spaces where we will educate future-ready professionals to tackle global challenges, helping to ensure sustainable prosperity for generations to come.

MEETING THE DEMANDS OF TOMORROW, TODAY

• The capital expansion will fill an urgent need for teaching and purpose-built lab space, as engineering and computer science student enrolments have more than doubled in the last 10 years.
• Expanding our teaching and learning spaces will enable us to educate more engineers and computer scientists to address the lack of a deep talent pool, which is limiting the advancement of the technology industry in British Columbia—the fastest-growing driver of our provincial economy.
• With Canada’s economic future tied to clean and sustainable growth, these new facilities will serve as a ‘living lab’ for experiential learning, research, and industry partnerships to produce Canada’s future leaders through industry-driven curriculum and intensive cooperative education.
CREATING SPACE FOR INNOVATION

The Engineering and Computer Science expansion includes a six-storey addition to the Engineering and Computer Science Building and a new High-Bay Structures Research Lab. We will lead by doing, building highly advanced, green buildings that will showcase UVic’s expertise in environmental sustainability. UVic is committed to playing a role in strengthening our local and regional economies by contributing to community resilience, promoting inclusive growth and identifying new opportunities that focus on sustainability.

Jorin Weatherston and Ying Wang, who graduated with Master’s degrees, used virtual reality technology in their Computer Science research to gain detailed and recordable insight into environmental and visualization interactions.
"These new spaces will foster excellence across our engineering and computer science disciplines. Through this expansion, we’ll increase our capacity to educate the next generation of thought leaders who will imagine and create a sustainable future."

- Dr. Mina Hoorfar, Dean, Faculty of Engineering and Computer Science
UVic’s Engineering and Computer Science expansion embodies the values driving our vision of a better future for all. Through this project, we will demonstrate global leadership in environmental, social and institutional sustainability through world-class research, academic programs and campus operations.

Computer engineering researcher Xiaodai Dong shows a student her high-tech ECG system, Heart Carer, a mobile electrocardiogram for heart monitoring that uses a sensor to collect the signal and then transmits data to the cloud.
ENGINEERING FOR THE FUTURE

Over the last 36 years, UVic’s Faculty of Engineering has established itself as a leader in engineering and computer science education in Canada.

HIGHLIGHTS OF OUR SUCCESS INCLUDE:

- Ranking in the top 10 among Canada’s 40+ engineering schools
- Creating the greenest civil engineering program in the country
- Establishing the first biomedical engineering program in Western Canada
- Having the only accredited software engineering program in British Columbia
- 100+ accomplished faculty members teaching more than 2,500 undergraduate students and 500 graduate students, in Computer Science and Biomedical, Civil, Computer, Electrical, Mechanical, and Software Engineering

The increasing importance of engineering and computing in today’s world, and the growing demand from students and industry, fuels the tremendous growth our faculty has experienced over the last decade. We’ve doubled the number of undergraduate students since 2009—in part by creating software, civil and biomedical engineering degree programs—to fuel the talent pipeline of the tech sector. And, we will continue to grow.

The Province of British Columbia is providing substantial program funding so we can increase our engineering and computer science enrolments by 500 new undergraduate degree spaces—a 25% increase—by 2022-23. This translates into as many more graduates annually—bright young people who will pursue careers that will make an impact on the South Island and beyond.

LEADING BY DOING

We recognize our responsibility to contribute to the economic and social well-being of our community.

1. The graduates and research endeavours of engineering and computer science have played important roles in the economic development of this region.

2. Our alumni are a significant force in the 900+ technology firms on Vancouver Island.

3. The start-up companies launched by our students and graduates employ more than 1,200 people in British Columbia—almost 10 times as many people as employed by the Faculty of Engineering itself.

ADVANCING INNOVATION. BUILDING INSPIRATION.
“I enjoy being outside in nature, I care deeply about people and the environment, and I love solution-oriented science. These three things fuel my passion for water science, water sustainability and engineering that’s useful for people and the planet.”

– Dr. Tom Gleeson, Associate Professor, Civil Engineering
Philanthropic support from co-visionaries will enable world-class scholars and talented students to develop new technologies that address pressing local, national and international needs—positioning UVic at the forefront of educational innovation and discovery.

UVic mechanical engineer Zuomin Dong (right) works with industry partners to lower energy consumption and improve efficiency. Dong and the UVic Clean Transportation Team are researching greener solutions for marine vessels.
LEADING THE WAY
Expanding our physical spaces will enable us to educate more forward-thinking engineers and computer scientists who will create solutions to the complex, urgent challenges in the world today. Generations of students will learn in this “living lab” and experience first-hand how high-performance buildings are a critical element of any solution to reach future low-carbon targets.

Expansion plans include a six-storey extension to the existing Engineering and Computer Science Building. Prominently located on Ring Road, it will be the first building encountered when entering the campus from the south. The 6,383m$^2$ extension with a green roof will include multidisciplinary instructional and research labs with highly specialized equipment and infrastructure, first-year design studios, computer labs, and faculty and graduate student office space.

An adjacent 1,908m$^2$ High-Bay Structures Research Lab will feature a three-storey space equipped with a gantry crane, a large shake table and other engineering facilities—enabling the unique work of civil engineers. In addition to research focused on structural testing, the High-Bay Structures Research Lab will also accommodate large-scale experiments related to geotechnical, materials and building science research.

THE CENTRE FOR INNOVATION IN REGENERATIVE BUILDINGS
Housed within the Engineering and Computer Science expansion will be a Centre for Innovation in Regenerative Buildings. The Centre will:

- enable research that will position UVic as a leader in green building design
- advance developments in built environments that focus on climate and seismic resilience
- provide the infrastructure to test, pilot and demonstrate new designs, products and processes across a wide range of building systems
- cultivate international leaders in the emerging green economy
- act as a hub for the regional construction industry and as a major node in a network of building research and development centres across Canada
SHAPING A SUSTAINABLE FUTURE

Buildings generate nearly 40% of greenhouse gas emissions. On a global scale, there is urgent need to aggressively reduce energy demand in the built environment. To avoid the worst impacts of climate change, buildings of the future must be restorative—contributing to climate solutions instead of climate harm.

Designed to achieve a net-zero carbon target, these new buildings will set this example world-wide. They will house experimental labs and equipment where students will learn from teachers and researchers who work across disciplines, creating new knowledge that will radically shift the future of engineering.

At the forefront of new design, these buildings will operate as full-scale research equipment. Designed as living laboratories, the timber structures will be packed with sensors, data collection systems and an energy micro-grid. The buildings themselves will enable students and faculty to study energy efficiency, building envelope and structure performance, water use, seismic activity and occupant behavior. Through built-in connections to a computer-simulation model, real-time data from the buildings’ design and operations will be used to advance knowledge about post-carbon building solutions.

Within the buildings’ undergraduate and research labs, thought leaders will advance innovation. The new labs are designed to support interactive, tangible, team-based problem solving. From examining green-building materials and sustainable water management to the intersection between engineering principles and healthcare, some of the brightest minds will have the most-advanced space to tackle the world's biggest challenges.
“I’m inspired by the application of science and engineering in human life—either through biomedical application or by tackling climate change. I’m thrilled by the progress we are able to make through our work at UVic and being part of a team developing technology for a sustainable future.”

–Sadegh Hasanpour, PhD student, Mechanical Engineering
Engineers and computer scientists are needed to solve the world’s most urgent issues and drive economic recovery. And, right now, there are simply not enough of them. By supporting UVic’s expansion plans, you are directly investing in the next generation by giving them the space to learn and innovate. The impact of your gift will be a more resilient, prosperous and sustainable future for all.

Civil engineering PhD candidate Harsh Rathod co-founded a drone-based infrastructure monitoring company that uses artificial intelligence and robotics to help detect and quantify defects like cracks and holes in public infrastructure such as bridges and dams.
MAKE AN IMPACT
We invite you to join the Engineering and Computer Science campaign. With investment from our community we will expand our facilities to produce the leaders of tomorrow.

Heather Buckley (left) joined UVic’s Civil Engineering Department to be part of a team that puts sustainability and caring for the planet at the forefront of its research. Here, she works with Anna Curtin (MA5c Civil Engineering) to prepare samples of greener “antifoulants,” which help prevent the buildup of bacteria and other microorganisms in drinking water treatment systems.

BUILDING CAPACITY FOR A BRIGHTER FUTURE

1. The Engineering and Computer Science campaign not only provides an opportunity to invest in a shovel-ready green infrastructure project to help stimulate the provincial economy, it will help build capacity for innovation in regenerative and resilient building technologies.

2. UVic’s expansion represents a unique occasion for donors to invest in meaningful social change—through our graduates, the talent who will solve pressing global challenges, and through our research, the knowledge creation of our faculty and students.

3. Every gift made to the campaign will directly support our vision to be the Canadian research university that best integrates outstanding scholarship, engaged learning and real-life involvement to contribute to a better future for people and the planet.
“I learned to think at UVic—not only about how to solve engineering problems, but to consider what my values and responsibilities were in the broader world. UVic Engineering and Computer Science continues to be a faculty that prepares young people to change the world.”

– Alumna Catherine Roome, President and Executive Lead Officer, Technical Safety BC
To learn how you can be involved, please contact:

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**Be part of UVic’s community:**  
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All photos included in this publication were shot before COVID-19.