Challenge what's possible

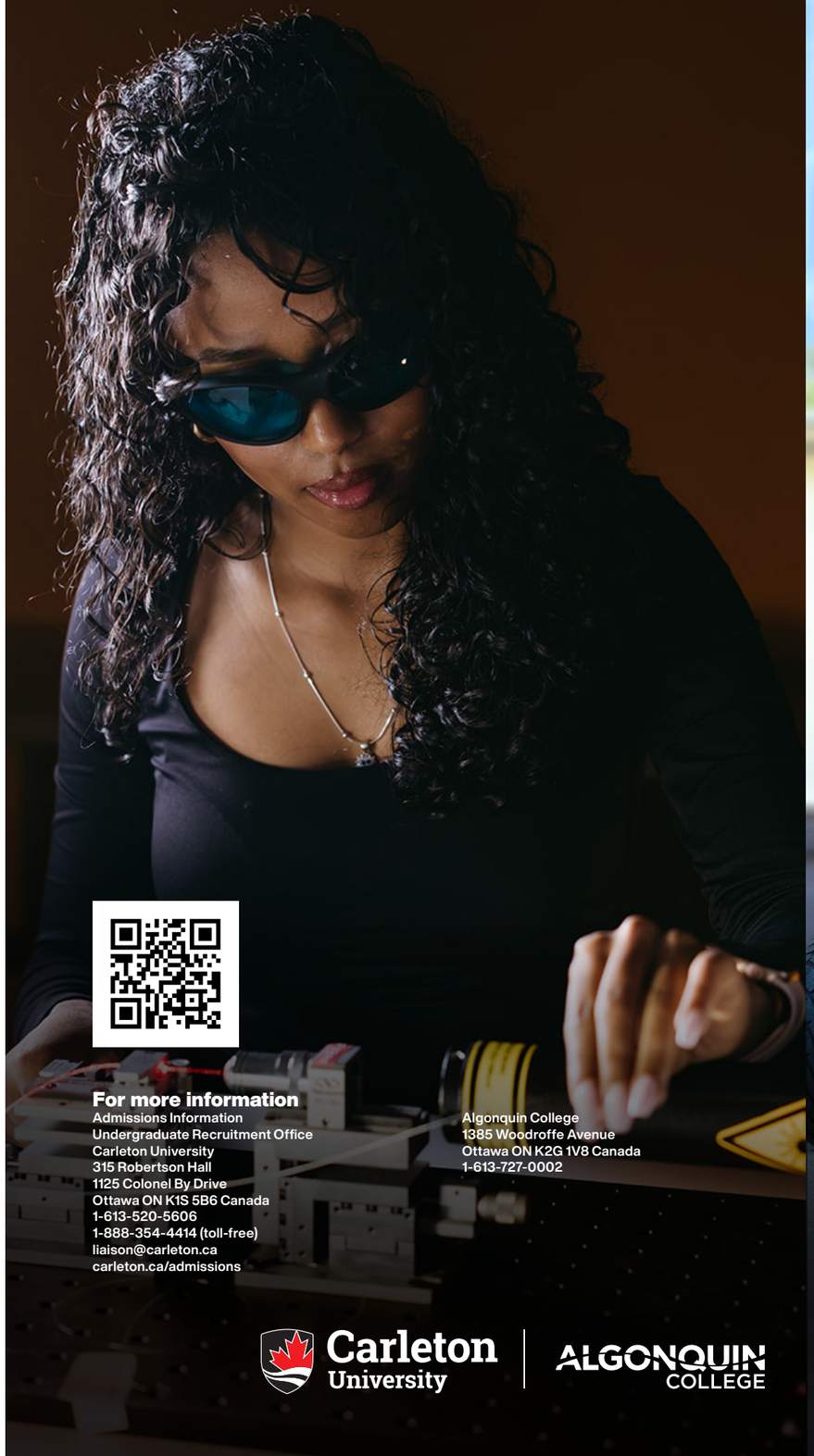
Development of optical and light-based technology is accelerating at an astonishing rate and companies need trained professionals that understand the intricacies of the field. Lasers are being used for everything from scanning architectural artifacts to cutting various materials, and even delicate surgical operations. Optical systems and sensors have become the cutting edge of the tech industry, with applications ranging from computer vision in autonomous vehicles to optical communications in networking.

If you want to be at the forefront of this technology, then the Optical Systems and Sensors (OSS) program may be just what you are looking for.

Why OSS?

ONE OF THE FEW PROGRAMS IN CANADA that combines a Bachelor's Degree in Information Technology and an Advanced Technology diploma

GAIN EXTENSIVE HANDS-ON EXPERIENCES with state-of-the-art equipment

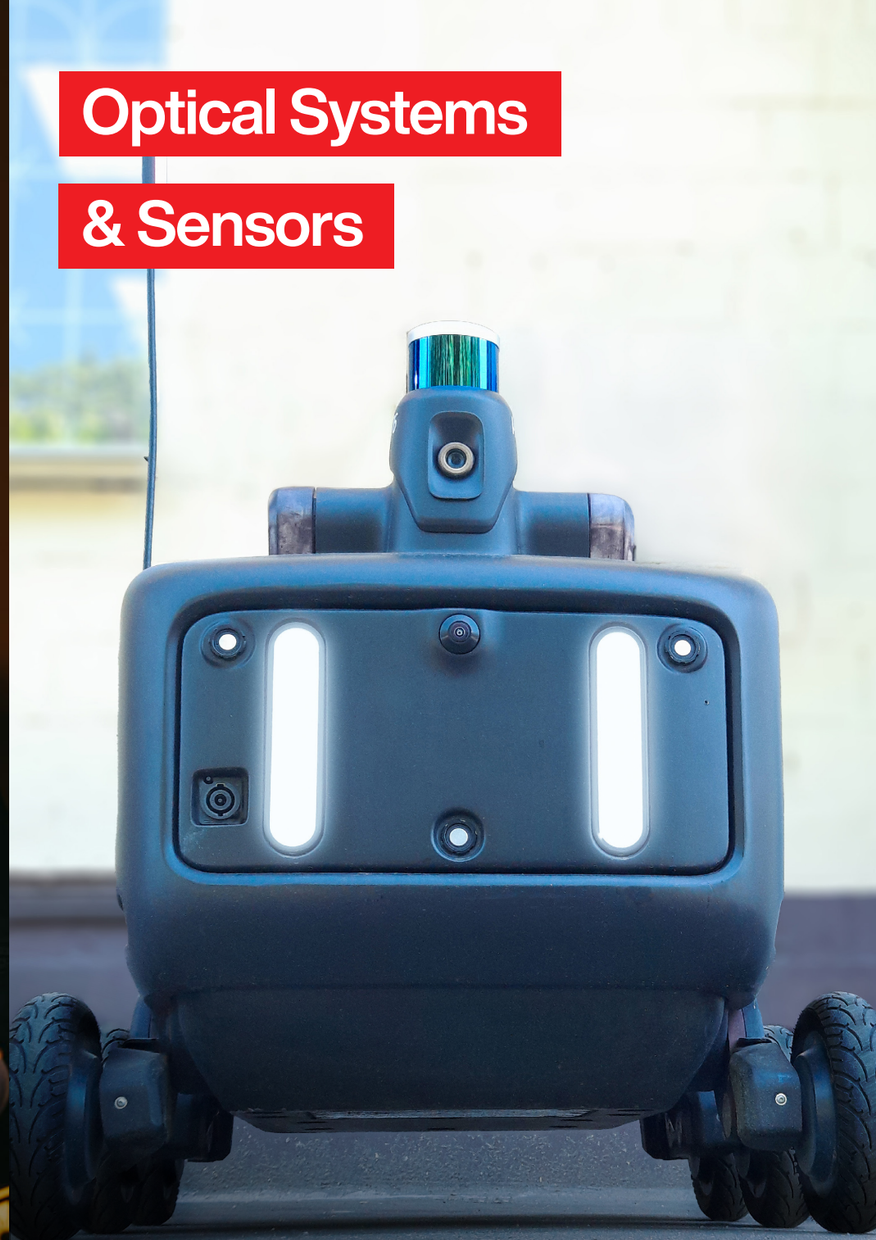


For more information
Admissions Information
Undergraduate Recruitment Office
Carleton University
315 Robertson Hall
1125 Colonel By Drive
Ottawa ON K1S 5B6 Canada
1-613-520-5606
1-888-354-4414 (toll-free)
liaison@carleton.ca
carleton.ca/admissions

Algonquin College
1385 Woodroffe Avenue
Ottawa ON K2G 1V8 Canada
1-613-727-0002

Carleton University | ALGONQUIN COLLEGE

Optical Systems & Sensors



Ottawa, Canada

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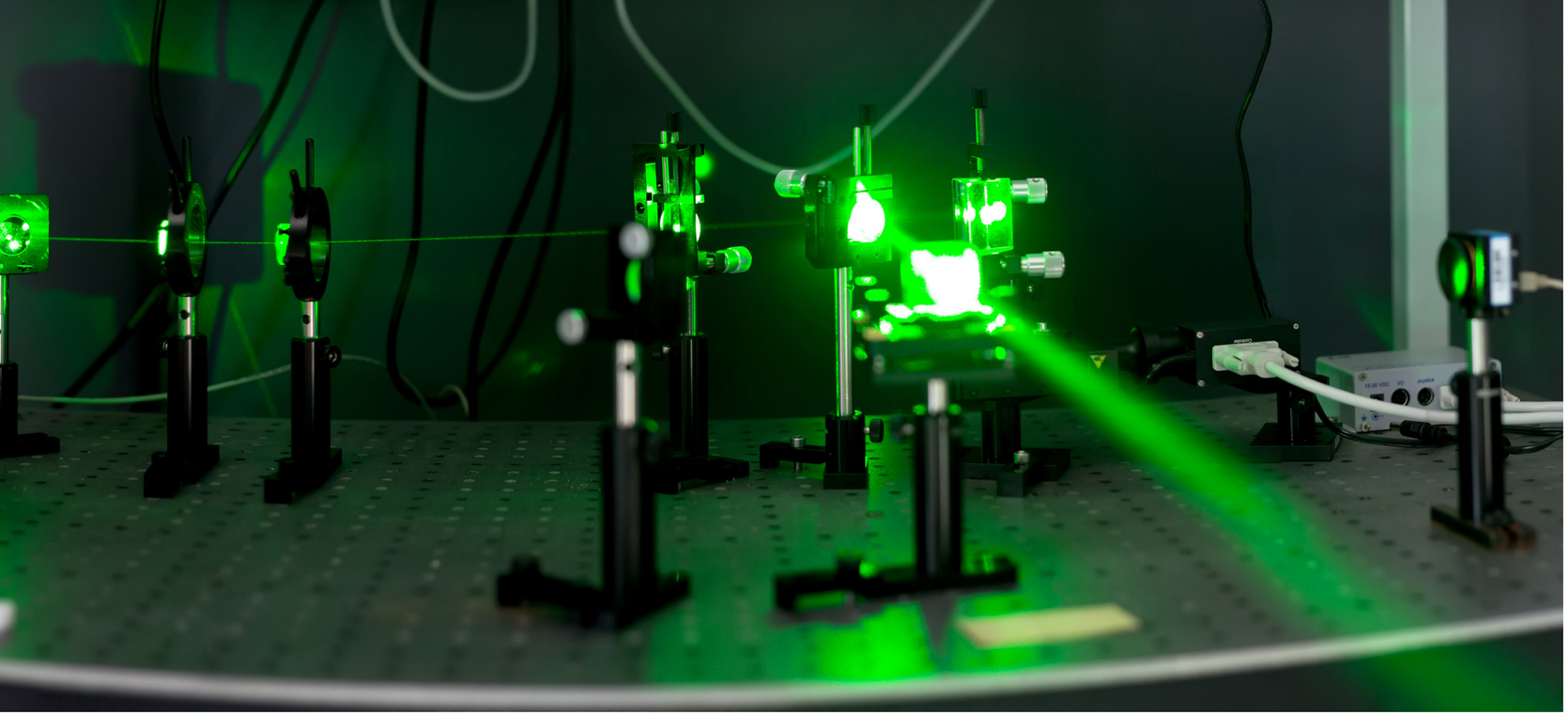


Optical Systems & Sensors

Co-op available

Offered jointly between Carleton University and Algonquin College, the Optical Systems & Sensors (OSS) program offers a comprehensive education combined with practical experience. You will build a strong foundation in mathematics, programming, physics and optics prior to tackling specialized topics including optical communications, optoelectronic devices, computer vision, signal and image processing, biomedical applications, quantum computing and lasers.

You will learn about all of these topics while enjoying extensive hands-on experience with state-of-the-art equipment. You will also take courses in business, marketing and humanities to round out your knowledge and awareness of the role of technology in society. The program emphasizes the development of oral and written communication skills.

Enrich your studies through Co-op
A flexible Co-op option will be available to you as an OSS student. This option adds an additional year to your studies. Usually, you will complete your first Co-op term in the summer after your second year of studies, and your second, third and (optional) fourth Co-op terms in the winter, summer and fall after the fall term of your third year. Your placements are expected to be in the large number of companies working in optical systems and sensor technologies found in Ottawa, but a range of other opportunities exist in areas such as Toronto, Montreal and further afield. This also helps you to build contacts for both summer and future employment.

Your future
Technologies from the program permeate education, research and many different industries. Your future could be as varied as designing displays for next-generation smartphones to developing life-changing laser-based surgical equipment.

Courses
To graduate from this program, you will need 20.0 credits, generally completed over four years. The required courses include:

1st Year	2nd Year	3rd Year	4th Year
Fall: Calculus, Newtonian Physics, Intro to Programming and Problem Solving, Photonics and Optoelectronics Applications, Introduction to Automation and Simulation	**Fall:** Probability for Technology, Differential Equations & Multivariate Calculus, Fundamentals of Light Sources, Circuits and Signals, Manufacturing Photonics Components	**Fall:** Optical Communication Networks II, Fundamentals of Electromagnetics, Data Structures, Digital Signal Processing, Software Design for Optical Systems and Sensors	**Fall:** Introduction to Business, Optoelectronic Devices, Image Processing, Remote Sensing, OSS Capstone Project, Introduction to Deep Learning
Winter: Linear Algebra, Electromagnetism & Modern Physics, Intermediate Programming, Optics/Optical Fibers I (Principles), Introduction to Optics	**Winter:** Optical Communication Networks I, Laser Systems, Integrated Circuits, Assembly and Machine Language, Signals and Systems	**Winter:** Communication Skills for OSS, Real-Time Systems, Design of Optical Components and Systems, Project Management, [as one course:] (Optical Waves, Waveguides, and Sensors)	**Winter:** Marketing in the IT Sector, Arts & Humanities Elective, Medical Imaging and Biosensors, Computer Vision, OSS Capstone Project

Exceptional laboratory facilities and resources
Carleton University's laboratory and computer facilities are extensive, with our well-established optical and semiconductor fabrication facility and a new Centre for Nanoscale Technology. Benefit from the 10Gigbit next-gen optoelectronics communications lab, microelectronic labs, laser labs with stabilization tables, gigahertz oscilloscopes and testing equipment.

At Algonquin College, courses are offered in advanced lasers and photonics, and optical communication network laboratories. Both institutions offer smart classrooms and state-of-the-art computer and optics labs.

Agile programs
Both institutions regularly consult with representatives from related industries to track changing trends in the IT, optics, communications, computer vision and display fields.

Benefit from the capital advantage
Where better to study optical systems than in Ottawa, Canada's capital? Ottawa has a thriving high-tech sector that makes extensive use of optics-related technologies, as well as important government research facilities in optics and specifically lasers.

Have questions? Email infoOSS@bitdegree.ca or visit bitdegree.ca/OSS.

Your career
Typical careers for students graduating in the OSS program include:

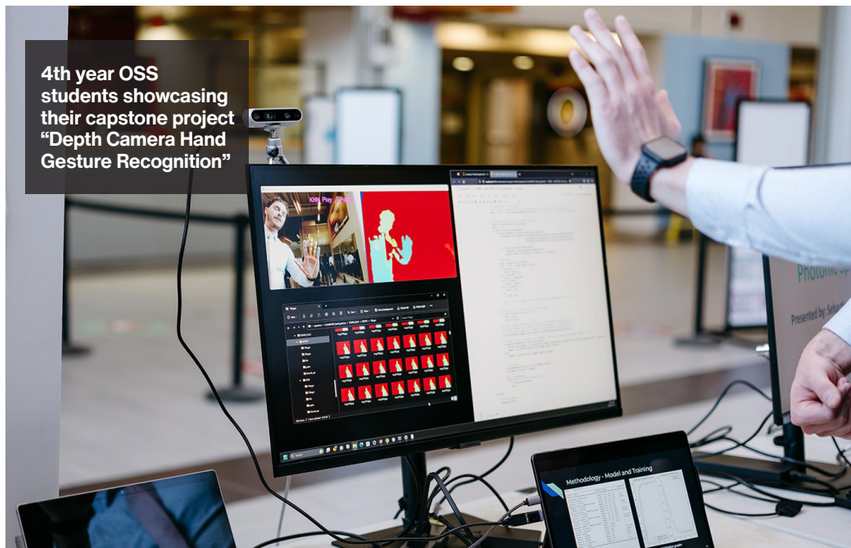
- optical network designer
- optical internet security researcher
- photonics software technologist
- fibre sensor designer
- optical sensor integration specialist
- photonics Designer/scientist
- optical medical diagnostics technician
- display researcher
- remote sensing technician
- computer vision developer
- LIDAR software developer

Graduates and Co-op students from the program are currently employed at places such as Nokia, Ciena, Viavi Solutions, Mitsubishi, OZ Optics, Allied Scientific Pro, General Dynamics, Magellan Aerospace, National Research Council, Bell Canada, JGR Optics, Iridian, Juniper Networks, and Defense Research and Development Canada, to name a few.

Admission requirements
To be eligible for admission to the first year of the OSS program, Ontario students must have an Ontario Secondary School Diploma (OSSD) with a minimum of six 4U/M courses. Your six courses must include Advanced Functions (MFV4U)

For all applicants outside of Ontario, please visit **admissions.carleton.ca/requirements**.

Please note that the program is not structured to accommodate part-time studies.



4th year OSS students showcasing their capstone project "Depth Camera Hand Gesture Recognition"