RESEARCH IN
COMPUTER
SCIENCE AT
DALHOUSIE
UNIVERSITY

DALHOUSIE
UNIVERSITY
FACULTY OF
COMPUTER SCIENCE
Dalhousie’s Faculty of Computer Science is the premier academic research institution in Information Technology in Atlantic Canada. Since our founding in 1997, our award-winning professors have been working in four major areas of research, cutting across many industries and encompassing nearly all human endeavours. From oceans to healthcare, information communications technology to aerospace, our students and professors are making an impact with their research.

Establihed in 1997

4 Canada Research Chairs
35+ Professors
400+ Graduate Students

cs.dal.ca/research

HOME TO HIGH-PROFILE RESEARCH INITIATIVES

INSTITUTE FOR BIG DATA ANALYTICS
Works to create knowledge and expertise by facilitating fundamental, interdisciplinary and collaborative research in big data, aiming to be an international hub of excellence in the field, while also ensuring the work is relevant and applicable for local industries.

DEEPSENSE
A unique ocean research partnership between industry, academia and government that enables companies to benefit from technology solutions that solve real-world ocean related data challenges.
RESEARCH CLUSTERS

BIG DATA ANALYTICS & MACHINE LEARNING

We tackle important problems and develop real-life application, harnessing technologies to extract insights and use data in a more effective way – supporting decision-making across organizations and industry sectors – in a way made possible through dramatic advances in computing, digital storage, networking, and sensor technologies.

- Artificial Intelligence
- Text data
- Data Mining
- Knowledge Management
- Natural Language Processing
- Deep Learning
- Computational linguistics
- Health informatics
- Computational musicology
- Computational neuroscience
- Cognitive robotics
- Visual data mining

HUMAN-COMPUTER INTERACTION, VISUALIZATION & GRAPHICS

We connect computer science with human-centered disciplines including psychology, health, sociology, anthropology, and art and design, developing technologies that advance the interfaces between humans and computers. Working to understand how humans use computing technologies, we are helping to define the interactive technologies of the future - making technology useful, effective and enjoyable.

- Persuasive computing
- Mobile, embodied and ubiquitous interaction
- Text visualization and visual analytics
- Augmented and virtual reality
- Game-related technologies
- Information seeking and sensemaking
- E-learning
- Usable privacy and security
- Serious games and gamification
- Computer graphics & image processing
- Graph algorithms
- Computational geometry
- Parallel algorithms
- Algorithms for large data set
- Metagenomics and the human microbiome
- Modeling and simulation of proteins
- Genomic epidemiology tools
- Phylogenetic methods

SYSTEMS, NETWORKS AND SECURITY

We take an interdisciplinary approach to using advancing technology to explore the real-world problems – and sometimes threats – facing organizations and individuals today. By analyzing the data and behaviours of both machine and humans, we develop solutions to improve the usability and security of systems and networks.

- Network and information security
- Network and traffic analysis
- Insider threat analysis
- Predictive and machine learning algorithms for security
- Cyber physical systems
- Internet of Things
- Emerging wireless technologies
- Data privacy
- Blockchain
- High-performance computing
- Distributed systems
- Cloud computing

ALGORITHMS & BIOINFORMATICS

We develop tools that address real-world problems in medicine, the environment, industry and beyond. Through collaboration with colleagues in Computer Science, Biology, Oceanography and Statistics, we are developing tools that have gained widespread use, nationally and internationally.
No matter where you are in your graduate education, we have a program that suits your current level of expertise. Consider our highly-regarded Master of Computer Science (MCS) or PhD in Computer Science and get involved with one of our research clusters today.

**Become a well-rounded researcher**

From lab work to discussion groups and seminar presentations, our MCS program offers you everything you need to become a skilled researcher in computer science.

*This full-time program typically takes 1-2 years to complete and consists of 4 graduate courses in computer science and 1 successfully-defended thesis*

**Develop your deep expertise**

Work alongside world-class professors to conduct innovative and important research of your own in our PhD program.

*This program typically takes 3-4 years to complete and consists of a number of graduate courses, a research aptitude defence, a thesis proposal, and a thesis defence.*

**Learn more:** cs.dal.ca/mcsphd

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**FULLY-FUNDED FELLOWSHIPS**

Graduate students are an important part of our vibrant research community here at Dalhousie’s Faculty of Computer Science. We are committed to promoting excellence in research and teaching, and supporting our students while on their academic journey.

To further help qualified students, we offer competitive funding packages and have recently added a long list of fully-funded fellowship opportunities with faculty members looking to grow their team. You can learn more about these professors and their available research topics and projects, and express your interest prior to even submitting your application!

**Learn more:** cs.dal.ca/gradfellowships