

Applied Computing

Master of Science Full-time [School of Computing and Academic Studies](#)

Overview

The Master of Science Degree in Applied Computing gives you in-depth computing knowledge to solve complex real-world problems across industries and sectors. Through an interdisciplinary and rigorous full-time curriculum, you'll be equipped to provide technical leadership in a professional setting or pursue further academic study.

Delivery: in person. [See details.](#)

About the program

Applied computing integrates information technology, computer science, and industry. You'll take courses in core computing, and you will have the opportunity to work in an application area in another discipline. You'll develop a deep understanding of how advanced computing, tools, and computational methods can be applied in practice to overcome challenges and create efficiencies.

- The program employs a cohort model, with the same group in all courses. This allows you to work through the program together, sharing your experience and expertise and building industry connections that will last long after you graduate
- 1 intake: September
- 4 15-week terms, normally completed over two academic years full time
- First year with two terms, delivered in-person, including:
 - Algorithm analysis
 - Human-centered Computing
 - Machine Learning (ML) & Artificial Intelligence (AI)
 - Data Science
 - Cybersecurity
 - Research methods
- Second year on thesis path **or** internship & project path
- Based on BCIT Burnaby Campus, and possibly the Downtown Campus or field locations where appropriate.
- You'll be uniquely qualified to apply your knowledge and skills in various areas, such as:
 - computational science
 - rehabilitation engineering
 - building science
 - biotechnology
 - autonomous vehicles
 - sustainability
 - smart micro-grids
 - social impacts of technology
 - network security
 - an approved project area of your choosing based on your professional background

See the [Program Details \[1\]](#) to learn more.

Who it's for

This degree might be for you if you:

- Are inspired to maximize the societal benefit of computing by solving real-world issues

- Would like to apply your skills in industry after graduation, but might also consider applying for a PhD
- Are looking for a cohort-based program where you'll work with other students to share problem-solving skills and approaches, as you would in a work setting
- Have an applied problem you believe could be improved through computing
- Would like to study with computing faculty, application experts outside of computing, and industry partners

Students will also have the opportunity to undertake directed studies with a supervisor in a different department to gain additional knowledge in a specific application area.

Please review the [Entrance Requirements \[2\]](#) to learn more.

What grads can do

- Provide technical leadership for software/system development teams
- Demonstrate deep, critical knowledge and understanding of advanced topics in computing science
- Analyze how computing systems and software can be used in practical applications and interdisciplinary fields
- Design, develop, and implement innovative solutions to industry problems with consideration to relevant ethical, social and environmental issues
- Explain and advocate for applied computing solutions to specialist and non-specialist audiences in both business and academic settings

See the [Graduating & Jobs \[3\]](#) page to learn more.

Entrance Requirements

Application processing

Applications are accepted:

- **First round:** October 1* to January 31*
- **Second round:** February 1* to March 31*
- **Third round:** April 1* to July 31*

International applicants must hold a valid study permit to apply to the third round.

*or next business day

Indigenous applicants: Read about [Indigenous student support \[4\]](#) available for BCIT Computing programs.

Entrance requirements

Competitive entry: Two-step process

Admission to the program is competitive, with preference given to applicants with a combination of:

- Academic grades above the minimum
- Relevant industry experience

Step 1: Meet the following entrance requirements:

- **English language proficiency:** [Graduate Studies \[5\]](#) – English Studies 12 (67%) or equivalent
- **One** of the following entry requirements:
Option 1: standard entry

- **Post-secondary education:** A bachelor's degree in computer science or equivalent, such as BCIT's [Bachelor of Science in Applied Computer Science \[6\]](#), with a minimum GPA of 2.8 out of 4.0 (70%) based on the final 30 credits of undergraduate study at BCIT or equivalent (e.g., one year of full-time studies).

Option 2: alternate entry

Alternate entry is for applicants who don't have a bachelor's degree in computer science and may need to take bridging courses before being accepted to the program. Applicants are required to have the following:

- **Post-secondary education:** bachelor's degree with a minimum GPA of 3.0 out of 4.0 (73%) in another discipline based on the final 30 credits of undergraduate study, with significant knowledge of computing through formal education and/or work experience.
- **Completed Pre-entry Assessment form [PDF] [7]:** submit the form to CompMSc@bcit.ca. The program area will review your pre-entry assessment and bridging courses may be required before applying to the program. Bridging courses will be recommended from existing COMP courses at BCIT, although transferable course work from other recognized Canadian post-secondary institutions may also be used. Applicants may be requested to send additional documents or meet with the program area.

- **Complete the following form for submission with your online application:**

- **Mandatory Applicant Questionnaire [PDF] [8]:** This form will be used with other entrance requirements in the competitive selection for the program.

Applicants who have completed post-secondary studies outside of Canada, the United States, the United Kingdom, Australia or New Zealand will require a comprehensive evaluation of their credentials by the [International Credential Evaluation Service \(ICES\) \[9\]](#). Credential evaluation reports from [other Canadian services \[10\]](#) may be considered.

Step 2: Department Review

All complete applications will be reviewed by the Graduate Program Committee and ranked competitively, and applicants will be offered admission accordingly. Only complete applications with all the required supporting documentation will be evaluated for admission consideration to the program.

Recommended for success

Applicants with a sufficient knowledge base in computer science will be best positioned for success in this program. This may include students who have studied information and communications technology (ICT), engineering, physics, mathematics, applied sciences, or other areas where they have been exposed to computing, information technology, and programming concepts.

International applicants

This program is available to international applicants. A valid [study permit \[11\]](#) is required prior to starting the program.

Students enrolled in the Project & Internship Path of this program must complete the mandatory work component to qualify for graduation. A co-op work permit is required prior to starting the work component.

Apply to program

To submit your application:

- Include proof of meeting all entrance requirements.
- Convert all transcripts and supporting documents to [PDF files \[12\]](#).
- Have a credit card ready to pay the application fee.

[Learn more about how to apply \[14\]](#)

Scheduled Intakes

September each year.

Costs & Supplies

Tuition fees

Use our [tuition estimator \[15\]](#) to find tuition and fees for this program.

For more information on full-time tuition and fees, visit:

- [Full-Time Studies Tuition & Fees \[16\]](#)
- [International Tuition & Fees \[17\]](#)

Books & supplies

Each term: \$450

(general estimated cost, subject to change).

Students are expected to have their own laptops.

Financial assistance

Financial assistance may be available for this program. For more information, please contact [Student Financial Aid and Awards \[18\]](#).

Courses

Class hours

9:00 am to 4:00 pm.

Program matrix

Level 1 (15 weeks – September to December)		Credits
COMP 9060	Applied Algorithm Analysis	3.0
COMP 9170	Data Science*	3.0
COMP 9200	Applied Research Methods	3.0
* COMP 9190 [22] - Application Area Directed Studies can be a substitute for any of the courses: COMP 9130, COMP 9150, or COMP 9170.		
Level 2 (15 weeks – January to April)		Credits

COMP 9040	Human-centered Computing	3.0
COMP 9080	Research Proposal	
COMP 9130	Applied Artificial Intelligence*	3.0
COMP 9150	Cyber Security for Applied Computing*	3.0
*COMP 9190 [27] - Application Area Directed Studies can be a substitute for any of the courses: COMP 9130, COMP 9150, or COMP 9170.		
Levels 3 & 4		Credits
Thesis Path (30 weeks – September to April)		
COMP 9600	M.Sc. Thesis	12.0
or		
Project & Internship Path		
Students may take their industry internship in the Spring/Summer or Fall term and complete their research project in the following Fall or Winter term. Please note that COMP 9290 is offered in the fall term.		
COMP 9290	Special Topics in Applied Computing	3.0
COMP 9400	Industry Internship	6.0
COMP 9500	M.Sc. Research Project	3.0
Total Credits:		30.0

Transfer credit

Do you have credits from another BC/Yukon post-secondary school? Do you want to know if they transfer to courses here at BCIT? Check out BCIT's [Transfer Equivalency Database \[32\]](#) to find out.

Program Details

This degree focuses on Applied Computing, which is fundamentally related to applying computing technology and computational methods to derive solutions to complex practical problems. Course work will emphasize current issues in industry, case studies, and applied research projects.

This program offers you a chance to work with an interdisciplinary and diverse team of academic supervisors that may include faculty from Computing, faculty from an application domain, as well as industry practitioners. You'll also have the opportunity to undertake directed studies with a supervisor in a different department to explore a specific application area. For more information about faculty, visit the [Faculty, Advisors & Staff \[33\]](#) page.

Applied research is fundamental to the program. Two paths are offered, diverging in second year:

1. Thesis Path – Path 1: complete a thesis project and defend it in your second year. You'll need to demonstrate originality in the application of your knowledge, either through new publishable research, or a novel solution to an existing practical problem. This is the best path if you're interested in possibly pursuing a future Ph.D.

2. Project & Internship Path – Path 2: a one-semester research project with a one-semester internship. The internship will embed you in a company where you can learn how advanced computing techniques are applied to solve interdisciplinary problems. The project may be done in collaboration with the industry sponsor from the internship, providing added value in terms of practical utility. Students will also complete a 3-credit special topics course, covering emerging areas in Applied Computing, such as Cloud Computing, Generative AI, or Deep Learning.

Both paths will require students to:

- examine literature in a related discipline,
- recognize gaps and limitations in existing technologies and processes,
- organize and plan their approach, and
- demonstrate competence in applying advanced techniques to solve problems.

In both paths, students will present a written argument that addresses a complex problem in applied computing.

Program length

Two years, full-time.

Grading

Students will be required to maintain a minimum average of 70% across all courses in the program before starting their thesis or research project.

Student progress through the program will be monitored by the supervisor, in consultation with the Program Head.

Program delivery

In person: This program is delivered on campus.

Program location

[Burnaby Campus \[34\]](#)

3700 Willingdon Avenue

Burnaby, BC

Graduating & Jobs

Job opportunities

Our grads will be able to lead and be part of exciting and essential technical transformations across organizations as our society and economy evolve through technology.

Technology in the workforce

The World Economic Forum (WEF) Future of Jobs 2023 predicts that technology adoption will remain a key driver of business transformation, especially in the areas of big data analytics, cloud computing, digitization of commerce and trade, AI, climate change and environmental management technologies, encryption and cybersecurity, agriculture technologies, digital platforms and apps.

WEF also reports that the fastest-growing roles relative to their size today are driven by technology, digitalization and sustainability.

The majority of the fastest-growing roles are technology-related roles. AI and Machine Learning Specialists top the list, followed by Sustainability Specialists, Business Intelligence Analysts and Information Security Analysts.

Local Tech Scene

Vancouver recently ranked at #8 in North American tech markets, the 2nd highest-ranked Canadian city, with the highest tech talent job growth rate (69%), totalling 45,200 tech jobs from 2018 – 2022.

Canada’s tech talent workforce has grown by 150,000 workers or 15.7% since 2020, outpacing the U.S., which grew by 11.4% (CBRE July 2023).

The BC Tech Association 2021 sector survey estimated that approximately 14% of jobs in the tech industry require masters-level education, and 32% require technology expertise with customer sector knowledge.

Apply for graduation

Upon successful completion of all program requirements, complete an [Application for BCIT Credential \[PDF\]](#) [35] and submit it to Student Information and Enrolment Services.

Allow approximately six to eight weeks for processing.

All financial obligations to the Institute must be met prior to issuance of any credential.

Faculty, Advisors & Staff

Erdem Gulova
Program Coordinator
Email: CompMSc@bcit.ca

Computing faculty

Headshot	Background overview
	<p>Dr. Aaron Hunter Mastercard Chair in Digital Trust</p> <p>Academic background Ph.D., Computing Science</p> <p>Research activities Artificial Intelligence, Knowledge Representation, Trust, Information Security</p> <p>Relevant links Bio [36]</p>

Dr. Maryam Tanha**Academic background**

Ph.D., Computer Science

Research activities

Computer networks, cybersecurity, optimization, and machine learning

Relevant links[Personal website \[37\]](#).| [Google Scholar \[38\]](#)**Dr. Michal Aibin****Academic background**

Ph.D., Informatics

Research activities

Networking, cloud computing, UAV/RPAS/drones, computer vision, autonomous vehicles, AI, machine learning

Relevant links[Personal website \[39\]](#).| [Google Scholar \[40\]](#).| [LinkedIn \[41\]](#)**Dr. Borna Nouredin****Academic background**

Ph.D., Biomedical Engineering

Research activities

Social implications of technology, human-computer interaction, assistive technologies, biomedical engineering

Dr. Mirela Gutica**Academic background**

Ph.D., Curriculum Studies (Educational Technology)

Research activities

Advanced learning technologies and intelligent tutoring systems; computer science education research; cognition, emotion, motivation and learning; HCI and adaptive interfaces

Relevant links[Bio \[42\]](#).| [BCIT Researchers \[43\]](#).| [ACM \[44\]](#)**Dr. Chi En Huang****Academic background**

Ph.D., Electrical & Computer Engineering

Research activities

Computer Architecture, Wireless Communication Systems, Artificial Intelligence, Machine Learning, Optimization

Affiliated faculty outside Computing

The following BCIT faculty may be suitable supervisors or co-supervisors for relevant applications of computing.

Headshot**Background overview**

Dr. Jaimie Borisoff

Director, MAKE +, BCIT Applied Research

Academic Background

Ph.D., Neuroscience, Bachelor of Applied Science in Engineering Physics

Research Interests

Quantitative and qualitative evaluation of people using technology (e.g., eye tracking when using a wheelchair and Mocap), development of new devices in rehabilitation, medical devices, wheeled mobility, assistive technology, adapted exercise and fitness, accessibility, rehab robotics

Relevant Links

[MAKE + Product Development \[45\]](#) | [Rehabilitation Engineering Design Lab \[46\]](#) | [ICORD \[47\]](#)

Dr. Dean Hildebrand**Academic Background**

Ph.D., Biochemistry and Molecular Biology

Research Interests

DNA Analysis

Dr. David Holloway**Academic Background**

Ph.D., Physical Chemistry

Research Interests

Developing, coding and testing mathematical models in biology; coding; optimization of equation solution and parameter fitting; machine learning for solution sets; discrete vs. continuous representations of gene networks; image analysis; mathematical models of animal and plant development

Relevant Links

[Personal website \[48\]](#)

Dr. Yvette Jones**Academic Background**

Ph.D., Biomedical Engineering

Expertise

Quantitative and qualitative evaluation and validation of technology, including biomechanics, human factors, ergonomics, and medical device development

Relevant Links

[MAKE + Team \[49\]](#)

Dr. Djamel Khelifi**Academic Background**

Ph.D., Organic Chemistry

Research Interests

Pharmaceuticals, Organic Synthesis and Biosynthesis of Natural Products, Analytical Chemistry, natural health products, Anti-Cancer Polyacetylenes

Dr. Stefan Lukits**Academic Background**

Ph.D., Philosophy

Research Interests

Information theory, formal epistemology, probability theory

Relevant Links

[Publications \[50\]](#)

Dr. Moein Manbachi**Academic Background**

Ph.D., Engineering Science

Research Interests

Smart grid optimization using AI, digital twin modeling of critical energy infrastructure, data/energy hub design, smart grid energy management system, energy infrastructure cybersecurity

Relevant Links

[SMART Team \[51\]](#), [Cybersecurity Lab \[52\]](#), [Google Scholar \[53\]](#)

Dr. Sarah McLeod**Academic Background**

Ph.D., Microbiology and Immunology

Research Interests

Microbiology, immunology

Dr. Jennie Moore**Academic Background**

Ph.D., City/Urban, Community and Regional Planning

Research Interests

Measuring and managing for living within earth's carrying capacity at the city scale; Integrated energy and materials flows analysis; Eco-footprint impacts; Greenhouse gas management; Municipal strategies for climate action and resilience

Relevant Links

[Centre for Ecocities \[54\]](#)

Dr. Rodrigo Mora**Academic Background**

Ph.D., Building Information Modelling, P. Eng.

Research Interests

Building science: smart buildings; occupant-centric design and operation; building environmental quality; climate change and the built environment; machine learning applications; remote sensing and monitoring

Relevant Links

[Bio \[55\]](#)

Dr. Takashi Nakamura**Academic Background**

Ph.D., Physics

Research Interests

Quantum mechanics, machine learning, simulation, quantum computing, quantum communication

Dr. Barry Pointon**Academic Background**

Ph.D., Physics

Research Interests

Medical imaging, nuclear medicine, particle physics, machine learning, data analysis, simulation

Dr. Eric Saczuk**Academic Background**

Ph.D., Factors Affecting Risk from Natural Hazards

Research Interests

GIS, geomorphology, remote sensing, remotely piloted aircraft systems, mapping sciences

Relevant Links[RPAS Hub \[56\]](#), [Indro Robotics \[57\]](#)**Dr. Vidya Vankayala**

Director, SMART

Academic Background

Ph.D., Electrical & Computer Engineering

Research Interests

Smart grids, monitor and manage power system assets, cyber-physical system consequence modeling to prevent attacks on electrical networks

Dr. Carol Wenzel**Academic Background**

Ph.D., Plant Sciences

Research Interests

Biotechnology, plant developmental biology, hormone physiology, vascular patterning, leaf production, drought stress tolerance, exercise/rehabilitation

Advisory committee

BCIT is well-respected by employers for its ties to industry. In Computing, this connection is formalized through a Program Advisory Committee (PAC) comprised of experts in a range of roles from a cross-section of companies. The department consults regularly to ensure program currency and relevance.

Contact Us

Erdem Gulova

Program Coordinator

Email: CompMSc@bcit.ca

Programs and courses are subject to change without notice.

List of links found on this page

This list includes all links found on this page for your reference.

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- [2] <https://www.bcit.ca/programs/applied-computing-master-of-science-full-time-m600msc/#entry>
- [3] <https://www.bcit.ca/programs/applied-computing-master-of-science-full-time-m600msc/#graduating>
- [4] <https://www.bcit.ca/computing-academic-studies/computing/indigenous-student-support/>
- [5] <https://www.bcit.ca/admission/entrance-requirements/english-language-proficiency/#graduatestudies>
- [6] <https://www.bcit.ca/programs/bachelor-of-science-in-applied-computer-science/>
- [7] <https://www.bcit.ca/files/admission/pdf/preentry-assessment-ac.pdf>
- [8] https://www.bcit.ca/files/admission/pdf/questionnaire_ac.pdf
- [9] <https://www.bcit.ca/ices/>
- [10] https://www.cicic.ca/1374/obtain_an_academic_credential_assessment_for_general_purposes.canada
- [11] <https://www.bcit.ca/international-students/permits-visas-status/study-permits/>
- [12] <https://www.bcit.ca/admission/how-to-apply/submitting-transcripts-supporting-documents/#documents>
- [13] <https://apply.educationplannerbc.ca/bcit>
- [14] <https://www.bcit.ca/admission/how-to-apply/>
- [15] <https://www.bcit.ca/admission/tuition-fees/estimator/?ref=catalogue>
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- [33] <https://www.bcit.ca/programs/applied-computing-master-of-science-full-time-m600msc/#staff>
- [34] <https://www.bcit.ca/about/visit/campuses-directions/burnaby/>
- [35] https://www.bcit.ca/files/records/pdf/appl_4_credential.pdf
- [36] <https://circuit.bcit.ca/repository/islandora/object/repository%3A632>
- [37] <http://tanha.ca/>
- [38] <https://scholar.google.com/citations?user=NOxyLQAAAAJ&hl=en>
- [39] <https://aibin.ai/>
- [40] <https://scholar.google.com/citations?user=LAJCBiQAAAAJ>
- [41] <https://www.linkedin.com/in/michalaibin/>
- [42] <https://circuit.bcit.ca/repository/islandora/object/repository%3A580>
- [43] <https://www.bcit.ca/applied-research/people-committees/researchers/>
- [44] <https://dl.acm.org/profile/84459208957>

- [45] <https://www.bcit.ca/applied-research/makeplus-product-development/>
- [46] <https://www.bcit.ca/applied-research/makeplus-product-development/rehabilitation-engineering-design/>
- [47] <https://icord.org/researchers/dr-jaimie-borisoff/>
- [48] <https://davidhollowayresearch.weebly.com/>
- [49] <https://www.bcit.ca/applied-research/makeplus-product-development/makeplus-team/>
- [50] <https://philpeople.org/profiles/stefan-lukits>
- [51] <https://www.bcit.ca/applied-research/smart-microgrid/smart-team/>
- [52] <https://www.bcit.ca/applied-research/smart-microgrid/critical-infrastructure-cybersecurity-lab/>
- [53] https://scholar.google.com/citations?hl=en&user=SYfeNUIAAAAJ&view_op=list_works&sortby=pubdate
- [54] <https://www.bcit.ca/sustainability/centre-for-ecocities/>
- [55] <https://commons.bcit.ca/besys/who-we-are/rodrigo-mora/>
- [56] <https://www.bcit.ca/learning-teaching-centre/remotely-piloted-aircraft-systems/>
- [57] <https://indrorobotics.ca/>
- [58] <https://www.bcit.ca/international-students/>
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