JASON JASKOLKA | Ph.D., P.Eng.

Department of Systems and Computer Engineering – Carleton University
Canal Building 6206 – 1125 Colonel By Drive – Ottawa, ON K1S 5B6 – Canada

+1 613-520-2600 x. 1873 • jason.jaskolka@carleton.ca • www.carleton.ca/jaskolka/

EDUCATION

Ph.D. Software Engineering Sep. 2010–Mar. 2015
McMaster University *Hamilton, ON, Canada*
Advisor: Ridha Khedri
Thesis: *On the Modelling, Analysis, and Mitigation of Distributed Covert Channels*

M.A.Sc. Software Engineering May 2009–Sep. 2010
McMaster University *Hamilton, ON, Canada*
Advisor: Ridha Khedri
Thesis: *Modeling, Analysis, and Detection of Information Leakage via Protocol-Based Covert Channels*

B.Eng. Software Engineering & Game Design (Summa Cum Laude) Sep. 2005–Apr. 2009
McMaster University *Hamilton, ON, Canada*

OTHER CREDENTIALS

Certificate in University Teaching Dec. 2017
Carleton University *Ottawa, ON, Canada*

EMPLOYMENT HISTORY

ACADEMIC EMPLOYMENT

Associate Professor Jul. 2022–Present
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Tenure Status: *Tenured*
- Director of the Cyber Security Evaluation and Assurance (CyberSEA) Research Lab
- Research involves cyber security evaluation and assurance, threat modeling, security-by-design, and formal methods and data-driven approaches for software and security engineering
- Teaching courses related to software engineering and computer security

Visiting Professor May 2022–June 2022
Département Mathématiques et Informatique, Université Toulouse–Jean Jaurès *Toulouse, France*
- Conducted focussed research on developing secure software architectures
- Engaged in advancing collaborations between Carleton University and Université Toulouse–Jean Jaurès

Assistant Professor Jul. 2017–June 2022
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Tenure Status: *Tenure-Track*
- Research involves cyber security, software engineering, and formal specification and verification to develop systematic and rigorous approaches for evaluating and assuring the security of software-dependent systems
- Teaching courses related to software engineering and computer security

U.S. Department of Homeland Security Cybersecurity Postdoctoral Scholar Jan. 2016–June 2017
Center for International Security and Cooperation, Stanford University *Stanford, CA, USA*

- Worked on the project "Cybersecurity Assurance For Critical Infrastructure" to design and develop critical infrastructure cyber security assessment methodologies and associated modeling and simulation environments
- Investigated formal methods-based approaches for identifying and analyzing security vulnerabilities arising from implicit component interactions in critical distributed systems, networks, and infrastructures
- Conducted full-time research in an interdisciplinary research environment comprised of perspectives from areas of technology, science, international security, and policy

Postdoctoral Research Associate Aug. 2015–Dec. 2015
McMaster Centre for Software Certification, McMaster University *Hamilton, ON, Canada*

- Part of the embedded software research thrust area for the FCA-McMaster Automotive Partnership Canada – Leadership in Automotive Powertrain (APC-LEAP) project
- Studied the application of model-driven software engineering and development practices for real-world problems for automotive industrial applications, specifically in collaboration with Fiat Chrysler Automobiles
- Investigated the development of solutions for cyber security issues in automotive engineering

Postdoctoral Fellow Apr. 2015–Aug. 2015
Department of Mathematics, Statistics & Computer Science, St. Francis Xavier University *Antigonish, NS, Canada*

- Worked on a research project on the application of software engineering architectural design patterns to systematically guide the design and development of maintainable, extendable, and reusable ontologies
- Engaged in interactions with graduate students on issues dealing with their research and thesis writing

Other Employment

Engineering Systems Assistant Apr. 2007–Aug. 2007
Ministry of Transportation of Ontario (MTO) *St. Catherines, ON, Canada*

- Managed the MTO Registry, Appraisal, and Qualification (RAQS) system
- Created statistical reports and tables using data collected from the RAQS system
- Wrote software business requirements documents for system enhancements
- Tested and verified software modules and enhancements using various techniques

Research Interests, Areas, and Themes

My research is motivated by the need for the advancement of rigorous and practical approaches to address increasingly critical issues in designing, implementing, evaluating, and assuring the safe, secure, and reliable operation of software-dependent systems. I conduct research that spans the areas of cyber security evaluation and assurance, threat modeling, security-by-design, and formal methods and data-driven approaches for software and security engineering. I am interested in exploring new ideas, techniques, and tools that can support cyber security evaluation and assurance activities and advance security-by-design approaches leading to improved system security and higher system confidence.

Research Specialization Keywords

- cyber security
- assurance
- evaluation
- security-by-design
- security engineering
- software engineering
- formal methods
- model-based engineering
- data-driven approaches
- algebraic approaches
- software architecture and design
- cyber-resilience
- critical infrastructure protection
- cyber-physical systems
- distributed systems

Research Funding

Awarded

Human-Centric Cybersecurity Partnership (HC2P) Mini-Grant 2025-2026
Co-Investigator (Principal Investigator: Sanaa Alwidian [Ontario Tech University]) *$25,000*
Human-Centric Cybersecurity Partnership (Grant) *Share: $12,500*
"Reducing Bias and Racism in Secure Software Development with Human-Centric Goals for Security"

General Dynamics Mission Systems–Canada Research Projects 2024-2026
Principal Investigator *$651,720*
General Dynamics Mission Systems–Canada (Research Contract)
"General Dynamics Mission Systems - Canada/Carleton University Cyber Operations Reference Lab (GCOR Lab)"

Faculty of Engineering and Design (FED) Research Achievement Award 2024
Principal Investigator *$10,000*
Carleton University—Faculty of Engineering and Design (Grant)
"Exploring Human-Related Factors in Collaborative Decision-Making For Secure Software Design"

SSHRC Partnership Grant 2021-2026
Co-Applicant (Principal Investigator: Benoît Dupont [Université de Montréal]) *$2,500,000*
Social Sciences and Humanities Research Council of Canada (Grant) *Share: $50,000*
"The Human-Centric Cybersecurity Partnership"

NSERC Discovery Grant 2019-2026
Principal Investigator *$161,000*
Natural Sciences and Engineering Research Council of Canada (Grant)
"Comprehensive Security Assurance Solutions for Software-Dependent Systems"

NSERC Discovery Launch Supplement 2019
Principal Investigator *$12,500*
Natural Sciences and Engineering Research Council of Canada (Grant)
"Comprehensive Security Assurance Solutions for Software-Dependent Systems"

Carleton University Start-Up Fund 2017
Principal Investigator *$55,000*
Carleton University (Grant)

Under Review

SSHRC Research on Research Joint Initiative - 2025 2025-2028
Co-Applicant (Principal Investigator: Sanaa Alwidian [Ontario Tech University]) *$200,000*
Social Sciences and Humanities Research Council of Canada (Grant)
"Evaluating the Impact of AI-Enabled Peer Review Systems on Equity, Transparency, and Funding Outcomes in Canadian Research Grant Allocation"

Increasing Equity, Diversity and Inclusion in the Canadian Space Sector 2025-2027
Co-Applicant (Principal Investigator: Sanaa Alwidian [Ontario Tech University]) *$50,000*
Canadian Space Agency (Grant)
"A Requirements-Driven Approach for Advancing Equity and Professional Development in the Canadian Space Industry"

Declined

Mitacs Accelerate 2022-2023
Principal Investigator (Industry Partner: BBA (BankingBook Analytics)) *$45,000*
Mitacs (Grant)
"Cyber 360: A Cyber Risk Visualization and Action Platform"

Mourou-Strickland 2020 Mobility Program 2020
Principal Investigator *$TBD*
French Embassy in Canada–Cultural and Scientific Services (Travel Grant)
"An Integrated Approach for Specifying, Detecting, and Treating Security Threats in Software Architectures"

5G (ENCQOR) Academic Technology Development Program 2019
Co-Applicant (Principal Investigator: Ana-Maria Cretu) *$130,000*
Ontario Centres of Excellence (OCE) (Grant) *Share: $70,000*
"A Machine Learning-Based Framework for Cybersecurity Threat Monitoring"

Completed

Carleton University Teaching Achievement Award 2023
Principal Investigator *$10,000*
Carleton University (Grant)
"Cyber Security Katas: Practicing Cyber Defence Strategy Development with Scenario-Based Learning"

Mitacs Accelerate 2021-2023
Principal Investigator (Industry Partner: Telesat) *$180,000*
Mitacs (Grant)
"Model-Based Security Compliance-By-Design for Low-Earth Orbit Satellite Operations Segments"

Mourou-Strickland 2022 Mobility Program 2022
Principal Investigator *$2,000*
French Embassy in Canada–Cultural and Scientific Services (Travel Grant)
"An Integrated Approach for Specifying, Detecting, and Treating Security Threats in Software Architectures"

Canadian Safety and Security Program (CSSP) 2019-2022
Co-Applicant (Principal Investigator: Mohamed Ibnkahla) *$1,178,170*
Defence Research and Development Canada (Grant) *Share: $150,000*
"System-Level Security for IoT-enabled e-Health Systems"

Critical Infrastructure Resilience Institute (CIRI) Research Project 2018-2022
Principal Investigator *$364,509*
United States Department of Homeland Security, Science & Technology Directorate (Research Contract)
"Cybersecurity Assurance for Critical Infrastructure"

Carleton University Development Grants – NSE 2018
Principal Investigator *$10,000*
Carleton University (Grant)
"Validating the Effectiveness of Security Design Patterns"

Natural Resources Canada Research Project 2018
Principal Investigator *$23,000*
Natural Resources Canada (Research Contract)
"Assurance Cases for Security and Resilience of Advanced Metering Infrastructure"

Honours and Awards

Best Paper Award 2024
24th IEEE International Conference on Software Quality, Reliability, and Security (QRS 2024)
Awarded to the best paper ("Requirements for Applying SCIA: a Structured Cyberattack Impact Analysis Approach for ICS") of the 24th IEEE International Conference on Software Quality, Reliability, and Security as selected by the technical program committee.

Faculty of Engineering and Design (FED) Research Achievement Award 2024
Carleton University
Awarded annually to recognize outstanding research achievements by members of the Faculty of Engineering and Design (FED) at Carleton University.

Faculty Graduate Mentoring Award 2023
Carleton University
Awarded annually to recognize faculty who render exceptional service to graduate students as supervisors and research mentors.

Teaching Achievement Award 2023
Carleton University
Awarded annually to recognize faculty members who exhibit commitment to teaching excellence and innovation. The award is intended to enhance the teaching of its recipient and the quality of instruction at Carleton University.

New Faculty Excellence in Teaching Award 2021
Carleton University
Awarded annually to recognize faculty members who, in their first five years at Carleton University, have demonstrated commitment to teaching excellence and innovation.

Best Paper Award 2020
19th International Conference on Software and Systems Reuse (ICSR 2020)
Awarded to the best paper ("Reusable Formal Models for Threat Specification, Detection, and Treatment") of the 19th International Conference on Software and Systems Reuse as selected by the technical program committee.

Teaching Activities

Courses Taught

The following courses were taught at Carleton University, Ottawa, ON, Canada.

Course Code	Course Title	Term	Level	Enrolment
SYSC 5805	Model-Driven Security Engineering	Winter 2025	G	16
SYSC 4120	Software Architecture and Design	Winter 2025	UG	152
SYSC 3120	Software Requirements Engineering	Fall 2024	UG	110
SYSC 5805	Model-Driven Security Engineering	Winter 2023	G	39
SYSC 4120	Software Architecture and Design	Winter 2023	UG	239
SYSC 4810A	Introduction to Network and Software Security	Fall 2022	UG	98
SYSC 5807X	Advanced Topics in Computer Systems: Security Engineering	Winter 2022	G	52
SYSC 3120	Software Requirements Engineering	Winter 2022	UG	47
SYSC 4810	Introduction to Network and Software Security	Fall 2021	UG	206
SYSC 5807X	Advanced Topics in Computer Systems: Security Engineering	Winter 2021	G	41
SYSC 3120	Software Requirements Engineering	Winter 2021	UG	135
SYSC 4810	Introduction to Network and Software Security	Fall 2020	UG	161
SYSC 5807X	Advanced Topics in Computer Systems: Security Engineering	Winter 2020	G	46
SYSC 3120	Software Requirements Engineering	Winter 2020	UG	104
SYSC 4810	Introduction to Network and Software Security	Fall 2019	UG	103
SYSC 5807X	Advanced Topics in Computer Systems: Security Engineering	Winter 2019	G	46
SYSC 3120	Software Requirements Engineering	Winter 2019	UG	96
SYSC 4810	Introduction to Network and Software Security	Fall 2018	UG	53
SYSC 3020	Introduction to Software Engineering	Summer 2018	UG	56
SYSC 3120	Software Requirements Engineering	Winter 2018	UG	70

Contributions to Teaching

Developed New Graduate Course: Model-Driven Security Engineering 2019
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*

- Course offered for the first time as SYSC 5807X (Security Engineering) in Winter 2019
- Course renamed to SYSC 5805 (Model-Driven Security Engineering) in Winter 2023

Developed New Undergraduate Course: Introduction to Network and Software Security 2018
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*

- Course offered for the first time as SYSC 4810 in Fall 2018

Student Supervision & Training

Level	In-Progress	Completed
Postdoctoral Fellows	0	1
Doctorate Students	7	1
Master's Students	1	9
Undergraduate Students	2	10
Visiting Scholars	2	4
Master of Engineering Projects	0	1
Fourth-Year Undergraduate Projects	0	123 (30 projects)

Postdoctoral Fellows

Completed

Quentin Rouland Nov. 2021–Oct. 2023
Postdoctoral Fellow, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Model-Based Security Compliance-By-Design for Low-Earth Orbit Satellite Operations Segments*

Doctorate Students

In-Progress

Olukayode Adegboyega Jan. 2024–Present
Ph.D. Information Technology, *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *A Framework For Evaluating Security Metrics in Industrial Control System Environments*

Dylan Léveillé Sep. 2024–Present
Ph.D. Electrical and Computer Engineering (Software Engineering), *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *TBD*

Richard Goyette Sep. 2023–Present
Ph.D. Electrical and Computer Engineering, *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *TBD*

Alvi Jawad Jan. 2022–Present
Ph.D. Electrical and Computer Engineering (Software Engineering), *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *Concepts and Processes for Structured Cyber-to-Physical Impact Analysis*

Robin Theveniaut Sep. 2023–Present
Ph.D. Electrical and Computer Engineering (Software Engineering), *Carleton University* *Ottawa, ON, Canada*
Cotutelle at *Université Toulouse–Jean Jaurès* *Toulouse, France*
Co-supervisor: *Brahim Hamid*
Thesis: *Human Factors for Collaborative Decision Making for Secure Architecture Design*

Stojanche Gjorcheski Jan. 2022–Present
Ph.D. Electrical and Computer Engineering (Software Engineering), *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *A Model-Based Framework for Checking Compliance with Security Standards and Regulations*

Loïc Thierry Sep. 2021–Present
Ph.D. Electrical and Computer Engineering (Software Engineering), *Carleton University* *Ottawa, ON, Canada*
Cotutelle at *Université Toulouse–Jean Jaurès* *Toulouse, France*
Co-supervisor: *Brahim Hamid*
Thesis: *Formal Modeling of Secure Architecture Within the Positive Perspective using Event-B*

Completed

Xinrui Zhang Sep. 2020–Dec. 2024
Ph.D. Electrical and Computer Engineering, *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *Conceptualizing, Applying and Evaluating SecMLOps: A Paradigm for Embedding Security into the ML Lifecycle*
Present Position: Postdoctoral Researcher – Queen's University, Canada

Master's Students

In-Progress

Ryan Gaudreault Sep. 2024–Present
M.A.Sc. Electrical and Computer Engineering (Cybersecurity), *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *TBD*

Completed

Dylan Léveillé Sep. 2022–Aug. 2024
M.A.Sc. Electrical and Computer Engineering (Software Engineering), *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *A Game Theoretic Approach for Selecting Security Controls from Standards*
(Winner of a Senate Medal)
Present Position: Ph.D. Candidate – Carleton University, Canada

John Breton Sep. 2022–Aug. 2024
M.A.Sc. Electrical and Computer Engineering (Software Engineering), *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *Analyzing the Behavioural Security Posture of Software Systems*
Present Position: Associate Security Engineer – Canonical, Canada

Gieorgi Zakurdaev Sep. 2021–Aug. 2023
M.A.Sc. Electrical and Computer Engineering (Software Engineering), *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *A Scalable Approach to Improve Security and Resilience of Smart City IoT Architectures*
Present Position: Product Cybersecurity Specialist – Telesat, Canada

James Baak Sep. 2020–Dec. 2022
M.A.Sc. Electrical and Computer Engineering, Ericsson Fellow, *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *Modular Verification of Hierarchical Component-Based Software System Specifications*
Present Position: Software Developer – Trend Micro, Canada

Bohdana Sereda Sep. 2020–Dec. 2022
M.A.Sc. Electrical and Computer Engineering, *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *Supporting End Users in Securing IoT-enabled Smart Home Devices*
Present Position: Security Consulting Analyst – Accenture, Canada

Luke Newton Sep. 2020–Aug. 2022
M.A.Sc. Electrical and Computer Engineering (Data Science), *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *Principles and Properties for Reducing the Prevalence of Implicit Interactions in System Designs*
(Nominated for a Senate Medal)
Present Position: Software Developer – Entrust, Canada

Alvi Jawad Jan. 2020–Dec. 2021
M.A.Sc. Electrical and Computer Engineering, *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *A Cyberattack Impact Analysis Approach for Industrial Control Systems*
(Nominated for a Senate Medal)
Present Position: Ph.D. Candidate – Carleton University, Canada

Joe Samuel Sep. 2019–Sep. 2021
M.A.Sc. Electrical and Computer Engineering (Data Science), *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *A Data-Driven Approach to Evaluate the Security of System Designs*
Present Position: Software Development Engineer (Security) – Ford Motor Company, Canada

Thomas Sattolo Sep. 2018–Jan. 2021
M.A.Sc. Electrical and Computer Engineering (Data Science), *Carleton University* *Ottawa, ON, Canada*
Thesis Title: *Real-Time Detection of Storage Covert Channels*
Present Position: Cybercrime Analyst, National Cybercrime Coordination Unit – RCMP, Canada

Withdrawn

Kelvin Desplanque Sep. 2024–Apr. 2025
M.A.Sc. Electrical and Computer Engineering (Cybersecurity), *Carleton University* *Ottawa, ON, Canada*
Student withdrew from the program for personal reasons.

Undergraduate Students

In-Progress

Braeden Kloke Jan. 2025–Present
Undergraduate Student Researcher, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Cyber Gymnasium*

Umniyah Mohammed Jan. 2025–Present
Undergraduate Student Researcher, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Refactoring the ARMOUR Codebase*

Completed

Zoe Arnott May 2023–Aug. 2023
NSERC USRA Undergraduate Student Researcher, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Tool Support for Cybersecurity Impact Analysis on Industrial Cyber-Physical Systems*

John Breton May 2022–Aug. 2022
NSERC USRA Undergraduate Student Researcher, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Analyzing the Behavioural Security Posture of Software Systems*

Gieorgi Zakurdaev May 2021–Aug. 2021
NSERC USRA Undergraduate Student Researcher, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Security and Resilience for Budget-Constrained IoT-Enabled Smart Cities*

Syed Salman Haider Sep. 2020–Apr. 2021
I-CUREUS Undergraduate Student Researcher, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Model-Level Vulnerability Identification*

Kamaluddin Shakiri May 2020–Aug. 2020
I-CUREUS Undergraduate Student Researcher, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Systematic Evaluation of Security Vulnerability Scoring Frameworks*

Khalil Aalab Jan. 2020–Apr. 2020
I-CUREUS Undergraduate Student Researcher, *Carleton University* *Ottawa, ON, Canada*
Project Title: *A Data-Driven Security Evaluation Framework for System Designs*

Pruthvi Chivukula May 2019–Aug. 2019
FED Undergraduate Student Research Award Recipient, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Evaluating the Effectiveness of Security Design Patterns*

Matthew Siu May 2019–Jul. 2019
First-Year Research Intern, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Exploring the State-of-the-Art of Security Assurance Cases*

Dylan Léveillé May 2018–Jul. 2018
First-Year Research Intern, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Specification Generator for* C^2KA *Tool Support*

Idir Zerrouk May 2018–Jul. 2018
First-Year Research Intern, *Carleton University* *Ottawa, ON, Canada*
Project Title: *Specification Generator for* C^2KA *Tool Support*

Visiting Scholars

In-Progress

Antonín Bohačík — Mar. 2025–May 2025
Visiting Scholar, *Carleton University* — *Ottawa, ON, Canada*
Home Institution: *Brno University of Technology* — *Brno, Czechia*
Project Title: *Mathematical Models of Data Communication for Advanced Simulation of Smart Grids*

David Kohout — Mar. 2025–May 2025
Visiting Scholar, *Carleton University* — *Ottawa, ON, Canada*
Home Institution: *Brno University of Technology* — *Brno, Czechia*
Project Title: *Cybersecurity in Smart Metering*

Completed

Marek Sikora — Feb. 2022–Mar. 2022
Visiting Scholar, *Carleton University* — *Ottawa, ON, Canada*
Home Institution: *Brno University of Technology* — *Brno, Czechia*
Project Title: *Modeling and Detection of DoS Attacks*

Bohdana Sereda — Jun. 2019–Aug. 2019
Mitacs Globalink Intern, *Carleton University* — *Ottawa, ON, Canada*
Home Institution: *Taras Shevchenko National University of Kyiv* — *Kyiv, Ukraine*
Project Title: *Threat Modelling in Support of Security-By-Design*

Yang Quentin — Apr. 2019–Aug. 2019
Visiting Scholar, *Carleton University* — *Ottawa, ON, Canada*
Home Institution: *L'École Polytechnique Université Paris-Saclay* — *Palaiseau, France*
Project Title: *Methods for System Level Security Evaluation*

Maxime Buyse — Apr. 2019–Aug. 2019
Visiting Scholar, *Carleton University* — *Ottawa, ON, Canada*
Home Institution: *L'École Polytechnique Université Paris-Saclay* — *Palaiseau, France*
Project Title: *Automated Theorem Proving for Distributed System Cybersecurity*

Master of Engineering Projects

Completed

Vidushi Gupta — Jan. 2020–Apr. 2020
MNET Project (ITEC 5905), *Carleton University* — *Ottawa, ON, Canada*
Project Title: *Comparative Analysis of Existing Approaches for Evaluating Cloud Security*

Fourth-Year Undergraduate Engineering Projects

Completed

Transportation Worker Identification Credential (TWIC) Access Control System — Sep. 2024–Apr. 2025
Department of Systems and Computer Engineering, Carleton University — *Ottawa, ON, Canada*
Student Team Members: *Nitin Alagu, Jakob Delaney, Liam Kavanagh, Sean Pruss, Sanskar Srivastava*

Converting Graphical Models to Formal Specifications — Sep. 2024–Apr. 2025
Department of Systems and Computer Engineering, Carleton University — *Ottawa, ON, Canada*
Student Team Members: *Ahmed Babar, Alexandre Marques, Michael Rochefort*

A Platform for Managing Security Evaluations — Sep. 2024–Apr. 2025
Department of Systems and Computer Engineering, Carleton University — *Ottawa, ON, Canada*
Student Team Members: *Fareen Lavji, Matthew Lisy*

Games for Teaching Cybersecurity: Malware Concepts for Ages 10-14 — Sep. 2022–Apr. 2023
Department of Systems and Computer Engineering, Carleton University — *Ottawa, ON, Canada*
Student Team Members: *Kareem El-Hajjar, Adi El-Sammak, Ali Fahd, Justin Whalley*

Games for Teaching Cybersecurity: Network Defence for Technical Employees Sep. 2022–Apr. 2023
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Jason Gao, Harjap Gill, David Haighton, MacKenzie Wallace, Millan Wang*

Threat Pilot: A Comprehensive Threat Modeling Solution Sep. 2022–Apr. 2023
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Sam Al Zoubi, Jatin Kumar, Tejash Patel, Sara Shikhhassan*

Analysis Tools for Secure System Design: Vulnerability Identification Sep. 2022–Apr. 2023
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Zoe Arnott, Randa Hassan, Seneli Seneviratne*

Analysis Tools for Secure System Design: Attacker Behaviour Analysis Sep. 2022–Apr. 2023
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Tony Abou Zeidan, Ethan Chase, Anthony Dooley, Shaopeng Liu*

A Tool for Detection and Visualization of Code Smells for Object-Oriented Languages Sep. 2022–Apr. 2023
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Golan Hassin, Visakan Kirubakaran, Sabin Plaiasu, Martin Rivard, Kshitij Sawhney*
Co-Supervisor: *Nafiseh Kahani*

Cyber Intent Analysis and Prediction Sep. 2021–Apr. 2022
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Sarah Abdallah, Jonah Gaudet, Alexandre Hassan, Baillie Noell*

A Platform for Managing Security Evaluations Sep. 2021–Apr. 2022
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Zijun Hu, Tiantian Lin, Jiawei Ma, Ruixuan Ni*

Cyber Risk Dashboard Sep. 2021–Apr. 2022
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Vasugi Ganeshram, Judy Hamwi, Aedyn Ladd, Sama Mahmoud*

Generating and Simulating Attack Scenarios from Attack Tree Analysis Sep. 2021–Apr. 2022
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Eric Leung, Dylan Léveillé, Anil Menon, Anandarajah Yathuvaran*

Data-Driven Software Security Assessment Sep. 2021–Apr. 2022
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Khalil Aalab, John Breton, Samuel Gamelin, Mohamed Radwan*

Prioritization of Regression Test Cases Using Machine Learning Techniques Sep. 2021–Apr. 2022
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Jediael Mendoza, Lyam Milbury, Jason Mycroft*
Co-Supervisor: *Nafiseh Kahani*

Software Security Metrics Calculator Sep. 2020–Apr. 2021
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Paul Hewson, Anthony Maevski-Popov, Andrew Moore, Isaac Pruner, Kamaluddin Shakiri*

Detection of Firewall Configuration Errors Sep. 2020–Apr. 2021
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Hoang Bui, Michael Fan, Tamer Ibrahim, Mrunal Patel, Souheil Yazji*

Threat Modeling for Security Requirements Management Sep. 2020–Apr. 2021
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Britney Baker, Mathew Smith, Samantha Tripp*

Mitigating Inference Attacks in Big Data Centres Sep. 2020–Apr. 2021
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Sarah Lamonica, Mounica Pillarisetty, Shoana Sharma*

Predicting and Preventing Social Engineering Attacks Sep. 2020–Apr. 2021
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Sai Vikranth Desu, Tarun Kalikivaya, Dhyan Pathak, Abhiram Santhosh*

A Toolkit for Constructing Covert Channels Sep. 2019–Apr. 2020
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Ryan Abraham, Michael Dysart, Dharina Hanumunthadu, Fahid Mannan, Jackson Schoenermarck*

Attack Surface Analysis and Measurement Sep. 2019–Apr. 2020
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Benjamin Bichel, Omar Dawoud, Darren Holden, Gabrielle Hubert, Jack MacDougall*

CANImmunize Web Client Redesign Sep. 2019–Apr. 2020
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Tanisha Garg, Ahmed Sakr, Devon Verge*

Confidentiality Preservation in Big Data Centres Sep. 2019–Apr. 2020
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Tashfiq Akhand, Hasan Issa, Aleksandar Savic, Calvin Soong, Ryan Zheng*

A Configurable Platform for Developing and Deploying Blockchains Sep. 2018–Apr. 2019
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Zaidoon Abd Al Hadi, Kunall Banerjee, Damanjit Bhangoo, Aaron Bungay, Darshpreet Grewal*

An Image Recognition System for Digitizing Technical Documentation using LaTeX Sep. 2018–Apr. 2019
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Arun Galva, Blessing Omotayo, Sean Tohidi*

Security Threat Modelling for IoT-based Smart City Applications Sep. 2018–Apr. 2019
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Viraj Dave, Nicholas Dmytryk, Brendan Lucas, Chibueze Ndudirim, Survesh Srinivasan*
Co-Supervisor: *Mohamed Ibnkahla*

Who's Got The Kids? Sep. 2018–Apr. 2019
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Alexandre Cournoyer, Daniel Gravel, Bhavik Tailor, Tanzim Zaman*
Co-Supervisor: *Rebecca Bromwich (Law & Legal Studies, Carleton University)*

Secure Electronic Communication Platform Sep. 2017–Apr. 2018
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Mohamed Dahrouj, Ali Farah, Tosin Oni, Lava Tahir, Vincent Vu*

Transportation Worker Identification Credential (TWIC) Access Control System Sep. 2017–Apr. 2018
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*
Student Team Members: *Amer Binmuhana, Liam Disley, Craig Isesele, Abinayen Sivakumar, Daniel Srouji*

Thesis Examination Committees

Examiner – External

Marwa Zeroual Dec. 2024
Ph.D. Informatique et Télécommunications (Thesis Defence) *Toulouse, France*
Institut de Recherche en Informatique de Toulouse, Université Toulouse 2 Jean Jaurès
Thesis Title: *Assuring the Security of Software Architecture using Argument Models: Patterns, Templates, and and Tool Support*

Quentin Rouland Oct. 2021
Ph.D. Informatique et Télécommunications (Thesis Defence) *Toulouse, France*
Institut de Recherche en Informatique de Toulouse, Université Toulouse 3 Paul Sabatier
Thesis Title: *Rigorous Development of Secure Architecture within the Negative and Positive Statements: Properties, Models, Analysis and Tool Support*

Ahn Duy Vu Aug. 2019
Ph.D. Computer Science (Thesis Defence) *Hamilton, ON, Canada*
Department of Computing and Software, McMaster University
Thesis Title: *Software Approaches to Optimize Energy Consumption for a Team of Distributed Autonomous Mobile Robots*

Examiner – Internal

Farhad Rahmanifard Nov. 2024
Master of Information Technology: Networking Technology (Thesis Defence) *Ottawa, ON, Canada*
School of Information Technology, Carleton University
Thesis Title: *Enhancing Privacy in Peer-to-Peer Energy Networks Using an Automated Compliance Platform*

Hemant Gupta Jun. 2021
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
School of Computer Science, Carleton University
Thesis Title: *Designing Security for the MQTT-SN Messaging Protocol*

Yu Zhang Dec. 2018
M.A.Sc. Aerospace Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Mechanical and Aerospace Engineering, Carleton University
Thesis Title: *Performance Estimation and Fault Diagnostics for the Starter of Auxiliary Power Unit*

Examiner – Member of the Joint Institute

Nazanin Bayati Chaleshtari Jan. 2025
Ph.D. Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
School of Electrical Engineering and Computer Science, University of Ottawa
Thesis Title: *A Scalable Metamorphic Testing Approach for Web System Security*

Taoyu Wu Oct. 2024
M.A.Sc. Computer Science (Thesis Defence) *Ottawa, ON, Canada*
School of Electrical Engineering and Computer Science, University of Ottawa
Thesis Title: *Reducing the Cost of Test Data Labelling for Deep-Learning Systems: An Empirical Study*

Nazanin Bayati Chaleshtari Sep. 2024
Ph.D. Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
School of Electrical Engineering and Computer Science, University of Ottawa
Thesis Title: *A Scalable Metamorphic Testing Approach for Web System Security*

Sumit Paul Feb. 2024
Ph.D. Computer Science (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
School of Electrical Engineering and Computer Science, University of Ottawa
Thesis Title: *Practical Methods to Enhance Privacy in a Client/Server Architecture*

Abhishek Chandar Jun. 2023
M. Computer Science (Thesis Defence) *Ottawa, ON, Canada*
School of Electrical Engineering and Computer Science, University of Ottawa
Thesis Title: *Machine-learning-Assisted Test Generation to Characterize Failures for Cyber-physical Systems*

Abdorrahim Bahrami Jul. 2021
Ph.D. Computer Science (Thesis Defence) *Ottawa, ON, Canada*
School of Electrical Engineering and Computer Science, University of Ottawa
Thesis Title: *Modelling and Verifying Dynamic Properties of Neuronal Networks in Coq*

Rajitha Hathurusinghe Aug. 2020
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
School of Electrical Engineering and Computer Science, University of Ottawa
Thesis Title: *Building A PII Recognizer in a Privacy Preserved Manner Using Automated Annotation and Federated Learning*

Abdorrahim Bahrami Jun. 2019
Ph.D. Computer Science (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
School of Electrical Engineering and Computer Science, University of Ottawa
Thesis Title: *Modelling and Verifying Dynamic Properties of Neural Networks in Coq*

Fatemeh Cheraghchi Jun. 2019
Ph.D. Computer Science (Thesis Defence) *Ottawa, ON, Canada*
School of Electrical Engineering and Computer Science, University of Ottawa
Thesis Title: *Maritime Transportation Optimization Using Evolutionary Algorithms in the Era of Big Data and Internet of Things*

Maryam Hezaveh May 2019
Ph.D. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
School of Electrical Engineering and Computer Science, University of Ottawa
Thesis Title: *Privacy Preservation for Nearby-Friend and Nearby-Places Location-Based Services*

Examiner – Member of the Department

Abdul Aziz Abdul Ghaffar Apr. 2025
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Securing Network Slices in 5G and Beyond Networks Through Slice Isolation*

Hazel Griffith Apr. 2025
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Discrete-Event System Specification Modelling Methods for Improving the Study of Policies for Disasters*

Ritvik Joshi Dec. 2024
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Integration of Functional Mock-up Interface with Discrete Event System Specification for Co-simulation of Discrete and Continuous-Time Models*

Arvin Samiei Aug. 2024
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Worst Case Execution Time Analysis on Real-Time Robotic Algorithms using Reinforcement Learning*

Roman Cardenas Rodriguez Nov. 2023
Ph.D. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Integrative Modeling, Simulation, and Optimization Techniques for Efficient Data-Intensive Applications in Edge Computing Infrastructures*

Michael Vezina May 2023
Ph.D. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Qualitative Uncertainty Reasoning in AgentSpeak*

Joseph Boi-Ukeme Jan. 2023
Ph.D. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *A Robust Discrete Event Method for the Design of Cyber-Physical Systems*

Roman Cardenas Rodriguez Nov. 2022
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Integrative Modeling, Simulation, and Optimization Techniques for Efficient Data-Intensive Applications in Edge Computing Infrastructures*

Darius Saif Dec. 2021
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *A QUIC-Enabled Transport Layer for the Internet of Things: Challenges and Solutions*

Michael Vezina Sep. 2021
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *A Framework for Qualitative Reasoning About Uncertainty in Jason*

Joseph Boi-Ukeme Sep. 2020
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *A Robust Discrete Event Method for the Design of Cyber-Physical Systems*

Cristina Ruiz Martín Mar. 2018
Ph.D. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *A Framework to Study the Resilience of Organizations: A Case Study of a Nuclear Emergency Plan*

Mohamed Abdelsalam Jan. 2018
Ph.D. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Network Application Design Challenges and Solutions in SDN*

Examination Committee Chair

Sadaf Akbarisedigh Jan. 2025
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *On Equivalence Classes in Software Testing*

Mahsa Sinaei Hamed Jan. 2025
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Expert Experiences Designing, Developing and Evaluating Data Visualizations on Large Displays*

Amin Farajzadeh Sep. 2024
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Towards Self-Evolving Non-Terrestrial Networks*

Iman Alavi Fazel Sep. 2024
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Model-Driven Development of Fault-Tolerant Internet of Things Applications using Discrete Event System Specification*

Darren Holden Aug. 2024
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Applying Neural Language Models to Code Maintenance Tasks*

Saiful Huq Sep. 2023
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Differentiation of Dry and Wet Cough Sounds using Deep Learning Model and Data Augmentation*

Abdullah Mahmoud Jan. 2023
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Optimal Selection of IPsec-Based Security Profiles in Resource Constrained IoT Environments*

Qays Nazarali Jan. 2023
Ph.D. Aerospace Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Mechanical and Aerospace Engineering, Carleton University
Thesis Title: *Oxidation Study of Incoloy 800H Tubes Exposed to Super-Heated Steam and Super Critical Water*

Mia Wei Aug. 2022
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Multi-Agent Deep Reinforcement Learning Assisted Pre-connect Handover Management*

Maaz Jamal Apr. 2022
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Supervisory Control Using DEVS with Approximate Method & Hybrid Layer*

Guillermo Trabes Jan. 2022
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *DEVS Simulations Design on Shared Memory Architectures*

Khalid Almahrog May 2021
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Optimal Detection in the Presence of Non-Gaussian Jamming*

Mohamed Abdulla Kalandar Mohideen Sep. 2020
M.A.Sc. Electrical and Computer Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *A Graph-Based Indexing Technique for Efficient Searching in Large Scale Textual Documents*

Alexander Fernandes Aug. 2020
M.A.Sc. Biomedical Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Classification of Individual Finger Flexions Using Ultrasound Radiofrequency Signals*

Wafa Hasanain Nov. 2018
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Analysis and Maintainability of Complex Industrial Test Code Using Clone Detection*

Irem Bor-Yaliniz Jul. 2018
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Using Mobility for Agility: Enhancing Wireless Networks with Aerial Access Nodes and User Involvement*

Hoda Khalil Mar. 2018
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *FSM Testing Approach Based on Transition Trees and Complete Round Trip Paths Testing Criteria*

Yaser Fouad Dec. 2017
Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Number-Theoretic Sequence Design for Uncoordinated Resource Block Assignments in Relay-Assisted Machine-Type Communication Systems*

Nikhilesh Pradhan Dec. 2017
M.A.Sc. Biomedical Engineering (Thesis Defence) *Ottawa, ON, Canada*
Department of Systems and Computer Engineering, Carleton University
Thesis Title: *Evaluation of the Signal Quality of Wrist-Based Photoplethysmography*

Service & Outreach

Community

NSERC Discovery Grants Evaluation Group (EG 1507 – Computer Science) Aug. 2023-Jun. 2025
Section Chair, *Natural Sciences and Engineering Research Council of Canada* *Ottawa, ON, Canada*

- Section Chairs are selected based on their expertise and experience to participate in the review and adjudication of Discovery Grant applications.

NSERC Discovery Grants Evaluation Group (EG 1507 – Computer Science) Aug. 2022-Jun. 2023
Committee Member, *Natural Sciences and Engineering Research Council of Canada* *Ottawa, ON, Canada*

- Members are selected based on their expertise and experience to participate in the review of Discovery Grant applications, and make recommendations to NSERC based on their assessment

Scientific Advisory Committee on Digital Health Technologies (SAC-DHT) Oct. 2018–Oct. 2020
Ad Hoc Member, *Health Canada* *Ottawa, ON, Canada*

- Members are selected based on their expertise, breadth of experience, and their ability to balance scientific rigour with practical considerations, regulatory requirements, and international perspectives.
- Members advise Health Canada on matters relating to Digital Health Technologies, which include but are not limited to the following: cyber security, artificial intelligence, software as a medical device, telemedicine, wireless medical devices, mobile medical apps, medical device data systems, and medical device interoperability.

University

New Faculty Excellence in Teaching Award Adjudication Committee Jun. 2023
Member, *Carleton University* *Ottawa, ON, Canada*

Cyclical Program Review (Chemistry) Aug. 2021
Internal Reviewer, *Carleton University* *Ottawa, ON, Canada*

Department

Recruitment Coordinator 2018–2023, 2024-2025
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*

Systems & Computer Engineering Hiring Committee (Software Engineering Instructor) 2023
Chair, *Department of Systems and Computer Engineering, Carleton University* *Ottawa, ON, Canada*

Software Engineering Program Coordinator 2021–2023
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*

Student Club Mentor 2020–2021
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*

Systems & Computer Engineering Hiring Committee (Software Engineering) 2019
Member, *Department of Systems and Computer Engineering, Carleton University* *Ottawa, ON, Canada*

Systems & Computer Engineering Hiring Committee (Technical Services Supervisor) 2019
Member, *Department of Systems and Computer Engineering, Carleton University* *Ottawa, ON, Canada*

Systems & Computer Engineering Endowments Selection Committee 2018-2020
Member, *Department of Systems and Computer Engineering, Carleton University* *Ottawa, ON, Canada*

Ontario Graduate Scholarship (OGS) Selection Committee 2018-2020
Member, *Department of Systems and Computer Engineering, Carleton University* *Ottawa, ON, Canada*

Tenure & Promotion Committee 2018–2019
Department of Systems and Computer Engineering, Carleton University *Ottawa, ON, Canada*

Systems & Computer Engineering Hiring Committee (Cybersecurity) 2018
Member, *Department of Systems and Computer Engineering, Carleton University* *Ottawa, ON, Canada*

Domestic Student Recruitment Committee 2017
Member, *Department of Systems and Computer Engineering, Carleton University* *Ottawa, ON, Canada*

Scholarly & Professional Activities

Editorial Activities

Guest Editor

- Special Issue on Software Design Trends Supporting Multi-Concern Assurance of *IEEE Software* 2022

Event Administration

Conference/Workshop Organizer

- Served as Publicity Chair for the following conferences:
  - International Conference on Software Engineering (ICSE) 2025
- Served as a co-organizer for the following conferences/workshops:
  - International Workshop on Software Engineering for Systems-of-Systems and Software Ecosystems (SESoS) 2025
  - The Cybersecurity Revolution (SECREV) 2021-2022, 2024
  - International Workshop on Multi-concern Assurance Practices in Software Design (MAPSOD) 2021

Track Chair

- Served as a track chair for a number of conferences:
  - International Conference on Ambient Systems, Networks and Technologies (ANT) 2019-2021
    Track: *System Software Engineering*
  - Winter Simulation Conference (WSC) 2019
    Track: *Simulation and Cybersecurity*

Program Committee Member

- Served on the program committee for a number of conferences and workshops including:
  - Annual International Conference on Privacy, Security, and Trust (PST) 2025
  - IEEE International Conference on Smart Mobility (IEEE SM) 2024
  - International Workshop on Next Generation of System Assurance Approaches for Critical Systems (SASSUR) 2023-2024
  - IEEE International Conference on E-health Networking, Application & Services (IEEE HealthCom) 2022, 2024-2025
  - International Symposium on Foundations & Practice of Security (FPS) 2021-2024
  - Annual Modeling and Simulation Conference (ANNSIM) 2021-2022, 2025
  - Reconciling Data Analytics, Automation, Privacy, and Security Conference (RDAAPS) 2021-2022
  - ACS/IEEE International Conference on Computer Systems and Applications (AICCSA) 2017-2020
  - International Workshop on Interplay of Security, Safety and System/Software Architecture (ISSA) 2018
  - International Conference on Ambient Systems, Networks and Technologies (ANT) 2014-2018, 2023-2025
  - International Conference on New Trends in Information Technology (NTIT) 2017
  - Annual Cyber Security and Information Intelligence Research Workshop (CSIIRW) 2012

Assessment and Review Activities

Journal Reviewer

- Refereed a total of 29 journal article submissions for the following journals:
  - IEEE Transactions on Dependable and Secure Computing 2025
  - The Journal of Systems & Software 2024, 2025
  - International Journal of Critical Infrastructure Protection 2024
  - Computers & Security 2024
  - Software Testing, Verification and Reliability 2024
  - Information and Software Technology 2023
  - IEEE Communications Magazine 2022
  - Annals of Telecommunications 2013 & 2022
  - SAE International Journal of Connected and Automated Vehicles 2021
  - Journal of Data and Information Quality 2021
  - IEEE Transactions on Network and Service Management 2020
  - Concurrency and Computation: Practice and Experience 2020
  - Frontiers of Computer Science 2018 & 2019
  - Sensors 2017 & 2018
  - Knowledge and Information Systems 2018
  - Computational Intelligence 2017
  - Simulation Modelling Practice and Theory 2017
  - International Journal of Ad Hoc and Ubiquitous Computing 2017
  - Computer Standards & Interfaces 2017
  - Journal of Computer Security 2017
  - Security and Communication Networks 2012 & 2015
  - Applied Mathematics & Information Sciences 2015

Conference Reviewer

- Refereed a total of 84 submissions for a number of conferences including:
  - IEEE International Conference on E-health Networking, Application & Services (IEEE HealthCom) 2024
  - IEEE International Conference on Smart Mobility (IEEE SM) 2024
  - International Workshop on Next Generation of System Assurance Approaches for Critical Systems (SASSUR) 2023-2024
  - International Symposium on Foundations & Practice of Security (FPS) 2021-2024
  - Resilience Week Symposium 2021, 2023-2024
  - International Workshop on Multi-concern Assurance Practices in Software Design (MAPSOD) 2021–2022
  - Annual Modeling and Simulation Conference (ANNSIM) 2021, 2025
  - Reconciling Data Analytics, Automation, Privacy, and Security Conference (RDAAPS) 2021
  - International Conference on Risks and Security of Internet and Systems (CRISIS) 2020
  - International Symposium on Software Reliability Engineering (ISSRE) 2019–2024
  - Winter Simulation Conference (WSC) 2019
  - IEEE Conference on Communications and Network Security (IEEE CNS) 2018–2019
  - ACS/IEEE International Conference on Computer Systems and Applications (AICCSA) 2017–2020
  - International Workshop on Interplay of Security, Safety and System/Software Architecture (ISSA) 2018
  - International Conference on Ambient Systems, Networks and Technologies (ANT) 2012–2018, 2023–2025
  - International Conference on New Trends in Information Technology (NTIT) 2017
  - Cybersecurity and Cyberforensics Conference (CCC) 2016
  - International Symposium on Foundations of Health Information Engineering and Systems (FHIES) 2012

- Annual Cyber Security and Information Intelligence Research Workshop (CSIIRW) 2012
- International Workshop on Discrete Event Systems (WODES) 2012
- International Conference on Application and Theory of Petri Nets and Concurrency (Petri Nets) 2012

Grant Reviewer

- Refereed a total of 4 grant proposals the following funding programs:
  - Mitacs Accelerate 2020–2022

Book Proposal Reviewer

- Reviewed a total of 2 book proposals for the following publishers:
  - Taylor & Francis 2024
  - Emond Publishing 2021

Publications

Publication links can be found at: https://carleton.ca/jaskolka/publications-by-type/
Authors marked with an * are Highly Qualified Personnel (HQP) under my supervision.

Refereed Journal Articles

Submitted

[1] D. Léveillé* and **J. Jaskolka**, "A scalable game-theoretic approach for selecting security controls from standardized catalogues," *Logical Methods in Computer Science*, p. 26, 2025. *(Submitted: March 22, 2025)*.

[2] M. Zeroual, B. Hamid, M. Adedjouma, **J. Jaskolka**, and B. Gallina, "Semi-automated generation of security cases from secure reference architectures through argument templates," *Information and Software Technology*, p. 41, 2025. *(Submitted: Mar. 13, 2025)*.

[3] A. Jawad* and **J. Jaskolka**, "Demystifying model-driven cyber-to-physical impact analysis: A conceptual model for analysts," *ACM Transactions on Cyber-Physical Systems*, p. 25, 2024. *(Submitted: Sep. 13, 2024)*.

[4] A. Gharib, **J. Jaskolka**, M. Ibnkahla, and A. Matrawy, "Security management of horizontal IoT platforms: A survey and comparison," *ACM Computing Surveys*, pp. 1–36, 2025. *(Revision Requested)*.

Published

[5] X. Zhang*, P. Zhao, and **J. Jaskolka**, "Navigating the DevOps landscape," *Journal of Systems and Software*, vol. 223, p. 112331, May 2025.

[6] Q. Rouland*, B. Hamid, and **J. Jaskolka**, "A model-driven formal methods approach to software architectural security vulnerabilities specification and verification," *Journal of Systems and Software*, vol. 219, p. 112219, January 2025.

[7] **J. Jaskolka**, B. Hamid, and S. Kokaly, "Software design trends supporting multi-concern assurance," *IEEE Software*, vol. 39, pp. 22–26, July/August 2022.

[8] A. Le Clair, **J. Jaskolka**, W. MacCaull, and R. Khedri, "Architecture for ontology-supported multi-context reasoning systems," *Data & Knowledge Engineering*, vol. 140, p. 102044, July 2022.

[9] Q. Rouland, B. Hamid, and **J. Jaskolka**, "Specification, detection, and treatment of STRIDE threats for software components: Modeling, formal methods, and tool support," *Journal of Systems Architecture*, vol. 117, p. 102073, Aug. 2021.

[10] Q. Rouland, B. Hamid, and **J. Jaskolka**, "Formal specification and verification of reusable communication models for distributed systems architecture," *Future Generation Computer Systems*, vol. 108, pp. 178–197, July 2020.

[11] M. Buyse* and **J. Jaskolka**, "Communicating concurrent kleene algebra for distributed systems specification," *Archive of Formal Proofs*, p. 22, Aug. 2019. `http://isa-afp.org/entries/C2KA_DistributedSystems.html`, Formal proof development.

[12] **J. Jaskolka** and J. Villasenor, "An approach for identifying and analyzing implicit interactions in distributed systems," *IEEE Transactions on Reliability*, vol. 66, pp. 529–546, June 2017.

[13] **J. Jaskolka** and R. Khedri, "Mitigating covert channels based on analysis of the potential for communication," *Theoretical Computer Science*, vol. 643, pp. 1–37, Aug. 2016.

[14] **J. Jaskolka**, R. Khedri, and K. Sabri, "Investigative support for information confidentiality," *Journal of Ambient Intelligence and Humanized Computing*, vol. 6, pp. 425–451, Aug. 2015.

[15] Q. Zhang, R. Khedri, and **J. Jaskolka**, "An aspect-oriented language for feature-modeling," *Journal of Ambient Intelligence and Humanized Computing*, vol. 5, pp. 343–356, June 2014.

Refereed Conference Proceedings

Published

[16] X. Zhang*, P. Zhao, and **J. Jaskolka**, "Enhancing security and efficiency in vehicle-to-sensor authentication: A multi-factor approach with cloud assistance," in *23rd IEEE International Conference on Trust, Security and Privacy in Computing and Communications*, TrustCom 2024, pp. 1632–1637, 2024.

[17] D. Léveillé* and **J. Jaskolka**, "A tool for enabling scalable automation in security control selection," in *17th International Symposium on Foundations & Practice of Security* (K. Adi, S. Bourdeau, C. Durand, V. Viet Triem Tong, A. Dulipovici, Y. Kermarrec, and J. Garcia-Alfaro, eds.), vol. 15532 of *Lecture Notes in Computer Science*, (Cham), pp. 202–213, Springer, 2024.

[18] J. Breton*, **J. Jaskolka**, and G.O.M. Yee, "An approach to determine a system's behavioural security posture," in *17th International Symposium on Foundations & Practice of Security* (K. Adi, S. Bourdeau, C. Durand, V. Viet Triem Tong, A. Dulipovici, Y. Kermarrec, and J. Garcia-Alfaro, eds.), vol. 15532 of *Lecture Notes in Computer Science*, (Cham), pp. 94–110, Springer, 2024.

[19] L. Thierry*, **J. Jaskolka**, and B. Hamid, "Reusable formal model libraries for specifying and analyzing security objectives in Event-B," in *Model and Data Engineering, MEDI 2024* (C. Ordonez, G. Sperlì, E. Masciari, and L. Bellatreche, eds.), vol. 15590 of *Lecture Notes in Computer Science*, (Cham), pp. 55–63, Springer Nature Switzerland, 2025.

[20] M. Zeroual, B. Hamid, M. Adedjouma, and **J. Jaskolka**, "A tool-supported methodology for creating security cases using argument patterns," in *Model and Data Engineering, MEDI 2024* (C. Ordonez, G. Sperlì, E. Masciari, and L. Bellatreche, eds.), vol. 15590 of *Lecture Notes in Computer Science*, (Cham), pp. 82–90, Springer Nature Switzerland, 2025.

[21] X. Zhang* and **J. Jaskolka**, "Uncovering the DevOps landscape: A scoping review and conceptualization framework," in *31st Asia-Pacific Software Engineering Conference*, APSEC 2024, (Chongqing, China), pp. 497–501, 2024.

[22] A. Jawad* and **J. Jaskolka**, "Interplay of attacker behaviors and dependability attributes in industrial control system impact analysis," in *11th International Conference on Dependable Systems and Their Applications*, DSA 2024, (Suzhou, China), pp. 86–95, 2024.

[23] L. Newton*, **J. Jaskolka**, Q. Rouland*, and B. Hamid, "Data-driven approximation of formal implicit interaction analysis for cyber-physical system designs," in *Resilience Week 2024 Symposium*, (Austin, TX, USA), pp. 1–10, 2024.

[24] L. Thierry*, B. Hamid, and **J. Jaskolka**, "A formal approach for verifying and validating security objectives in software architecture," in *Verification and Evaluation of Computer and Communication Systems* (B. Ben Hedia,

M. Ghazel, and B. Monsuez, eds.), vol. 15466 of *Lecture Notes in Computer Science*, (Cham), pp. 143–158, Springer Nature Switzerland, 2025.

[25] M. Zeroual, B. Hamid, M. Adedjouma, and **J. Jaskolka**, "Formal security analysis of deep neural network architecture," in *Verification and Evaluation of Computer and Communication Systems, VECoS 2024* (B. Ben Hedia, M. Ghazel, and B. Monsuez, eds.), vol. 15466 of *Lecture Notes in Computer Science*, (Cham), pp. 97–112, Springer Nature Switzerland, 2025.

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Invited Presentations

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[2] **J. Jaskolka**, "Security assurance for deep neural networks." The 7th Annual Cybersecurity Revolution (SECREV 2024), May 10, 2024.

[3] **J. Jaskolka**, "Security assurance for deep neural network development." The Cybersecurity & Identity Summit (CIS) 2024, May 1, 2024.

[4] **J. Jaskolka**, "Considering human factors in collaborative decision making for secure architecture design." Carleton University System and Computer Engineering Student Society (SCESoc) SCETalks Series, Mar. 21, 2023.

[5] **J. Jaskolka**, "Identifying and analyzing implicit interactions in critical infrastructure systems." Institut de Recherche en Informatique de Toulouse (IRIT) Seminar, June 16, 2022.

[6] **J. Jaskolka**, "Standardizing cybersecurity: Challenges and opportunities." The 5th Annual Cybersecurity Revolution (SECREV 2022), May 10, 2022.

[7] **J. Jaskolka** and J. Samuel*, "Developing tools to support secure software design using compass." Carleton University System and Computer Engineering Student Society (SCESoc) SCETalks Series, Feb. 1, 2022.

[8] **J. Jaskolka**, "The role of security in multi-agent systems." Information Security Club Speaker Series, University of Calgary, Jan. 24, 2022.

[9] **J. Jaskolka**, "Data-driven vulnerability analysis in critical infrastructure systems." Identity, Privacy and Security Initiative (IPSI) Seminar, University of Toronto, Nov. 9, 2021.

[10] **J. Jaskolka**, "Leveraging external data sources to enhance secure system design." IEEE Women in Engineering Ottawa Chapter Seminar, June 3, 2021.

[11] **J. Jaskolka**, "Effective security assurance for critical infrastructure: Current challenges and future directions." The 4th Annual Cybersecurity Revolution (SECREV 2021), May 21, 2021.

[12] **J. Jaskolka**, "Specification, detection, and treatment of STRIDE threats for software components." Real Time and Distributed Systems Research Centre (RADS) Seminar, Carleton University, May. 20, 2021.

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[19] **J. Jaskolka**, "Security considerations for digital health technologies." IEEE Women in Engineering Ottawa Chapter Lunch-and-Learn Seminar, Nov. 2, 2019.

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[21] **J. Jaskolka**, "Cybersecurity evaluation and assurance for IoT-enabled systems." IEEE Women in Engineering Ottawa Chapter Seminar, Apr. 8, 2019.

[22] **J. Jaskolka**, "Cybersecurity assurance for critical infrastructure." Université du Québec en Outaouais, Gatineau, QC, Canada, Feb. 8, 2018.

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Conference Presentations

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Poster Presentations

[45] L. Newton*, **J. Jaskolka**, Q. Rouland*, and B. Hamid, "Data-driven approximation of formal implicit interaction analysis for cyber-physical system designs." Resilience Week 2024 Symposium, Dec 4, 2024.

[46] J. Samuel*, **J. Jaskolka**, and G.O.M. Yee, "A data-driven approach for designing secure systems." Data Day 7.1, Ottawa, ON, Canada, Mar. 30, 2021. ***(Best Poster Award Winner)***.

[47] T. Sattolo* and **J. Jaskolka**, "On the real-time detection of covert channels." SERENE-RISC 2019 Annual Workshop, Ottawa, ON, Canada, Oct. 23, 2019.

[48] **J. Jaskolka** and J. Villasenor, "Identification of implicit component interactions in critical infrastructures." *Poster Presentation* at the Critical Infrastructure Resilience Institute (CIRI) Kick-Off Event, University of Illinois at Urbana-Champaign, Urbana, IL, USA, Apr. 12, 2016.

Other Presentations

[49] **J. Jaskolka**, "Data-driven approaches for cyber security evaluation and assurance." Carleton University Advancement Briefing, Mar. 31, 2021.

[50] **J. Jaskolka**, "Cybersecurity assurance for critical infrastructure: Identifying and analyzing implicit interactions." Cybersecurity and Infrastructure Security Agency (CISA) ICS OpCom Briefing (Online), Sep. 4, 2020.

[51] **J. Jaskolka**, "Securing cyber-dependent maritime systems and operations." United States Coast Guard Pacific Area Executive Leadership Team Meeting, Stanford, CA, USA, Mar. 14, 2018.

[52] **J. Jaskolka** and J. Villasenor, "Identification and analysis of implicit component interactions in critical distributed systems." CISAC Cyber Reading Group Seminar, Stanford University, Stanford, CA, USA, Apr. 21, 2016.

Interviews and Media Relations

Broadcast Interviews

Carleton University Partners with DND to Prevent e-Healthcare Cyberattacks Aug. 13, 2019
CBC Radio: All in a Day

Interview Contributions to News Articles

Websites for PMO's office, NCC among those crashed by hackers Apr. 15, 2023
Article by Michelle Allan, CBC News

'Insider attacks' that breached Ontario vaccination booking system the hardest to prevent, cybersecurity expert says Nov. 24, 2021
Article by Blair Crawford, Ottawa Citizen

New CIRI Tool Helps Critical Infrastructure Operators Identify Risks From Implicit Interactions Jun. 1, 2020
Article by Kim Gudeman, Critical Infrastructure Resilience Institute

We dodged the Y2K computer apocalypse 20 years ago. What's next could be worse Dec. 31, 2019
Article by Joanne Laucius, Ottawa Citizen

The growth of IoMT and what it means for MSPs Dec. 4, 2019
Article by Kevin Williams, SmarterMSP

CIRI researcher seeking testbed for cybersecurity assurance framework Jan. 17, 2019
Article by Ashley Albrecht, Critical Infrastructure Resilience Institute

Professional Memberships

Professional Engineers Ontario (PEO) Apr. 2019–Present
Professional Engineer

Smart Cybersecurity Network (SERENE-RISC) Dec. 2017–Dec. 2021
Academic Member

Institute of Electrical and Electronics Engineers (IEEE) Feb. 2015–Present
Senior Member

Association for Computing Machinery (ACM) Feb. 2015–Present
Professional Member

Golden Key International Honour Society Oct. 2008–Present
Member