

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

Department of Systems and Computer Engineering – Carleton University
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EDUCATION

Ph.D. Software Engineering

McMaster University

Advisor: Ridha Khedri

Thesis: *On the Modelling, Analysis, and Mitigation of Distributed Covert Channels*

Sep. 2010–Mar. 2015
Hamilton, ON, Canada

M.A.Sc. Software Engineering

McMaster University

Advisor: Ridha Khedri

Thesis: *Modeling, Analysis, and Detection of Information Leakage via Protocol-Based Covert Channels*

May 2009–Sep. 2010
Hamilton, ON, Canada

B.Eng. Software Engineering & Game Design (Summa Cum Laude)

McMaster University

Sep. 2005–Apr. 2009
Hamilton, ON, Canada

OTHER CREDENTIALS

Certificate in University Teaching

Carleton University

Dec. 2017
Ottawa, ON, Canada

EMPLOYMENT HISTORY

ACADEMIC EMPLOYMENT

Associate Professor

Department of Systems and Computer Engineering, Carleton University

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

July 2022–Present
Ottawa, ON, Canada

Visiting Professor

Département Mathématiques et Informatique, Université Toulouse–Jean Jaurès

○ Conducted focussed research on developing secure software architectures

○ Engaged in advancing collaborations between Carleton University and Université Toulouse–Jean Jaurès

May 2022–June 2022
Toulouse, France

Assistant Professor

Department of Systems and Computer Engineering, Carleton University

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

July 2017–June 2022
Ottawa, ON, Canada

U.S. Department of Homeland Security Cybersecurity Postdoctoral Scholar

Center for International Security and Cooperation, Stanford University

Jan. 2016–June 2017

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

McMaster Centre for Software Certification, McMaster University

Aug. 2015–Dec. 2015

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

Department of Mathematics, Statistics & Computer Science, St. Francis Xavier University

Apr. 2015–Aug. 2015

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

Ministry of Transportation of Ontario (MTO)

Apr. 2007–Aug. 2007

St. Catharines, 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

SSHRC Partnership Grant	2021-2026
<i>Co-Applicant (Principal Investigator: Benoît Dupont [Université de Montréal])</i>	<i>\$2,500,000</i>
Social Sciences and Humanities Research Council of Canada (Grant)	<i>Share: \$50,000</i>
"The Human-Centric Cybersecurity Partnership"	
NSERC Discovery Grant	2019-2026
<i>Principal Investigator</i>	<i>\$161,000</i>
Natural Sciences and Engineering Research Council of Canada (Grant)	
"Comprehensive Security Assurance Solutions for Software-Dependent Systems"	
NSERC Discovery Launch Supplement	2019
<i>Principal Investigator</i>	<i>\$12,500</i>
Natural Sciences and Engineering Research Council of Canada (Grant)	
"Comprehensive Security Assurance Solutions for Software-Dependent Systems"	
Carleton University Start-Up Fund	2017
<i>Principal Investigator</i>	<i>\$55,000</i>
Carleton University (Grant)	

UNDER REVIEW

SSHRC Partnership Grant	2024-2031
<i>Co-Applicant (Principal Investigator: Alexandre Wilner [Carleton University])</i>	<i>\$2,500,000</i>
Social Sciences and Humanities Research Council of Canada (Grant)	<i>Share: \$7,000</i>
"Canadian Centre for Cyber Excellence (3CE)"	

DECLINED

Mitacs Accelerate	2022-2023
<i>Principal Investigator (Industry Partner: BBA (BankingBook Analytics))</i>	<i>\$45,000</i>
Mitacs (Grant)	
"Cyber 360: A Cyber Risk Visualization and Action Platform"	
Mourou-Strickland 2020 Mobility Program	2020
<i>Principal Investigator</i>	<i>\$TBD</i>
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
<i>Co-Applicant (Principal Investigator: Ana-Maria Cretu)</i>	<i>\$130,000</i>
Ontario Centres of Excellence (OCE) (Grant)	<i>Share: \$70,000</i>
"A Machine Learning-Based Framework for Cybersecurity Threat Monitoring"	

COMPLETED

Mitacs Accelerate	2021-2023
<i>Principal Investigator (Industry Partner: Telesat)</i>	<i>\$180,000</i>
Mitacs (Grant)	
"Model-Based Security Compliance-By-Design for Low-Earth Orbit Satellite Operations Segments"	
Mourou-Strickland 2022 Mobility Program	2022
<i>Principal Investigator</i>	<i>\$2,000</i>
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
<i>Co-Applicant (Principal Investigator: Mohamed Ibnkahla)</i>	\$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
<i>Principal Investigator</i>	\$364,509
United States Department of Homeland Security, Science & Technology Directorate (Research Contract)	
"Cybersecurity Assurance for Critical Infrastructure"	
CU Development Grants – NSE	2018
<i>Principal Investigator</i>	\$10,000
Carleton University (Grant)	
"Validating the Effectiveness of Security Design Patterns"	
Natural Resources Canada Research Project	2018
<i>Principal Investigator</i>	\$23,000
Natural Resources Canada (Research Contract)	
"Assurance Cases for Security and Resilience of Advanced Metering Infrastructure"	

HONOURS AND AWARDS

Faculty Graduate Mentoring Award	2023
<i>Carleton University</i>	
Awarded annually to recognize faculty who render exceptional service to graduate students as supervisors and research mentors.	
Teaching Achievement Award	2023
<i>Carleton University</i>	
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
<i>Carleton University</i>	
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
<i>19th International Conference on Software and Systems Reuse (ICSR 2020)</i>	
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

CONTRIBUTIONS TO TEACHING

Developed New Graduate Course: Model-Driven Security Engineering	2019
<i>Department of Systems and Computer Engineering, Carleton University</i>	Ottawa, ON, Canada
○ Course offered for the first time as SYSC 5807X in Winter 2019	
Developed New Undergraduate Course: Introduction to Network and Software Security	2018
<i>Department of Systems and Computer Engineering, Carleton University</i>	Ottawa, ON, Canada
○ Course offered for the first time as SYSC 4810 in Fall 2018	

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 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

STUDENT SUPERVISION & TRAINING

Level	In-Progress	Completed
Postdoctoral Fellows	0	1
Doctorate Students	6	0
Master's Students	2	7
Undergraduate Students	0	10
Visiting Scholars	0	4
Master of Engineering Projects	0	1
Fourth-Year Undergraduate Projects	0	114 (27 projects)

POSTDOCTORAL FELLOWS

COMPLETED

Quentin Rouland

Postdoctoral Fellow, *Carleton University*

Project Title: *Model-Based Security Compliance-By-Design for Low-Earth Orbit Satellite Operations Segments*

Nov. 2021–Oct. 2023

Ottawa, ON, Canada

DOCTORATE STUDENTS

IN-PROGRESS

Robin Theveniaut

Ph.D. Electrical and Computer Engineering (Software Engineering), *Carleton University*

Cotutelle at *Université Toulouse–Jean Jaurès*

Co-supervisor: *Brahim Hamid*

Thesis: *Human Factors for Collaborative Decision Making for Secure Architecture Design*

Sep. 2023–Present

Ottawa, ON, Canada

Toulouse, France

Richard Goyette

Ph.D. Electrical and Computer Engineering (Software Engineering), *Carleton University*

Thesis Title: *TBD*

Sep. 2023–Present

Ottawa, ON, Canada

Alvi Jawad Ph.D. Electrical and Computer Engineering (Software Engineering), <i>Carleton University</i> Thesis Title: <i>TBD</i>	Jan. 2022–Present <i>Ottawa, ON, Canada</i>
Stojanche Gjorcheski Ph.D. Electrical and Computer Engineering (Software Engineering), <i>Carleton University</i> Thesis Title: <i>A Model-Based Framework for Checking Compliance with Security Standards and Regulations</i>	Jan. 2022–Present <i>Ottawa, ON, Canada</i>
Loïc Thierry Ph.D. Electrical and Computer Engineering (Software Engineering), <i>Carleton University</i> Cotutelle at <i>Université Toulouse–Jean Jaurès</i> Co-supervisor: <i>Brahim Hamid</i> Thesis: <i>TBD</i>	Sep. 2021–Present <i>Ottawa, ON, Canada</i> <i>Toulouse, France</i>
Xinrui Zhang Ph.D. Electrical and Computer Engineering, <i>Carleton University</i> Thesis Title: <i>SecMLOps: Secure Machine Learning Operations</i>	Sep. 2020–Present <i>Ottawa, ON, Canada</i>

MASTER'S STUDENTS

IN-PROGRESS

Dylan Léveillé M.A.Sc. Electrical and Computer Engineering (Software Engineering), <i>Carleton University</i> Thesis Title: <i>A Game Theoretic Approach for Selecting Security Controls from Standards</i>	Sep. 2022–Present <i>Ottawa, ON, Canada</i>
John Breton M.A.Sc. Electrical and Computer Engineering (Software Engineering), <i>Carleton University</i> Thesis Title: <i>Analyzing the Behavioural Security Posture of Software Systems</i>	Sep. 2022–Present <i>Ottawa, ON, Canada</i>

COMPLETED

Georgi Zakurdaev M.A.Sc. Electrical and Computer Engineering (Software Engineering), <i>Carleton University</i> Thesis Title: <i>A Scalable Approach to Improve Security and Resilience of Smart City IoT Architectures</i> Present Position: Network Architect & Software Developer – IT Start-Up	Sep. 2021–Aug. 2023 <i>Ottawa, ON, Canada</i>
James Baak M.A.Sc. Electrical and Computer Engineering, Ericsson Fellow, <i>Carleton University</i> Thesis Title: <i>Modular Verification of Hierarchical Component-Based Software System Specifications</i> Present Position: Software Developer - Trend Micro, Canada	Sep. 2020–Dec. 2022 <i>Ottawa, ON, Canada</i>
Bohdana Sereda M.A.Sc. Electrical and Computer Engineering, <i>Carleton University</i> Thesis Title: <i>Supporting End Users in Securing IoT-enabled Smart Home Devices</i> Present Position: Security Consulting Analyst, Accenture	Sep. 2020–Dec. 2022 <i>Ottawa, ON, Canada</i>
Luke Newton M.A.Sc. Electrical and Computer Engineering (Data Science), <i>Carleton University</i> Thesis Title: <i>Principles and Properties for Reducing the Prevalence of Implicit Interactions in System Designs</i> Present Position: Software Developer - Entrust, Canada	Sep. 2020–Aug. 2022 <i>Ottawa, ON, Canada</i>
Alvi Jawad M.A.Sc. Electrical and Computer Engineering, <i>Carleton University</i> Thesis Title: <i>A Cyberattack Impact Analysis Approach for Industrial Control Systems</i> Present Position: Ph.D. Candidate, Carleton University	Jan. 2020–Dec. 2021 <i>Ottawa, ON, Canada</i>
Joe Samuel M.A.Sc. Electrical and Computer Engineering (Data Science), <i>Carleton University</i> Thesis Title: <i>A Data-Driven Approach to Evaluate the Security of System Designs</i> Present Position: Software Development Engineer - Security, Ford Motor Company, Canada	Sep. 2019–Sep. 2021 <i>Ottawa, ON, Canada</i>

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

UNDERGRADUATE STUDENTS

COMPLETED

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

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

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

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

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

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

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

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

Dylan Léveillé May 2018–July 2018
First-Year Research Intern, *Carleton University*
Project Title: *Specification Generator for C²KA Tool Support*
Ottawa, ON, Canada

Idir Zerrouk May 2018–July 2018
First-Year Research Intern, *Carleton University*
Project Title: *Specification Generator for C²KA Tool Support*
Ottawa, ON, Canada

VISITING SCHOLARS

COMPLETED

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

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

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

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 <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Khalil Aalab, John Breton, Samuel Gamelin, Mohamed Radwan</i>	Sep. 2021–Apr. 2022 Ottawa, ON, Canada
Prioritization of Regression Test Cases Using Machine Learning Techniques <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Jediael Mendoza, Lyam Milbury, Jason Mycroft</i> Co-Supervisor: <i>Nafiseh Kahani</i>	Sep. 2021–Apr. 2022 Ottawa, ON, Canada
Software Security Metrics Calculator <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Paul Hewson, Anthony Maevski-Popov, Andrew Moore, Isaac Pruner, Kamaluddin Shakiri</i>	Sep. 2020–Apr. 2021 Ottawa, ON, Canada
Detection of Firewall Configuration Errors <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Hoang Bui, Michael Fan, Tamer Ibrahim, Mrunal Patel, Souheil Yazji</i>	Sep. 2020–Apr. 2021 Ottawa, ON, Canada
Threat Modeling for Security Requirements Management <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Britney Baker, Mathew Smith, Samantha Tripp</i>	Sep. 2020–Apr. 2021 Ottawa, ON, Canada
Mitigating Inference Attacks in Big Data Centres <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Sarah Lamonica, Mounica Pillarisetty, Shoana Sharma</i>	Sep. 2020–Apr. 2021 Ottawa, ON, Canada
Predicting and Preventing Social Engineering Attacks <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Sai Vikranth Desu, Tarun Kalikivaya, Dhyan Pathak, Abhiram Santhosh</i>	Sep. 2020–Apr. 2021 Ottawa, ON, Canada
A Toolkit for Constructing Covert Channels <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Ryan Abraham, Michael Dysart, Dharina Hanumunthadu, Fahid Mannan, Jackson Schoenermarck</i>	Sep. 2019–Apr. 2020 Ottawa, ON, Canada
Attack Surface Analysis and Measurement <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Benjamin Bichel, Omar Dawoud, Darren Holden, Gabrielle Hubert, Jack MacDougall</i>	Sep. 2019–Apr. 2020 Ottawa, ON, Canada
CANImmune Web Client Redesign <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Tanisha Garg, Ahmed Sakr, Devon Verge</i>	Sep. 2019–Apr. 2020 Ottawa, ON, Canada
Confidentiality Preservation in Big Data Centres <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Tashfiq Akhand, Hasan Issa, Aleksandar Savic, Calvin Soong, Ryan Zheng</i>	Sep. 2019–Apr. 2020 Ottawa, ON, Canada
A Configurable Platform for Developing and Deploying Blockchains <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Zaidoon Abd Al Hadi, Kunall Banerjee, Damanjit Bhangoo, Aaron Bungay, Darshpreet Grewal</i>	Sep. 2018–Apr. 2019 Ottawa, ON, Canada
An Image Recognition System for Digitizing Technical Documentation using LaTeX <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Arun Galva, Blessing Omotayo, Sean Tohidi</i>	Sep. 2018–Apr. 2019 Ottawa, ON, Canada
Security Threat Modelling for IoT-based Smart City Applications <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Viraj Dave, Nicholas Dmytryk, Brendan Lucas, Chibueze Ndudirim, Survesh Srinivasan</i> Co-Supervisor: <i>Mohamed Ibnkahla</i>	Sep. 2018–Apr. 2019 Ottawa, ON, Canada
Who's Got The Kids? <i>Department of Systems and Computer Engineering, Carleton University</i> Student Team Members: <i>Alexandre Cournoyer, Daniel Gravel, Bhavik Tailor, Tanzim Zaman</i> Co-Supervisor: <i>Rebecca Bromwich (Law & Legal Studies, Carleton University)</i>	Sep. 2018–Apr. 2019 Ottawa, ON, Canada

Secure Electronic Communication Platform

Department of Systems and Computer Engineering, Carleton University
Student Team Members: Mohamed Dahrouj, Ali Farah, Tosin Oni, Lava Tahir, Vincent Vu

Sep. 2017–Apr. 2018
Ottawa, ON, Canada

Transportation Worker Identification Credential (TWIC) Access Control System

Department of Systems and Computer Engineering, Carleton University
Student Team Members: Amer Binmuhana, Liam Disley, Craig Isesele, Abinayen Sivakumar, Daniel Srouji

Sep. 2017–Apr. 2018
Ottawa, ON, Canada

THESIS EXAMINATION COMMITTEES

EXAMINER – EXTERNAL

Quentin Rouland

Ph.D. Informatique et Télécommunications (Thesis Defence)
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*

Oct. 2021
Toulouse, France

Ahn Duy Vu

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

Aug. 2019
Hamilton, ON, Canada

EXAMINER – INTERNAL

Hemant Gupta

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

June 2021
Ottawa, ON, Canada

Yu Zhang

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

Dec. 2018
Ottawa, ON, Canada

EXAMINER – MEMBER OF THE JOINT INSTITUTE

Sumit Paul

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

February 2024
Ottawa, ON, Canada

Abhishek Chandar

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

June 2023
Ottawa, ON, Canada

Abdorrahim Bahrami

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

July 2021
Ottawa, ON, Canada

Rajitha Hathurusinghe

M.A.Sc. Electrical and Computer Engineering (Thesis Defence)
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*

Aug. 2020
Ottawa, ON, Canada

Abdorrahim Bahrami June 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 June 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

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

Saiful Huq M.A.Sc. Electrical and Computer Engineering (Thesis Defence) <i>Department of Systems and Computer Engineering, Carleton University</i> Thesis Title: <i>Differentiation of Dry and Wet Cough Sounds using Deep Learning Model and Data Augmentation</i>	Sep. 2023 Ottawa, ON, Canada
Abdullah Mahmoud M.A.Sc. Electrical and Computer Engineering (Thesis Defence) <i>Department of Systems and Computer Engineering, Carleton University</i> Thesis Title: <i>Optimal Selection of IPsec-Based Security Profiles in Resource Constrained IoT Environments</i>	Jan. 2023 Ottawa, ON, Canada
Qays Nazarali Ph.D. Aerospace Engineering (Thesis Defence) <i>Department of Mechanical and Aerospace Engineering, Carleton University</i> Thesis Title: <i>Oxidation Study of Incoloy 800H Tubes Exposed to Super-Heated Steam and Super Critical Water</i>	Jan. 2023 Ottawa, ON, Canada
Mia Wei M.A.Sc. Electrical and Computer Engineering (Thesis Defence) <i>Department of Systems and Computer Engineering, Carleton University</i> Thesis Title: <i>Multi-Agent Deep Reinforcement Learning Assisted Pre-connect Handover Management</i>	Aug. 2022 Ottawa, ON, Canada
Maaz Jamal M.A.Sc. Electrical and Computer Engineering (Thesis Defence) <i>Department of Systems and Computer Engineering, Carleton University</i> Thesis Title: <i>Supervisory Control Using DEVS with Approximate Method & Hybrid Layer</i>	Apr. 2022 Ottawa, ON, Canada
Guillermo Trabes Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) <i>Department of Systems and Computer Engineering, Carleton University</i> Thesis Title: <i>DEVS Simulations Design on Shared Memory Architectures</i>	Jan. 2022 Ottawa, ON, Canada
Khalid Almahrog Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) <i>Department of Systems and Computer Engineering, Carleton University</i> Thesis Title: <i>Optimal Detection in the Presence of Non-Gaussian Jamming</i>	May 2021 Ottawa, ON, Canada
Mohamed Abdulla Kalandar Mohideen M.A.Sc. Electrical and Computer Engineering (Thesis Defence) <i>Department of Systems and Computer Engineering, Carleton University</i> Thesis Title: <i>A Graph-Based Indexing Technique for Efficient Searching in Large Scale Textual Documents</i>	Sep. 2020 Ottawa, ON, Canada
Alexander Fernandes M.A.Sc. Biomedical Engineering (Thesis Defence) <i>Department of Systems and Computer Engineering, Carleton University</i> Thesis Title: <i>Classification of Individual Finger Flexions Using Ultrasound Radiofrequency Signals</i>	Aug. 2020 Ottawa, ON, Canada
Wafa Hasanain Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) <i>Department of Systems and Computer Engineering, Carleton University</i> Thesis Title: <i>Analysis and Maintainability of Complex Industrial Test Code Using Clone Detection</i>	Nov. 2018 Ottawa, ON, Canada
Irem Bor-Yaliniz Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) <i>Department of Systems and Computer Engineering, Carleton University</i> Thesis Title: <i>Using Mobility for Agility: Enhancing Wireless Networks with Aerial Access Nodes and User Involvement</i>	July 2018 Ottawa, ON, Canada
Hoda Khalil Ph.D. Electrical and Computer Engineering (Comprehensive Examination: Proposal Defence) <i>Department of Systems and Computer Engineering, Carleton University</i> Thesis Title: <i>FSM Testing Approach Based on Transition Trees and Complete Round Trip Paths Testing Criteria</i>	Mar. 2018 Ottawa, ON, Canada

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

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

DEPARTMENT

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*

Recruitment Coordinator 2018–2023
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, <i>Department of Systems and Computer Engineering, Carleton University</i>	<i>Ottawa, ON, Canada</i>
Ontario Graduate Scholarship (OGS) Selection Committee	2018-2020
Member, <i>Department of Systems and Computer Engineering, Carleton University</i>	<i>Ottawa, ON, Canada</i>
Tenure & Promotion Committee	2018–2019
<i>Department of Systems and Computer Engineering, Carleton University</i>	<i>Ottawa, ON, Canada</i>
Systems & Computer Engineering Hiring Committee (Cybersecurity)	2018
Member, <i>Department of Systems and Computer Engineering, Carleton University</i>	<i>Ottawa, ON, Canada</i>
Domestic Student Recruitment Committee	2017
Member, <i>Department of Systems and Computer Engineering, Carleton University</i>	<i>Ottawa, ON, Canada</i>

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 a co-organizer for the following conferences/workshop:
 - The Cybersecurity Revolution (SECREV) 2021 & 2022
 - 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:
 - International Workshop on Next Generation of System Assurance Approaches for Critical Systems (SASSUR) 2023
 - IEEE International Conference on E-health Networking, Application & Services (IEEE HealthCom) 2022
 - International Symposium on Foundations & Practice of Security (FPS) 2021-2022
 - Reconciling Data Analytics, Automation, Privacy, and Security Conference (RDAAPS) 2021-2022
 - Annual Modeling and Simulation Conference (ANNSIM) 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
 - 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 22 journal article submissions for the following journals:
 - 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 70 submissions for a number of conferences including:
 - International Workshop on Next Generation of System Assurance Approaches for Critical Systems (SASSUR) 2023
 - International Symposium on Foundations & Practice of Security (FPS) 2021-2023
 - Resilience Week Symposium 2021, 2023
 - International Workshop on Multi-concern Assurance Practices in Software Design (MAPSOD) 2021-2022
 - Annual Modeling and Simulation Conference (ANNSIM) 2021
 - 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) 2019-2021
 - 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
 - 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

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] Q. Rouland*, B. Hamid, and **J. Jaskolka**, "A model-driven formal methods approach to software architectural security vulnerabilities specification and verification," *The Journal of Systems & Software*, 2024. (Submitted: Dec. 28, 2023).
- [2] A. Farhat, A. Eldosouky, **J. Jaskolka**, M. Ibnkahla, and A. Matrawy, "Open source horizontal IoT platforms: A comparative study on functional requirements," *ACM Computing Surveys*, pp. 1–35, 2023. (Submitted: Dec. 16, 2023).
- [3] A. Gharib, **J. Jaskolka**, M. Ibnkahla, and A. Matrawy, "Security management of horizontal IoT platforms: A survey and comparison," *ACM Computing Surveys*, pp. 1–35, 2023. (Submitted: Sep. 18, 2023).

PUBLISHED

- [4] **J. Jaskolka**, B. Hamid, and S. Kokaly, "Software design trends supporting multi-concern assurance," *IEEE Software*, vol. 39, pp. 22–26, July/August 2022.
- [5] 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.
- [6] 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.
- [7] 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.
- [8] 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.
- [9] **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.
- [10] **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.
- [11] **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.
- [12] 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

- [13] J. Breton*, **J. Jaskolka**, and G.O.M. Yee, "Hardening systems against data corruption attacks at design time," in *Proceedings of the 16th International Symposium on Foundations & Practice of Security*, pp. 1–16, 2023. (Accepted: Nov. 10, 2023).

- [14] Q. Rouland*, S. Gjorcheski*, and **J. Jaskolka**, "A security compliance-by-design framework utilizing reusable formal models," in *2023 IEEE 23rd International Conference on Software Quality, Reliability, and Security Companion*, QRS-C 2023, (Chiang Mai, Thailand), pp. 186–195, 2023.
- [15] J. Baak*, Q. Rouland*, and **J. Jaskolka**, "A formal metamodel with composite components," in *Model and Data Engineering, MEDI 2023* (M. Mosbah, T. Kechadi, L. Bellatreche, and F. Gargouri, eds.), vol. 14396 of *Lecture Notes in Computer Science*, (Cham), pp. 15–29, Springer Nature Switzerland, 2024.
- [16] M. Zeroual, B. Hamid, M. Adedjouma, and **J. Jaskolka**, "Security argument patterns for deep neural network development," in *The 30th Conference on Pattern Languages of Programs*, PLoP 2023, (Monticello, IL, USA), pp. 1–16, 2023. *(To Appear)*.
- [17] Q. Rouland*, S. Gjorcheski*, and **J. Jaskolka**, "Eliciting a security architecture requirements baseline from standards and regulations," in *2023 IEEE 31st International Requirements Engineering Conference Workshops*, REW, (Hannover, Germany), pp. 224–229, 2023.
- [18] A. Jawad* and **J. Jaskolka**, "Single and combined cyberattack impact on industrial wastewater systems," in *Proceedings of the 10th International Conference on Dependable Systems and Their Applications*, DSA 2023, (Tokyo, Japan), pp. 272–281, 2023.
- [19] M. Zeroual, B. Hamid, M. Adedjouma, and **J. Jaskolka**, "Constructing security cases based on formal verification of security requirements in Alloy," in *Computer Safety, Reliability, and Security. SAFECOMP 2023 Workshops* (J. Guiochet, S. Tonetta, E. Schoitsch, M. Roy, and F. Bitsch, eds.), (Cham), pp. 15–25, Springer Nature Switzerland, 2023.
- [20] M. Zeroual, B. Hamid, M. Adedjouma, and **J. Jaskolka**, "Formal model-based argument patterns for security cases," in *The 28th European Conference on Pattern Languages of Programs*, EuroPLoP 2023, (Kloster Irsee, Germany), pp. 1–12, 2023.
- [21] M. A. Issa, A. Eldosouky, M. Ibnkahla, **Jason Jaskolka**, and A. Matrawy, "Integrating medical and wearable devices with e-health systems using horizontal IoT platforms," in *2023 IEEE Sensors Applications Symposium (SAS)*, (Ottawa, ON, Canada), pp. 1–6, 2023.
- [22] L. Thierry*, **J. Jaskolka**, B. Hamid, and J.-P. Bodeveix, "Specification and verification of communication paradigms for CBSE in Event B," in *27th International Conference on Engineering of Complex Computer Systems*, ICECSS 2023, (Toulouse, France), pp. 157–166, 2023.
- [23] Q. Rouland*, B. Hamid, J.-P. Bodeveix, and **J. Jaskolka**, "Formalizing the relationship between security policies and objectives in software architectures," in *2023 IEEE 20th International Conference on Software Architecture Companion (ICSA-C)*, ICSA-C 2023, (L'Aquila, Italy), pp. 151–158, 2023.
- [24] S. Alwidian and **J. Jaskolka**, "Understanding the role of human-related factors in security requirements elicitation," in *29th International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ 2023)* (A. Ferrari and B. Penzenstadler, eds.), vol. 13975 of *Lecture Notes in Computer Science*, (Cham), pp. 65–74, 2023.
- [25] X. Zhang* and **J. Jaskolka**, "Conceptualizing the secure machine learning operations (SecMLOps) paradigm," in *Proceedings of the 22nd IEEE International Conference on Software Quality, Reliability, and Security*, QRS 2022, (Guangzhou, China), pp. 127–138, 2022.
- [26] B. Hamid and **J. Jaskolka**, "Work in progress: Considering human factors in collaborative decision making for secure architecture design," in *12th International Workshop on Socio-Technical Aspects in Security*, STAST 2022, (Copenhagen, Denmark), pp. 1–12, 2022. *(To Appear)*.
- [27] **J. Jaskolka** and B. Hamid, "Towards the integration of human factors in collaborative decision making for secure architecture design," in *37th IEEE/ACM International Conference on Automated Software Engineering*, ASE 2022, (Rochester, MI, USA), pp. 1–8, October 2022.

- [28] M. Zeroual, B. Hamid, M. Adedjouma, and **J. Jaskolka**, “Towards logical specification of adversarial examples in machine learning,” in *Proceedings of the 2022 IEEE International Conference on Trust, Security and Privacy in Computing and Communications*, TrustCom 2022, (Wuhan, China), pp. 1575–1580, 2022.
- [29] J. Mendoza*, J. Mycroft*, L. Milbury*, N. Kahani, and **J. Jaskolka**, “On the effectiveness of data balancing techniques in the context of ML-based test case prioritization,” in *Proceedings of the 18th International Conference on Predictive Models and Data Analytics in Software Engineering*, PROMISE 2022, (Singapore), pp. 72–81, 2022.
- [30] X. Zhang* and **J. Jaskolka**, “Security patterns for machine learning: The data-oriented stages,” in *The 27th European Conference on Pattern Languages of Programs*, no. 30 in EuroPLoP 2022, (Kloster Irsee, Germany), pp. 1–12, July 2022.
- [31] S. Kuri, T. Islam, **J. Jaskolka**, and M. Ibnkahla, “A threat model and security recommendations for IoT sensors in connected vehicle networks,” in *Proceedings of the 2022 IEEE 95th Vehicular Technology Conference*, VTC-Spring 2022, (Helsinki, Finland), pp. 1–5, 2022.
- [32] A. Jawad*, L. Newton*, A. Matrawy, and **J. Jaskolka**, “A formal analysis of the efficacy of rebooting as a countermeasure against IoT botnets,” in *Proceedings of the 2022 IEEE International Conference on Communications*, ICC 2022, (Seoul, South Korea), pp. 2206–2211, 2022.
- [33] B. Sereda* and **J. Jaskolka**, “An evaluation of IoT security guidance documents: A shared responsibility perspective,” in *Proceedings of the 13th International Conference on Ambient Systems, Networks and Technologies* (E. Shakshuki, ed.), vol. 201 of *Procedia Computer Science, ANT 2022 and EDI40*, (Porto, Portugal), pp. 281–288, Mar. 2022.
- [34] A. Jawad* and **J. Jaskolka**, “Analyzing the impact of cyberattacks on industrial control systems using timed automata,” in *Proceedings of the 21st IEEE International Conference on Software Quality, Reliability, and Security*, QRS 2021, (Hainan Island, China), pp. 966–977, December 2021.
- [35] J. Samuel*, **J. Jaskolka**, and G.O.M. Yee, “Analyzing structural security posture to evaluate system design decisions,” in *Proceedings of the 21st IEEE International Conference on Software Quality, Reliability, and Security*, QRS 2021, (Hainan Island, China), pp. 8–17, December 2021.
- [36] L. Newton* and **J. Jaskolka**, “Analyzing implicit interactions to identify weak points in cyber-physical system designs,” in *Proceedings of the Resilience Week 2021 Symposium*, (Salt Lake City, UT, USA), pp. 1–8, October 2021.
- [37] **J. Jaskolka**, B. Hamid, A. Jawad*, and J. Samuel*, “Secure development decomposition – an argument pattern for structured assurance case models,” in *The 28th Conference on Pattern Languages of Programs*, PLoP 2021, (Online), p. 12, 2021.
- [38] **J. Jaskolka**, B. Hamid, A. Jawad*, and J. Samuel*, “A security property decomposition argument pattern for structured assurance case models,” in *The 26th European Conference on Pattern Languages of Programs*, EuroPLoP 2021, (Graz, Austria), p. 10, July 2021.
- [39] A. Jawad* and **J. Jaskolka**, “Modeling and simulation approaches for cybersecurity impact analysis: State-of-the-art,” in *Proceedings of the 2021 Annual Modeling and Simulation Conference*, ANNSIM 2021, (Fairfax, VA, USA), pp. 1–12, July 2021.
- [40] J. Samuel*, **J. Jaskolka**, and G.O.M. Yee, “Leveraging external data sources to enhance secure system design,” in *Proceedings of the 2021 Conference on Reconciling Data Analytics, Automation, Privacy, and Security: A Big Data Challenge*, RDAAPS 2021, (Hamilton, ON, Canada), pp. 1–8, May 2021.
- [41] J. Samuel*, K. Aalab*, and **J. Jaskolka**, “Evaluating the soundness of security metrics from vulnerability scoring frameworks,” in *Proceedings of the 19th IEEE International Conference on Trust, Security and Privacy in Computing and Communications*, IEEE TrustCom 2020, (Guangzhou, China), pp. 442–449, Dec. 2020.

- [42] **J. Jaskolka**, "Identifying and analyzing implicit interactions in a wastewater dechlorination system," in *Computer Security. CyberICPS 2020, SECPRE 2020, ADIoT 2020* (S. Katsikas et al., ed.), vol. 12501 of *Lecture Notes in Computer Science*, pp. 34–51, Springer, Cham, Dec. 2020.
- [43] Q. Rouland, B. Hamid, and **J. Jaskolka**, "Reusable formal models for threat specification, detection, and treatment," in *Reuse in Emerging Software Engineering Practices, Proceedings of the 19th International Conference on Software and Systems Reuse (ICSR 2020)* (S. Ben Sassi, S. Ducasse, and H. Mili, eds.), vol. 12541 of *Lecture Notes in Computer Science*, (Hammamet, Tunisia), pp. 52–68, Springer International Publishing, Dec. 2020. **(Best Paper Award Winner)**.
- [44] T. Sattolo* and **J. Jaskolka**, "Evaluation of statistical tests for detecting storage-based covert channels," in *35th International Conference on ICT Systems Security and Privacy Protection, IFIP SEC 2020* (M. Hölbl, K. Rannenberg, and T. Welzer, eds.), vol. 580 of *IFIP Advances in Information and Communication Technology*, (Maribor, Slovenia), pp. 17–31, Springer, Cham, Sep. 2020.
- [45] **J. Jaskolka**, "Recommendations for effective security assurance of software-dependent systems," in *Intelligent Computing, SAI 2020* (K. Arai, S. Kapoor, and R. Bhatia, eds.), vol. 1230 of *Advances in Intelligent Systems and Computing*, pp. 511–531, Springer, Cham, July 2020.
- [46] B. Hamid, Q. Rouland, and **J. Jaskolka**, "Distributed maintenance of a spanning tree of k -connected graphs," in *Proceedings of the 24th IEEE Pacific Rim International Symposium on Dependable Computing*, (Kyoto, Japan), pp. 217–226, Dec. 2019.
- [47] Q. Rouland, B. Hamid, and **J. Jaskolka**, "Formalizing reusable communication models for distributed systems architecture," in *Proceedings of the 8th International Conference on Model and Data Engineering* (E. Abdelwahed, L. Bellatreche, M. Golfarelli, D. Méry, and C. Ordonez, eds.), vol. 11163 of *Lecture Notes in Computer Science*, (Marrakesh, Morocco), pp. 198–216, Oct. 2018.
- [48] **J. Jaskolka**, "Challenges in assuring security and resilience of advanced metering infrastructure," in *Proceedings of the 18th annual IEEE Canada Electrical Power and Energy Conference, EPEC 2018*, (Toronto, ON, Canada), pp. 1–6, Oct. 2018.
- [49] **J. Jaskolka** and J. Villasenor, "Identifying implicit component interactions in distributed cyber-physical systems," in *Proceedings of the 50th Hawaii International Conference on System Sciences*, HICSS-50, (Hilton Waikoloa Village, HI, USA), pp. 5988–5997, Jan. 2017.
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- [51] **J. Jaskolka** and R. Khedri, "Towards the certification of covert channel freeness in cloud-based systems," in *Proceedings of the 6th International Conference on Ambient Systems, Networks and Technologies* (E. Shakshuki, ed.), vol. 52 of *Procedia Computer Science, ANT 2015 and SEIT 2015*, (London, UK), pp. 318–325, June 2015.
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- [65] **J. Jaskolka**, “Assurance cases for security and resilience of advanced metering infrastructure,” Technical Report, Prepared for Natural Resources Canada, Mar. 2018.
- [66] **J. Jaskolka** and J. Villasenor, “Securing cyber-dependent maritime systems and operations,” NMIO Technical Bulletin vol. 12, National Maritime Intelligence-Integration Office, June 2017.

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OTHER PUBLISHED WORKS

- [73] **J. Jaskolka**, "[Cyberattacks to critical infrastructure threaten our safety and well-being.](#)" The Conversation Canada, Oct. 2021.

PRESENTATIONS

INVITED PRESENTATIONS

- [1] **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.
- [2] **J. Jaskolka**, "Identifying and analyzing implicit interactions in critical infrastructure systems." Institut de Recherche en Informatique de Toulouse (IRIT) Seminar, June 16, 2022.
- [3] **J. Jaskolka**, "Standardizing cybersecurity: Challenges and opportunities." The Cybersecurity Revolution (SECREV 2022), May 10, 2022.
- [4] **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.
- [5] **J. Jaskolka**, "The role of security in multi-agent systems." Information Security Club Speaker Series, University of Calgary, Jan. 24, 2022.
- [6] **J. Jaskolka**, "Data-driven vulnerability analysis in critical infrastructure systems." Identity, Privacy and Security Initiative (IPSI) Seminar, University of Toronto, Nov. 9, 2021.
- [7] **J. Jaskolka**, "Leveraging external data sources to enhance secure system design." IEEE Women in Engineering Ottawa Chapter Seminar, June 3, 2021.
- [8] **J. Jaskolka**, "Effective security assurance for critical infrastructure: Current challenges and future directions." The Cybersecurity Revolution (SECREV 2021), May 21, 2021.

- [9] **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.
- [10] **J. Jaskolka**, "Identifying and analyzing implicit interactions in critical infrastructure systems." Sustainable Cities and Society Seminar, Mississippi State University, Apr. 28, 2021.
- [11] **J. Jaskolka**, "Cyber security considerations for critical infrastructure digitalization." Natural Resources Canada Cyber Security, Smart Grids, and Innovation Workshop, Apr. 22, 2021.
- [12] **J. Jaskolka**, "Towards a cyber secure energy sector: Current challenges and future directions." Natural Resources Canada Cyber Security, Smart Grids, and Innovation Workshop, Dec. 3, 2020.
- [13] **J. Jaskolka**, "Data-driven approaches for cyber security evaluation and assurance." Data Science Distinguished Speaker Seminar Series, Carleton University, Oct. 22, 2020.
- [14] **J. Jaskolka**, "Implicit interactions analysis: A wastewater treatment system case study." CIRI Webinar Series, Oct. 21, 2020.
- [15] **J. Jaskolka**, "Staying secure in the era of smart things." Ingenious Talks Online (Webinar), May 13, 2020.
- [16] **J. Jaskolka**, "Security considerations for digital health technologies." IEEE Women in Engineering Ottawa Chapter Lunch-and-Learn Seminar, Nov. 2, 2019.
- [17] **J. Jaskolka**, "Supporting cyber security standards development with security assurance cases." SERENE-RISC 2019 Annual Workshop, Ottawa, ON, Canada, Oct. 23, 2019.
- [18] **J. Jaskolka**, "Cybersecurity evaluation and assurance for IoT-enabled systems." IEEE Women in Engineering Ottawa Chapter Seminar, Apr. 8, 2019.
- [19] **J. Jaskolka**, "Cybersecurity assurance for critical infrastructure." Université du Québec en Outaouais, Gatineau, QC, Canada, Feb. 8, 2018.
- [20] **J. Jaskolka**, "Security and privacy in a connected world." Ingenious Talks Series, Ottawa, ON, Canada, Feb. 7, 2018.
- [21] **J. Jaskolka**, "Identifying and analyzing implicit interactions in critical infrastructure." CIRI Webinar Series, Jan. 25, 2018.
- [22] **J. Jaskolka**, "Formal approaches for automated security evaluation." SERENE-RISC Fall 2017 Workshop, Ottawa, ON, Canada, Oct. 25, 2017.
- [23] **J. Jaskolka**, "Cybersecurity challenges and considerations for medical devices." IEEE Ottawa Chapter 125th EMBS Seminar Series, Ottawa, ON, Canada, Sep. 28, 2017.
- [24] **J. Jaskolka** and J. Villasenor, "Cybersecurity assurance for critical infrastructure." 18th Meeting of the Software Certification Consortium, Annapolis, MD, USA, May 11, 2017.
- [25] **J. Jaskolka** and J. Villasenor, "Identification and analysis of implicit component interactions in critical distributed systems." Centre for Power & Information (CPI) Seminar, University of Toronto, Toronto, ON, Canada, May 31, 2016.
- [26] **J. Jaskolka** and J. Villasenor, "Supply chain cybersecurity assurance for critical infrastructure." Workshop on Building a Community of Practice in Smart Grid Cyber Security, University of Toronto, Toronto, ON, Canada, May 26, 2016.
- [27] **J. Jaskolka** and J. Villasenor, "Identification and analysis of implicit component interactions in critical distributed systems." Critical Infrastructure Resilience Institute (CIRI) Seminar, University of Illinois at Urbana-Champaign, Urbana, IL, USA, May 24, 2016.

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- [29] **J. Jaskolka**, R. Khedri, and K. Sabri, "Investigative support for information confidentiality part II: Applications in cryptanalysis and digital forensics." 9th International Conference on Future Networks and Communications, Niagara Falls, ON, Canada, Aug. 20, 2014.

CONFERENCE PRESENTATIONS

- [30] **J. Jaskolka**, "Towards the integration of human factors in collaborative decision making for secure architecture design." 2022 Workshop on Human Centric Software Engineering and Cyber Security, Oct. 14, 2022.
- [31] **J. Jaskolka**, "Identifying and analyzing implicit interactions in a wastewater dechlorination system." 6th Workshop on the Security of Industrial Control Systems and of Cyber-Physical Systems, Sep. 17, 2020.
- [32] **J. Jaskolka**, "Recommendations for effective security assurance of software-dependent systems." Computing Conference 2020, July 16, 2020.
- [33] **J. Jaskolka**, "Challenges in assuring security and resilience of advanced metering infrastructure." 2018 IEEE Electrical Power and Energy Conference, Toronto, ON, Canada, Oct. 11, 2018.
- [34] **J. Jaskolka** and J. Villasenor, "Identifying implicit component interactions in distributed cyber-physical systems." 50th Hawaii International Conference on System Sciences, Waikoloa Village, HI, USA, Jan. 7, 2017.
- [35] **J. Jaskolka**, W. MacCaull, and R. Khedri, "Towards an ontology design architecture." 2015 International Conference on Computational Science and Computational Intelligence, Las Vegas, NV, USA, Dec. 9, 2015.
- [36] **J. Jaskolka** and R. Khedri, "Towards the certification of covert channel freeness in cloud-based systems." 6th International Conference on Ambient Systems, Networks and Technologies, London, UK, June 5, 2015.
- [37] **J. Jaskolka** and R. Khedri, "A formulation of the potential for communication condition using C^2KA ." 5th International Symposium on Games, Automata, Logics and Formal Verification, Verona, Italy, Sep. 11, 2014.
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- [39] **J. Jaskolka**, R. Khedri, and Q. Zhang, "On the necessary conditions for covert channel existence: A state-of-the-art survey." 3rd International Conference on Ambient Systems, Networks and Technologies, Niagara Falls, ON, Canada, Aug. 29, 2012.
- [40] **J. Jaskolka**, R. Khedri, and K. Sabri, "A formal test for detecting information leakage via covert channels." 7th Annual Cyber Security and Information Intelligence Research Workshop, Oak Ridge, TN, USA, Oct. 12, 2011.
- [41] **J. Jaskolka** and R. Khedri, "Exploring covert channels." 44th Hawaii International Conference on System Sciences, Koloa, Kauai, HI, USA, Jan. 5, 2011.

POSTER PRESENTATIONS

- [42] 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**).
- [43] T. Sattolo* and **J. Jaskolka**, "On the real-time detection of covert channels." SERENE-RISC 2019 Annual Workshop, Ottawa, ON, Canada, Oct. 23, 2019.
- [44] **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

- [45] **J. Jaskolka**, “Data-driven approaches for cyber security evaluation and assurance.” Carleton University Advancement Briefing, Mar. 31, 2021.
- [46] **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.
- [47] **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.
- [48] **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
Member

Oct. 2008–Present