

JONATHAN HUDSON

ASSOCIATE PROFESSOR (TEACHING) OF COMPUTER SCIENCE

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PROFESSIONAL EXPERIENCE

Associate Professor (Teaching) , Department of Computer Science – University of Calgary	2025–PRESENT
Assistant Professor (Teaching) , Department of Computer Science – University of Calgary	2020–2025
Sessional Instructor , Department of Computer Science – University of Calgary	2018–2020
Sessional Instructor , Department of Mathematics & Computing – Mount Royal University	2019

EDUCATION

Ph.D., Computer Science, University of Calgary	2019
Dissertation: <i>“Evaluating the Emergent Effects of (Multiple) Security Mechanisms via Evolutionary Algorithms”</i>	
M.Sc., Computer Science, University of Calgary	2011
Dissertation: <i>“Risk Assessment and Management for Efficient Self-Adapting Self-Organizing Emergent Multi-Agent Systems”</i>	
B.Sc. (Honours), Computer Science, University of Calgary	2009
First Class with Minor in Pure Mathematics	
Honours Research Dissertation: <i>“Testing Advised Autonomic Systems for Unwanted Emergent Behaviour”</i>	

AWARDS

Team Teaching Award , Faculty of Science, University of Calgary (CPSC 383 with Janet Leahy)	2025
Outstanding Achievement Award (OOA) , Faculty of Science, University of Calgary	2021-2023
Student Union Teaching Excellence Award , Faculty of Science, University of Calgary	2022
Colleague of the Month (December) , Department of Computer Science, University of Calgary	2021

EDUCATIONAL LEADERSHIP HIGHLIGHTS

Curriculum Review Lead , Department of Computer Science	2022-2024
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TEACHING & COURSE COORDINATION

UNIVERSITY OF CALGARY – COURSE COORDINATOR (1-3 INSTRUCTORS) (1-7 TAS, HEAD TA)

CPSC 233: Introduction to Computer Science for Computer Science Majors II	(3 lectures)	2026
CPSC 219: Introduction to Computer Science for Multidisciplinary Studies II	(2 lectures)	2026
CPSC 233: Introduction to Computer Science for Computer Science Majors II	(3 lectures)	2025
CPSC 219: Introduction to Computer Science for Multidisciplinary Studies II	(2 lectures)	2025
CPSC 233: Introduction to Computer Science for Computer Science Majors II	(3 lectures)	2024
CPSC 219: Introduction to Computer Science for Multidisciplinary Studies II	(1 lecture)	2024

UNIVERSITY OF CALGARY – INSTRUCTOR OF RECORD (1-7 TAS)

CPSC 383 Explorations in Artificial Intelligence and Machine Learning	(2 lectures)	2025,2026
CPSC 433 Artificial Intelligence	(3 lectures)	2022-2026
CPSC 501 Advanced Programming Techniques	(4 lectures)	2019-2025
CPSC 217 Introduction to Computer Science for Multidisciplinary Studies I	(9 lectures)	2018-2025
CPSC 457 Principles of Operating Systems	(2 lectures)	2020, 2024
CPSC 219 Introduction to Computer Science for Multidisciplinary Studies II	(1 lecture)	2023
CPSC 233 Introduction to Computer Science for Computer Science Majors II	(2 lectures)	2022
DATA 201 Thinking with Data	(2 lectures)	2021,2022
CPSC 231 Introduction to Computer Science for Computer Science Majors I	(5 lectures)	2018-2021
CPSC 413 Design and Analysis of Algorithms	(2 lectures)	2019,2020
CPSC 319 Data Structures, Algorithms, and Their Applications	(1 lecture)	2020

UNIVERSITY OF CALGARY – CO-INSTRUCTOR (1-5 TAS)

CPSC 383 Explorations in Artificial Intelligence and Machine Learning	(2 lectures)	2024,2025
CPSC 393: Metacognition in Self-directed Learning Methodologies	(1 lecture)	2024

MOUNT ROYAL UNIVERSITY – COURSE AND TUTORIAL INSTRUCTOR

COMP 1502 Programming II: Object Oriented Programming	(1 lecture)	2019
COMP 2511 Web I: Client Development	(1 lecture)	2019

RESEARCH LEADERSHIP

<i>"Team-Based Experiential Assessment for Teaching Introductory AI"</i>	2025-2028
2025 Taylor Institute for Teaching and Learning Grant, \$31,800	
(PGH) Jonathan Hudson, Ph.D.	
(co-PGH) Janet Leahy, M.Sc.	
<i>"Designing Self-disclosing Chatbots to Foster Common Humanity in Introductory CPSC Classes"</i>	2022-2024
2022 Taylor Institute for Teaching and Learning Grant, \$23,200	
(PGH) Helen Ai He, Ph.D.	
(co-PGH) Jonathan Hudson, Ph.D.	
(co-applicants) Lora Oehlberg, Ph.D., Nathaly Verwaal, M.Sc., Leanne Wu, Ph.D.	
<i>"Understanding Computer Science Student and Educator Attitudes Towards Academic Integrity"</i>	2022-2025
2023 Taylor Institute for Teaching and Learning Grant, \$25,000	
(PGH) Leanne Wu, Ph.D.,	
(Co-PHG) Richard Zhao, Ph.D.	
(co-applicants) Nathaly Verwaal, M.Sc., Jonathan Hudson, Ph.D., Wayne Eberly, Ph.D., Lora Oehlberg, Ph.D.,	

OUTREACH & COMMUNITY LEADERSHIP

Chapter Ambassador , Alberta Region, Technovation Girls	2023-2026
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OPERATIONAL SERVICE

Dean's Appointee , Science Faculty Assessment Committee	2023, 2025
Graduate Student Teaching Assignments Coordinator , Department of Computer Science	2020-2023

COMMITTEE SERVICE

Interim Associate Head Teaching, Learning, and Outreach , Department of Computer Science	Jan-Feb 2026
Department Representative , SULG, Faculty of Science	Jan-Feb 2026
Lead , Curriculum Review Committee, Department of Computer Science	2022-2024
Department Representative , Teaching and Learning Committee, Faculty of Science	2022-2024
Department Representative , Teaching Continuity Committee, Faculty of Science	2021-2022

Secondary Department Representative , Teaching Continuity Committee, Faculty of Science	2022-2024
Member , Teaching and Learning Committee, Department of Computer Science	2022-PRESENT
Member , Curriculum Committee, Department of Computer Science	2023-PRESENT
Member , Outreach & Community Committee, Department of Computer Science	2024-PRESENT

ADDITIONAL EDUCATIONAL SERVICE & LEADERSHIP

President , Computer Science Graduate Society (CSGS), Department of Computer Science	2012-2015
TA in Residence , Department of Computer Science	2014
Organizer , Pan-Alberta Computer Science Conference (PABCS)	2012
VP External , Computer Science Graduate Society (CSGS), Department of Computer Science	2012

SCHOLARSHIP OF TEACHING AND LEARNING COMMUNICATION

"Understanding Bias in Artificial Intelligence and Understanding Student Understanding of Bias in Artificial Intelligence" , Taylor Institute, Teaching Days	Aug 2025
"Discord as a Community Platform" , Taylor Institute, Learning Technology Forum	Feb 2024
"Community Discussion Platforms" , FoS Two Minute Teaching and Learning Madness	May 2022

MENTORSHIP & TRAINING

Role	Number	Duration
MSc Student (Co-Supervision)	1	2026-Present
Coordinated Instructors	13	2024-2026
Teaching Assistants	141	2018-2026
Research Assistants	7	2022-2026
Assistant Professor	2	2024-2026
Sessional Instructor/Limited Term	1	2021,2024
Pure NSERC	2	2024,2025
Undergraduate Honours Students	9	2022-2026
2-Term Length		
Undergraduate Research Students	2	2021,2025
1-Term Length		
Undergraduate SENG Capstone Students	3 teams	2022-2025
MITACs Student	2	2022-23,2025-26

Derek Atabayev, Mitacs Business Strategy Internship (BSI), Mic'd Up Iteration and Chatter Development	2025-2026
Elizabeth Szentmiklossy, CPSC 502 Honour's Research Project, Unmasking the Hidden Fairness Costs of Compressing MoE Language Models (with Dr. Yani Ioannou)	2025-2026
Jiayi The, CPSC 502 Honour's Research Project, A Machine Learning Approach in Predicting National Hockey League (NHL) Draft Pick	2025-2026
Khadeeja Abbas, CPSC 502 Honour's Research Project, Integration of Myocardial Scar Signal into 4D Phenomics Modelling of the Left Ventricle (with Dr. James Alexander White)	2025-2026
Wilburn el Bouni, CPSC 502 Honour's Research Project, ClioGraph: Enhancing Contextual Retrieval of Historical Knowledge with Graph-Based Retrieval-Augmented Generation	2025-2026
Mackenzie Bowal, CPSC 503 Project in Computer Science, "A Machine Learning Approach for Optimizing Wind Farm Placement to Reduce Bird Mortality"	2025
Caleb Cavilla, CPSC 502 Honour's Research Project, "Video Game Speed-Running Bot Detection Proposal"	2024-2025
Dylan Chung, CPSC 502 Honour's Research Project, "Large Language Model with Retrieval Augmented Generation for Research Assistance"	2024-2025
Eri Soyemi, CPSC 502 Honour's Research Project, "Coaching Tool for Understanding Offensive and Defensive Basketball Schemes"	2024-2025
Sarthak Sharan, CPSC 502 Honour's Research Project, "Enhancing Access to Swimming Analytics Using Machine Learning and intuitive dashboards"	2023-2024
Man Him Koo, Mitacs Business Strategy Internship (BSI), Honest Empathy Innovations Inc	2022-2023
Alejandro Escobar, CPSC 502 Honour's Research Project, "Predictive Tool for American Football Defensive Positioning Using Machine Learning to Aid Coaches in Design of Offensive Formations and Plays"	2022-2023
Zach Hassan, CPSC 503 Project in Computer Science, "Decision Support for Choosing a Streaming Management Solution in Video Game Streaming"	2021
Mohamed Mansour, Mohammed Kazmi, Hridika Banik, Radia Jannat, Khevin Jugessur, Joseph, SENG Capstone Group, "ClouDoc - LLM Augmented Relevant Proceedings Document Retrieval"	2024-2025
Manraj Singh, Kartik Sharma, Kirtan Kakadiya, Krishna Shah, Jerin Tasnim, Jeramel Garlejo, SENG Capstone Group, "Eclipse Engineers - Forecasting Battery Capacity and Degradation in Battery Energy Storage Systems"	2024-2025
Minji Kim, Christina Truong, Eddie Kim, Garth Slanley, Jiho Kim, Eduardo Benetti, SENG Capstone Group, "Motive Optimize: A Multi-Armed Bandit Algorithm for Dynamic Website Version Deployment and Comparison" (2 nd Place Schulich School of Engineering Career Fair (Software Engineering)	2022-2023

DEFENCE/CANDIDACY EXAMS

Role	Student	Event Type	Date
Examiner	Seyed Morteza Hossieni	M.Sc. Thesis Defence	May-2024
Examiner	Bardia Abhari	M.Sc. Thesis Defence	Jan-2024
Examiner	Terrance Mok	Ph.D. Candidacy Exam	May-2023
Examiner	Sepehr Sabour	M.Sc. Thesis Defence	Mar-2022
Examiner	Prashanth Balaji	M.Sc. Thesis Defence	Feb-2022

PEER-REVIEWED PUBLICATIONS

JOURNALS

J. Hudson, and J. Denzinger, “**Risk Management for Self-Adapting Self-Organizing Emergent Multi-Agent Systems Performing Dynamic Task Fulfilment**,” *Journal of Autonomous Agents and Multi-Agent Systems*, vol. 29, no. 5, pp. 973-1022, September 2015.

CONFERENCES

Q. Goddard, N. Moton, **J. Hudson**, and H. He, “**A Chatbot Won’t Judge Me: An Exploratory Study of Self-disclosing Chatbots in Introductory Computer Science Classes**,” in *Proceedings of the 2024 Western Canadian Conference on Computing Education (WCCCE ’24)*, pp. 1-7, 2024.

J. Hudson, and J. Denzinger, “**Decision Support for Combining Security Mechanisms using Exploratory Evolutionary Testing**,” in *Proceedings of the 2020 IEEE 32nd International Conference on Tools with Artificial Intelligence (ICTAI ’20)*, pp. 550-557, 2020.

J. Hudson, and J. Denzinger, “**Using Exploratory Testing for Decision Support in Choosing a Security Mechanism**,” in *Proceedings of the 2019 IEEE Congress on Evolutionary Computation (CEC ’19)*, pp. 2237-2244, 2019.

J. Hudson, M. Ghaderi, and J. Denzinger, “**Dynamic Multi-Dimensional PSO with Indirect Encoding for Proportional Fair Constrained Resource Allocation**,” in *Proceedings of the 2014 Annual Conference on Genetic and Evolutionary Computation (GECCO ’14)*, pp. 1135-1142, 2014.

J. Hudson, J. Denzinger, H. Kasinger, and B. Bauer, “**Dependable Risk-Aware Efficiency Improvement for Self-Organizing Emergent Systems**,” in *Proceedings of the 2011 IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO ’11)*, pp. 11-20, 2011.

J. Hudson, J. Denzinger, H. Kasinger, and B. Bauer, “**Efficiency Testing of Self-adapting Systems by Learning of Event Sequences**,” in *Proceedings of the International Conference on Adaptive and Self-adaptive Systems and Applications (ADAPTIVE-10)*, pp. 200-205, 2010.

OPEN EDUCATIONAL RESOURCES

N. Parlante, J. Zelenski, E. S. Roberts, J. Rembold, B. Stephenson, **J. Hudson**, S. Valentine, J. Woodrow, K. Creel, N. Bowman, L. Crotts, A. Matzureff, and M. Izbicki, “**Nifty Assignments**,” in *Proceedings of the 53rd ACM Technical Symposium on Computer Science Education V. 2 (SIGCSE-22)*, pp 1067–1068, 2022.

REPORTS

J. Hudson, J. Denzinger, H. Kasinger, and B. Bauer, *“Testing Self-Organizing Emergent Systems by Learning of Event Sequences,”* Technical Report 2009-949-28, Department of Computer Science, University of Calgary, Canada, pp. 1-28, 2009.

SELECTED RECENT CONFERENCE PRESENTATIONS

“Decision Support for Combining Security Mechanisms using Exploratory Evolutionary Testing,” IEEE 32nd International Conference on Tools with Artificial Intelligence (ICTAI '20), 2020.

“Using Exploratory Testing for Decision Support in Choosing a Security Mechanism,” 2019 IEEE Congress on Evolutionary Computation (CEC '19), 2019.

“Dynamic Multi-Dimensional PSO with Indirect Encoding for Proportional Fair Constrained Resource Allocation,” 2014 Annual Conference on Genetic and Evolutionary Computation (GECCO '14), 2014.

“Dependable Risk-Aware Efficiency Improvement for Self-Organizing Emergent Systems,” 2011 IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO '11), 2011.

“Efficiency Testing of Self-adapting Systems by Learning of Event Sequences,” International Conference on Adaptive and Self-adaptive Systems and Applications (ADAPTIVE-10), 2010.

PROFESSIONAL SERVICE

Member , Hiring Committee (Theory), Department of Computer Science	2024-2026
Member , Limited Term Position Hiring Committee, Department of Mathematics and Statistics	2023
Reviewer , PURE Awards, Faculty of Science	2023-2026

COMMUNITY OUTREACH & SERVICE

Computer Science Teacher’s Symposium , CTSA, Western Canada High School	June 2025
UofC Open House	2023-2025
Fos Orientation	2023-2025
Invited Speaker , Code Club, Simons Valley School	June 2023

SELECTED PUBLIC LECTURES

<i>“A Digital Brain,”</i> AI Connect Deep Learning Series, Calgary Public Library	Feb 2021
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MEDIA

<i>“Academic Obscura #7 Part 2 - Artificial Intelligence,”</i> NUTV Interview	June 2023
<i>“Artificial Intelligence and Machine Learning,”</i> What the Tech? Podcast	August 2020

SELECTED PROFESSIONAL DEVELOPMENT

CONFERENCE ATTENDANCE

SIGCSE '22 , 53rd ACM Technical Symposium on Computer Science Education V. 2	2022
ICER '20 , ACM International Computing Education Research Conference	2020
ICTAI '20 , IEEE 32nd International Conference on Tools with Artificial Intelligence	2020
CEC '19 , IEEE Congress on Evolutionary Computation	2019
GECCO '14 , Annual Conference on Genetic and Evolutionary Computation	2014
SASO '11 , IEEE International Conference on Self-Adaptive and Self-Organizing Systems	2011
ADAPTIVE '10 , International Conference on Adaptive and Self-adaptive Systems and Applications	2010

WORKSHOPS ATTENDED

Teaching Days 2025 , Taylor Institute of Teaching and Learning	2025
Teaching Days 2023 , Taylor Institute of Teaching and Learning	2023
Curriculum Review Conversations , Taylor Institute of Teaching and Learning	2022-2023
Developing your Dossier for the University of Calgary Teaching Awards Program	2021
Emerging Teachers Development , Taylor Institute of Teaching and Learning	2020
Teaching Online Program , Taylor Institute of Teaching and Learning	2020
Academic Integrity: Urgent and Emerging Topics , Taylor Institute of Teaching and Learning	2020

COURSES ATTENDED

Course Design Program	2024
Equitable and Inclusive Hiring for Academic Selection	2023
Harassment and Violence Awareness Training	2020
Enhancing a Culture of Respect in the Workplace	2020
The Story of ii' taa'poh'to'p	2020
FOIP General Awareness	2020
Fundamentals of HR and Financial Business	2020
Hazard Assessment Training	2017
Occupational Health and Safety Orientation	2017

Incident Reporting and Investigation Training

2016

WHMIS

2016