JONATHAN HUDSON

ASSISTANT PROFESSOR (TEACHING) OF COMPUTER SCIENCE

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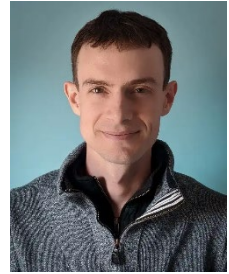
PROFESSIONAL EXPERIENCE

Assistant Professor (Teaching), Department of Computer Science – University of Calgary	2020–PRESENT
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: *"Evaluating the Emergent Effects of (Multiple) Security Mechanisms via Evolutionary Algorithms"*

M.Sc., Computer Science, University of Calgary	2011

Dissertation: *"Risk Assessment and Management for Efficient Self-Adapting Self-Organizing Emergent Multi-Agent Systems"*

B.Sc. (Honours), Computer Science, University of Calgary	2009

First Class with Minor in Pure Mathematics

Honours Research Dissertation: *"Testing Advised Autonomic Systems for Unwanted Emergent Behaviour"*

AWARDS

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-PRESENT

TEACHING & COURSE COORDINATION

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

CPSC 217 Introduction to Computer Science for Multidisciplinary Studies I	(*7 offerings*)	2018-2023

CPSC 433 Artificial Intelligence	(*1 offering*)	2022
CPSC 501 Advanced Programming Techniques	(*3 offerings*)	2019-2022
CPSC 233 Introduction to Computer Science for Computer Science Majors II	(*1 offering*)	2022
DATA 201 Thinking with Data	(*2 offerings*)	2021-2022
CPSC 231 Introduction to Computer Science for Computer Science Majors I	(*5 offerings*)	2018-2021
CPSC 413 Design and Analysis of Algorithms	(*2 offerings*)	2019-2020
CPSC 319 Data Structures, Algorithms, and Their Applications	(*1 offering*)	2020
CPSC 457 Principles of Operating Systems	(*1 offering*)	2020

MOUNT ROYAL UNIVERSITY – COURSE AND TUTORIAL INSTRUCTOR

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

USRIs

USRI: Scores are mean/mode of answers from 11 student questions with 7 Likert Scale choices Strongly Disagree to Strongly Agree [numerically scored 1-7]. * indicates sessional instruction before a full-time faculty position.

Course	Title	Mode	Term	Enrolment	USRI of All 11 Items Mean	Mode
University of Calgary						
CPSC 217	Introduction to Computer Science for Multidisciplinary Studies I	In-person	W23	103 (L01)	6.4	6
		In-person	W23	97 (L02)	6.7	7
		In-person	W23	102 (L03)	6.8	7
		Remote (Covid)	F20	133 (L01)	7	7
		Remote (Covid)	F20	133 (L02)	7	7
		In-person	W18*	144	6.1	6
CPSC 217	Dual credit for high school students	In-person	Su23	40		
		Remote (Covid)	Su21	26	7	7
CPSC 231	Introduction to Computer Science for Computer Science Majors I	Remote (Covid)	F21	127 (L01)	6.5	7
		Remote (Covid)	F21	126 (L02)	6	6
		Remote (Covid)	Sp21	58	7	7
		In-person	F19*	112	6.8	7
		In-person	Sp18*	50	7	7
CPSC 233		Hybrid (Covid)	W22	110 (L01)	6.5	6

	Introduction to Computer Science for Computer Science Majors II	Hybrid (Covid)	W22	95 (L02)	7	7
CPSC 319	Data Structures, Algorithms, and Their Applications	Switched to Remote (Covid)	W20*	163	6.2	6
CPSC 413	Design and Analysis of Algorithms	Remote (Covid)	Sp20*	58	6.5	7
		In-person	Sp19*	44	7	7
CPSC 433	Artificial Intelligence	In-person	F22	95	6.9	7
CPSC 457	Principles of Operating Systems	Switched to Remote (Covid)	W20*	130	6.3	6.5
CPSC 501	Advanced Programming Techniques	In-person	F22	128	7	7
		Remote (Covid)	F20	104	7	7
		In-person	F19*	105	7	7
DATA 201	Thinking with Data	Hybrid (Covid)	W22	112	6.6	7
		Remote (Covid)	W21	122	7	7

RESEARCH LEADERSHIP

"Designing Self-disclosing Chatbots to Foster Common Humanity in Introductory CPSC Classes" 2022-PRESENT

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.

"Understanding Computer Science Student and Educator Attitudes Towards Academic Integrity" 2022-PRESENT

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.,

OPERTAIONAL SERVICE

Graduate Student Teaching Assignments Coordinator, Department of Computer Science 2020-2023

COMMITTEE SERVICE

Lead, Curriculum Review Committee, Department of Computer Science 2022-PRESENT

Department Representative, Teaching and Learning Committee, Faculty of Science 2022-2023

Department Representative, Teaching Continuity Committee, Faculty of Science   2021-2022

Secondary Department Representative, Teaching Continuity Committee, Faculty of Science   2022-2023

Member, Science Teaching and Learning Committee, Department of Computer Science   2022-2023

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

MENTORSHIP & TRAINING

Role	Number	Duration
Teaching Assistants	61	2018-2023
Research Assistants	3	2022-2023
Sessional Instructor	1	2021
Undergraduate Honours Students 2-Term Length	1	2022-2023
Undergraduate Research Students 1-Term Length	1	2021
Undergraduate Capstone Students	6 (1 SENG group)	2023
MITACs Student	1	2022-2023

Zach Hassan, CPSC 503 Project in Computer Science, "Decision Support for Choosing a Streaming Management Solution in Video Game Streaming"   2022

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

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"
          2022-2023

DEFENCE/CANDIDACY EXAMS

Role	Student	Event Type	Date
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 Fulfillment,"** Journal of Autonomous Agents and Multi-Agent Systems, vol. 29, no. 5, pp. 973-1022, September 2015.

CONFERENCES

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.

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.

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.

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, Limited Term Position Hiring Committee, Department of Mathematics and Statistics | 2023

Reviewer, PURE Awards, Faculty of Science | 2023

COMMUNITY OUTREACH & SERVICE

Invited Speaker, Code Club, Simons Valley School | June 2023

SELECTED PUBLIC LECTURES

"A Digital Brain," AI Connect Deep Learning Series, Calgary Public Library | Feb 2021

MEDIA

"Academic Obscura #7 Part 2 - Artificial Intelligence", NUTV Interview | June 2023

"Artificial Intelligence and Machine Learning," 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 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

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