Stewart C. Jamieson

Graduate Student · Autonomous Robots & Machine Learning

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A roboticist working to invent autonomous vehicles that can operate in uncertain, unstructured, and unknown environments but still manage to accomplish their objectives safely and efficiently.

Education

Massachusetts Institute of Technology & Woods Hole Oceanographic Institute — *Cambridge, MA, USA*

M.Sc./Ph.D. in Aeronautics and Astronautics (4.0/4.0 CGPA) — Marine Robotics — *June 2018 - Present*

- Co-supervised by Dr. Yogesh Girdhar (WHOI) and Prof. Jonathan How (MIT)
- Developing robots and algorithms for autonomous scientific exploration of remote and inaccessible environments
- Focus on developing robots that collaborate with scientists during marine and extra-terrestrial exploration missions
- Relevant Coursework: *Cognitive Robotics, Bayesian Modelling and Inference, Theory of Intelligence*

University of Toronto — *Toronto, ON, Canada*

B.A.Sc. in Engineering Science (3.83/4.0 CGPA) — Robotics Major — *Sept. 2013 - Apr. 2018*

Thesis: *Deep Learning for Robust Vision in Realtime Autonomous Driving*, supervised by Prof. Angela Schoellig

Work & Research Experience

Zebra Technologies Inc. — *Mississauga, ON, Canada*

Software Engineering Intern, Engineering Product Innovation Team — *May 2016 - Aug. 2017*

- Helped to research and present business applications for machine learning and neural networks
- 16 months of development experience in C++14 including networking, data processing, and multithreaded computing

Wattpad Inc. — *Toronto, ON, Canada*

Android Software Developer, Reader Acquisition Team — *May 2015 - Sept. 2015*

- Wattpad is a worldwide storytelling platform with a community of over 80 million users
- Implemented features designed to attract new users; also implemented A/B tests to validate each features' success

QA Software Developer, Android Core Team — *May 2014 - Sept. 2014*

- Searched for, reported, and fixed software bugs in the Android mobile application with over 15 million users
- Designed and implemented a virtual doorman to greet company visitors and notify staff of their arrival

Professional Activities

aUToronto Self-Driving Car Team — *University of Toronto, Canada*

Software Team Lead — *June 2017 - June 2018*

- Led a subteam of 12 graduate and undergraduate students working to develop an autonomous Chevrolet Bolt
- My team created the overall system software architecture, sensor drivers, vehicle control interface, and software services
- At the end of my term, aUToronto won 1st place in Year One of the SAE/GM AutoDrive Challenge

Zebra Technologies Inc. — *Mississauga, Canada*

Editor, EMC Innovation Newsletter — *May 2016 - Aug. 2017*

- Edited bi-monthly department newsletter and distributed it to over 1700 engineers
- Commissioned, reviewed, and published articles about recent trends and innovations in electronics, robotics, etc.

Graduate Student Member — *Worldwide*

IEEE (Institute of Electrical and Electronics Engineers) — *Nov. 2013 - Present*

Peer-Reviewed Publications

[In Review] **Jamieson, S.**, How, J.P., Girdhar, Y. (2020). *Active Reward Learning for Co-Robotic Vision Based Exploration in Bandwidth Limited Environments.* Submitted to IEEE International Conference on Robotics and Automation.

Girdhar, Y., Cai, L., **Jamieson, S.**, McGuire, N., Flaspohler, G., Suman, S., & Claus, B. (2019). *Enabling Co-Robotic Scientific Exploration of Unknown Environments over a Low Bandwidth Communication Channel.* In IEEE International Conference on Robotics and Automation (ICRA). Montréal, Canada.

Other Publications

Jamieson, S. (2019). *The Pervasiveness of Deep Learning in Robotics Research Does Not Impede Scientific Insights into Robotics Problems.* Proceedings of the Debates on the Future of Robotics Research. Montréal, Canada.

Jamieson, S. (2018). *Deep Learning for Robust Vision in Realtime Autonomous Driving.* B.A.Sc. Thesis, University of Toronto.

Presentations

Deep Learning Does Not Impede Scientific Insights into Robotics Problems — *Montréal, QC, Canada*
Presenter at The Debates on the Future of Robotics Research, ICRA 2019 — *May 2019*
- Presented an accepted talk arguing that deep learning is a tool, rather than an obstacle, for making scientific insights into robotics problems and their solutions.

Multi-Robot Adaptive Sampling — *Cambridge, MA, USA*
Co-Presenter in Lecture at Massachusetts Institute of Technology — *Apr. 2019*
- Co-presented a lecture on multi-robot adaptive sampling techniques and robotics applications

An Introduction to Neural Networks and Machine Learning — *Mississauga, ON, Canada*
Co-Presenter for Zebra Technologies Inc. "Lunch & Learn" — *Jan. 2017*
- Introduced the fundamental concepts of neural networks & machine learning to over 200 engineers
- Shared results of a research investigation into relevant business applications of neural networks

Should Robots Have Rights? — *Toronto, ON, Canada*
Co-Presenter in Debate at the University of Toronto — *Dec. 2015*
- Participated in a debate to affirm that sufficiently "intelligent" robots should be awarded basic rights

A Customized Graphical Checklist for Efficient Ambulance Inventory — *Toronto, ON, Canada*
Co-Presenter in "Praxis II Showcase" at the University of Toronto — *Apr. 2014*
- Developed a low-cost, computer-generated checklist to improve efficiency for resupplying ambulance inventory
- Presented results of a 3-month engineering team design project to attending professors, paramedics, and CBC Radio

Honors & Awards

International

2018	**1st Place Team**, SAE/GM AutoDrive Challenge	*Yuma, AZ, USA*

Domestic

2018	**Dean's Honour List**, University of Toronto	*Toronto, ON, Canada*
2014-16	**Dean's Honour List (x3)**, University of Toronto	*Toronto, ON, Canada*
2013	**Governor General's Bronze Medal for Academic Excellence**, High School Graduation	*Burlington, ON, Canada*
2013	**Regional Champion**, ECOO Programming Competition	*Halton, ON, Canada*
2010-13	**School Champion (x4)**, Waterloo CEMC Math Contest	*Burlington, ON, Canada*

Skills

Artificial Intelligence	Topic Modelling, Deep Learning for Vision, Neural Networks, Active Learning, Unsupervised Learning
Robotics	Informative Path Planning, Computer Vision, Multi-Agent Path Planning, Controls
Programming	C++14, Python, ROS, OpenCV, Java, MATLAB, Android, Bash

Personal Interests

Corpus Christi Jazz Horns and Concert Band — *Burlington, ON, Canada*
Saxophonist — *Sept. 2009 - June 2013*
- Performed in the Atlantic Music Festival (2013), Toronto Music Festival (2012)