

# Scott M. Jordan

PH.D. STUDENT · REINFORCEMENT LEARNING

Amherst, MA, 01002, USA

☎ 541-791-6179 | ✉ sjordan@cs.umass.edu | 🏠 people.cs.umass.edu/~sjordan/ | 🐦 @UMassScott

## Education

---

### University of Massachusetts Amherst

PHD IN COMPUTER SCIENCE

Amherst, MA

2015 - Present

### University of Massachusetts Amherst

MASTERS IN COMPUTER SCIENCE

Amherst, MA

2015 - 2018

### Oregon State University

B.S. IN COMPUTER SCIENCE

Corvallis, OR

2009 - 2015

## Research Experience

---

### Unity Technologies

RESEARCH INTERN

San Francisco, CA

May-Aug. 2020

- Researching techniques for parameterized skills

### Mitsubishi Electric Research Laboratories (MERL)

RESEARCH INTERN

Cambridge, MA

May-Aug. 2018, 2019

- Applying Model-based RL to robotics applications.

### University of Massachusetts Amherst, (Prof. Philip Thomas)

GRADUATE RESEARCH ASSISTANT

Amherst, MA

Jan. 2018 - Now

- Developing new evaluation methods for measuring the performance of reinforcement learning algorithms for real-world use
- Creating efficient RL algorithms for computationally constrained problems
- Applied RL to learn a control strategy for scanning and identifying anomalous radio frequency signals

### University of Massachusetts Amherst, (Prof. Roderic Grupen)

GRADUATE RESEARCH ASSISTANT

Amherst, MA

Sep. 2016 - 2018

- Training a robot to do a peg-in-hole insertion task using both deep reinforcement learning and classic techniques
- Applying unsupervised representation learning to a robot's senses for learning long term action sequences
- Developed closed-loop controllers for manipulation and force feedback on a bi-manual mobile robot

### University of Massachusetts Amherst, (Prof. Hava Siegelmann)

GRADUATE RESEARCH ASSISTANT

Amherst, MA

Sep. 2015 - Aug. 2016

- Trained and analyzed robustness sensory representation of multimodal deep reinforcement learning agent
- Showed sensor loss causes networks trained solely with the Bellman update to no longer select meaningful actions
- Developed 3D simulator for training multimodal RL agents with vision and lidar

### Oregon State University (Prof. Thomas Dietterich)

UNDERGRADUATE RESEARCH ASSISTANT

Corvallis, OR

Sep. 2013 - Jun. 2015

- Investigated salmon migration to determine influence of flow rate and temperature
- Identified snow pack as prime indicator for upstream migration
- Created Prediction model for Chinook Salmon
- Applied functional data analysis to model salmon migration curves
- Trained supervised learning methods to predict days salmon migration will take place

## Work Experience

---

## Cambia Health Solutions (Analytic Reporting Department)

Portland, OR

### SOFTWARE DEVELOPMENT INTERN

Apr. 2013 - Sep. 2013

- Developed a Java Web application to manage data include in reports
- Performed Extract, Transform and Load (ETL) operations for large databases

## Electro Scientific Industries

Portland, OR

### SOFTWARE DEVELOPMENT INTERN

Jun. 2012 - Dec. 2012

- Improved speed and usability of user interface on micro machining product
- Extracted error messages from logs using machine learning and text mining techniques

## Extracurricular Activity

---

### Paper Reviewer

2017-2020

- AAAI Conference on Artificial Intelligence (AAAI), (2020)
- Conference on Neural Information Processing Systems (NeurIPS), (2019)
- International Conference on Machine Learning (ICML), (2019,2020)
- Conference on Robot Learning (CoRL), (2018)
- International Conference on Intelligent Robots and Systems (IROS), (2018, 2020)
- IEEE International Conference on Robotics and Automation (ICRA), (2017)
- IEEE-RAS International Conference on Humanoid Robots, (2017)

### Graduate Student Union

University of Massachusetts

Amherst, MA

#### COLLEGE STEWARD

2017 - 2018

- Inform graduate students about the their workers rights and their role in the union
- Report on student worker conditions to union

### Reinforcement Learning Reading Group

University of Massachusetts

Amherst, MA

#### GROUP ORGANIZER

2017 - 2018

- Find papers and presenters for weekly readings on reinforcement learning
- Encourage participation from new students

### FIRST Tech Challenge

U.S.A.

#### VOLUNTEER JUDGE

2010 - 2017

- Interview and evaluate middle and high schools robotics teams at tournaments and give awards
- Judge at tournaments in Oregon from 2010 to 2015
- Judge at World Championships in St. Louis in 2015
- Judge at Massachusetts state tournament in 2017

## Skills

---

**Programming** Python, C/C++, Julia, Java, ROS, Pytorch, Tensorflow, R, SQL

## Honors & Awards

---

- |      |  |                         |
|------|--|-------------------------|
| 2019 | <b>Best Full Paper Award</b> , International Conference on the Theory of Information Retrieval (ICTIR) - Learning a Better Negative Sampling Policy with Deep Neural Networks for Search | Santa Clara, California |
| 2009 | <b>TechStart Student Technologist of the Year</b> , 4 Year scholarship given to an Oregon high school student  | Oregon, U.S.A           |
| 2009 | <b>Eagle Scout</b> , Highest rank in the Boy Scouts of America   | Oregon, U.S.A           |

## Publications

---

- [1] Yash Chandak, Georgios Theodorou, James Kostas, Scott M. Jordan, and Philip S. Thomas. Evaluating the performance of reinforcement learning algorithms. In *Proceedings of the 37th International Conference on Machine Learning, ICML*, 2020.
- [2] Daniel Cohen, Scott M. Jordan, and W. Bruce Croft. Learning a better negative sampling policy with deep neural networks for search. In *Proceedings of the 5th ACM SIGIR International Conference on the Theory of Information Retrieval*, 2019.
- [3] Scott M. Jordan, Yash Chandak, Mengxue Zhang, Daniel Cohen, and Philip S. Thomas. Evaluating Reinforcement Learning Algorithms Using Cumulative Distributions of Performance. *Fourth Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, July 2019.
- [4] Yash Chandak, Georgios Theodorou, James Kostas, Scott M. Jordan, and Philip S. Thomas. Learning action representations for reinforcement learning. In *Proceedings of the 36th International Conference on Machine Learning, ICML*, 2019.
- [5] Scott M. Jordan, Daniel Cohen, and Philip S. Thomas. Using Cumulative Distribution Based Performance Analysis to Benchmark Models. *Critiquing and Correcting Trends in Machine Learning NeurIPS Workshop*, December 2018.
- [6] D. Cohen, Scott M. Jordan, and W. Bruce Croft. Distributed Evaluations: Ending Neural Point Metrics. *ArXiv e-prints*, June 2018.
- [7] Li Yang Ku, Scott M. Jordan, Julia Badger, Erik Learned-Miller, and Rod Grupen. Learning to use a ratchet by modeling spatial relations in demonstrations. *Workshop on Learning from Demonstrations for High Level Robotics Tasks, at Robotics: Science and Systems*, 2018.
- [8] Scott M. Jordan, Dirk Ruiken, Tiffany Q. Liu, Takeshi Takahashi, Michael W. Lanighan, and Roderic A. Grupen. Summary of Belief-Space Planning at the Laboratory for Perceptual Robotics. *Association for the Advancement of Artificial Intelligence*, 2017.