

Scott M. Jordan

PH.D. STUDENT · REINFORCEMENT LEARNING

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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

University of Massachusetts Amherst, (Prof. Philip Thomas)

GRADUATE RESEARCH ASSISTANT

Amherst, MA

Jan. 2018 - Now

- Developing new evaluation methods for measuring the sensitivity in performance of reinforcement learning algorithms
- Creating efficient RL algorithms for computationally constrained problems
- Applying RL to learn a control strategy for scanning and identifying anomolous 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)

SOFTWARE DEVELOPMENT INTERN

Portland, OR

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

2017-2018

- IEEE International Conference on Robotics and Automation (ICRA)
- IEEE-RAS International Conference on Humanoid Robots
- International Conference on Intelligent Robots and Systems (IROS)
- Conference on Robot Learning (CoRL)

Graduate Student Union

University of Massachusetts

Amherst, MA

2017 - 2018

COLLEGE STEWARD

- Inform graduate students about 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

2017 - PRESENT

GROUP ORGANIZER

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

FIRST Tech Challenge

U.S.A.

2010 - 2017

VOLUNTEER JUDGE

- 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 tournaments in 2017

Skills

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

Honors & Awards

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| 2009 | TechStart Student Technologist of the Year , 4 Year scholarship given to an Oregon high school student | Oregon, U.S.A |
| 2009 | Eagle Scout , Highest rank in the Boy Scouts of America | Oregon, U.S.A |

Publications

- [1] S. M. Jordan, D. Cohen, and P. S. Thomas. Using Cumulative Distribution Based Performance Analysis to Benchmark Models. *Critiquing and Correcting Trends in Machine Learning NeurIPS Workshop*, December 2018.
- [2] D. Cohen, S. M. Jordan, and W. B. Croft. Distributed Evaluations: Ending Neural Point Metrics. *ArXiv e-prints*, June 2018.
- [3] 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.

- [4] 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.