Rohan Chitnis

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Education

University of California, Berkeley, Berkeley, CA
GPA: 3.945
Bachelor of Science in Electrical Engineering and Computer Sciences, May 2016.
Relevant Coursework: Advanced Robotics, Machine Learning, Deep Reinforcement Learning, Artificial Intelligence, Computer Vision, Graphics, Computational Geometry, Image Processing, Probability and Random Processes, Algorithms, Data Structures.

Research Experience

UC Berkeley Robot Learning Lab (Adviser: Pieter Abbeel) 02/2013 - Present

- Perform work in (hierarchical) combined task and motion planning for execution of long-horizon tasks.
- Worked on novel algorithm for task and motion planning under partial observability.
- Integrating reinforcement learning to improve generalizability and robustness of existing approaches.
- Coordinator and point of contact for lab outreach program, providing tours to visitors of varied ages.

UC Berkeley Oscii Lab (Adviser: John DeNero) 04/2015 - Present

- Conduct research in Natural Language Processing.
- Working on improving performance of neural machine translation, which uses a recurrent neural network with an attention mechanism for machine translation, by introducing novel Huffman code compression techniques.

Publications

Guided Search for Task and Motion Plans Using Learned Heuristics
Rohan Chitnis, Dylan Hadfield-Menell, Abhishek Gupta, Siddharth Srivastava, Pieter Abbeel.
Submitted to the IEEE International Conference on Robotics and Automation (ICRA), 2016 [*under review*].

Learning an Interface to Improve Efficiency in Combined Task and Motion Planning
Rohan Chitnis, Dylan Hadfield-Menell, Siddharth Srivastava, Abhishek Gupta, Pieter Abbeel.
Proceedings of the IROS Workshop on Machine Learning in Planning and Control of Robot Motion (MLPC), 2015.

Variable-Length Word Encodings for Neural Translation Models
Rohan Chitnis, John DeNero.
Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP), 2015.

Modular Task and Motion Planning in Belief Space
Dylan Hadfield-Menell, Edward Groshev, **Rohan Chitnis**, Pieter Abbeel.
Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2015.

Combined Task and Motion Planning Through an Extensible Planner-Independent Interface Layer
Siddharth Srivastava, Eugene Fang, Lorenzo Riano, **Rohan Chitnis**, Stuart Russell, Pieter Abbeel.
Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), 2014.

Honors/ Awards

Sole recipient of the EECS Mark D. Weiser Excellence in Computing Scholarship, 2015. Merit-based scholarship awarded to one student in the Berkeley EECS department each year for excellence in research.

Member of the EECS Honors Degree Program, concentration in Mathematics. Honors program with 20-30 students. Requirements include research and extended studies in concentration outside EECS.

UC Berkeley Outstanding Graduate Student Instructor (OGSI) Award recipient, 2015. Awarded to top 10% of Teaching Assistants across the university each year.

UC Berkeley Regents' and Chancellor's Scholar. Merit-based scholarship awarded to top 1.5% of applicants to UC Berkeley each year.

National Merit Scholar. Merit-based scholarship awarded to high-achieving high school students for partial college tuition payment.

Teaching

Develop projects, lead laboratory and discussion sections twice a week, hold office hours, organize review sessions, write and grade exams, and answer questions on online forum:
CS189: Introduction to Machine Learning. Spring 2016.

CS188: Introduction to Artificial Intelligence. Fall 2015.

- Built project teaching exact solution methods (e.g., policy iteration) in Markov decision processes.

CS61A: Structure and Interpretation of Computer Programs. Spring 2015, Spring 2014, Summer 2013.

- Integrated video lectures into online course textbook.

CS61C: Great Ideas in Computer Architecture. Fall 2014.

- Built homework teaching how to write and debug code in an assembly language.

Industry

eBay Inc., San Jose, CA. Software Engineering Intern. 05/2014 - 08/2014

- Developed an end-to-end pipeline involving data querying and machine learning to build a classification model for checkout transactions, used in determining whether to offer buyers the option to place items on hold.
- Collected data using Hadoop MapReduce under the Apache Pig framework.
- Model achieved 85% accuracy on noisy data sets, using adaptive boosting with a decision tree classifier.

Technical Skills

Fluency in: Python, Java, C, C++, Scheme, LaTeX.
Software: Unix, Robot Operating System (ROS), OpenCV, MongoDB, Apache Pig, Apache Spark, Hadoop MapReduce, scikit-learn, scikit-image.