

# Rohan Chitnis

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## Education

**Massachusetts Institute of Technology**, Cambridge, MA

Doctor of Philosophy in Electrical Engineering and Computer Science, May 2021 (expected).

Master of Science in Electrical Engineering and Computer Science, May 2018.

**University of California, Berkeley**, Berkeley, CA

**Graduated with Highest Honors (GPA in top 3%). GPA: 3.951 / 4.0.**

Bachelor of Science in Electrical Engineering and Computer Sciences, May 2016.

Relevant Coursework: Advanced Robotics, Machine Learning, Deep Reinforcement Learning, Artificial Intelligence, Computer Vision, Optimization, Graphics, Computational Geometry, Image Processing, Probability and Random Processes, Algorithms, Data Structures.

## Research Experience

**MIT Learning & Intelligent Sys. Lab** (Adviser: Leslie Kaelbling) 09/2016 - Present

- Conduct research in artificial intelligence for robotics, toward a PhD.
- Focus on inference, planning, and learning for human-robot interactive settings.

**Google Brain, Robotics** (Research Intern, Adviser: Sergey Levine) 05/2017 - 09/2017

- Researched methods for speeding up deep reinforcement learning for robotics, by regressing on event outcomes to improve exploration.
- Designed and implemented a standalone framework for robotic learning that separates the environment, learning algorithms, and underlying TensorFlow models.

**UC Berkeley Robot Learning Lab** (Adviser: Pieter Abbeel) 02/2013 - 05/2016

- Performed work in (hierarchical) combined task and motion planning for execution of long-horizon robotic tasks such as laundry.
- Integrated reinforcement learning to improve existing approaches.
- Lead coordinator of lab outreach program, providing tours to visitors of varied ages.

**UC Berkeley Oscii Lab** (Adviser: John DeNero) 04/2015 - 05/2016

- Conducted research in Natural Language Processing.
- Improved performance of neural machine translation using Huffman code compression.

## Conference Publications

**Integrating Human-Provided Information Into Belief State Representation Using Dynamic Factorization**

Rohan Chitnis, Leslie Pack Kaelbling, Tomás Lozano-Pérez.

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2018.

**Finding Frequent Entities in Continuous Data**

Ferran Alet, Rohan Chitnis, Leslie Pack Kaelbling, Tomás Lozano-Pérez.

International Joint Conference on Artificial Intelligence (IJCAI), 2018.

**Sequential Quadratic Programming for Task Plan Optimization**

Dylan Hadfield-Menell, Christopher Lin, Rohan Chitnis, Stuart Russell, Pieter Abbeel.

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2016.

**Guided Search for Task and Motion Plans Using Learned Heuristics**

Rohan Chitnis, Dylan Hadfield-Menell, Abhishek Gupta, Siddharth Srivastava, Edward Groshev, Christopher Lin, Pieter Abbeel.

IEEE International Conference on Robotics and Automation (ICRA), 2016.

**Variable-Length Word Encodings for Neural Translation Models**

Rohan Chitnis, John DeNero.

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.

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2015.

	<p><b>Combined Task and Motion Planning Through an Extensible Planner-Independent Interface Layer</b>  Siddharth Srivastava, Eugene Fang, Lorenzo Riano, <b>Rohan Chitnis</b>, Stuart Russell, Pieter Abbeel.  IEEE International Conference on Robotics and Automation (ICRA), 2014.</p>	
<b>Honors / Awards</b>	<p><b>NSF GRFP Fellow, 2016.</b> Awarded NDSEG Fellowship (declined).</p> <p><b>Hertz Fellowship Finalist, 2016.</b> One of 40 finalists for the Hertz Fellowship, a highly reputable fellowship for student researchers in the physical, biological, and engineering sciences.</p> <p><b>Runner-up for the Computing Research Association (CRA) Outstanding Undergraduate Researcher Award (Male, PhD-granting institution), 2016.</b> Highly prestigious award recognizing North American undergraduate students who show outstanding research potential in a field of computing.</p> <p><b>Sole recipient of the EECS Mark D. Weiser Excellence in Computing Scholarship, 2015.</b> Merit-based scholarship awarded to one student in the Berkeley EECS department each year for excellence in research.</p> <p><b>Member of the EECS Honors Degree Program, concentration in Mathematics.</b> Honors program with 20-30 students. Requirements include research and extended studies in concentration outside EECS.</p> <p><b>UC Berkeley Outstanding Graduate Student Instructor (OGSI) Award recipient, 2015.</b> Awarded to top 10% of Teaching Assistants across the university each year.</p> <p><b>UC Berkeley Regents' and Chancellor's Scholar.</b> Merit-based scholarship awarded to top 1.5% of applicants to UC Berkeley each year.</p> <p><b>National Merit Scholar.</b> Merit-based scholarship awarded to high-achieving high school students for partial college tuition payment.</p>	
<b>Teaching</b>	<p><b>6.036: Introduction to Machine Learning.</b> Fall 2018.  <b>CS189: Introduction to Machine Learning.</b> Spring 2016.  <b>CS188: Introduction to Artificial Intelligence.</b> Fall 2015.  <b>CS61A: Structure and Interpretation of Computer Programs.</b> Spring 2015, Spring 2014, Summer 2013.  <b>CS61C: Great Ideas in Computer Architecture.</b> Fall 2014.</p>	
<b>Industry</b>	<p><b>Airbnb Inc., Search Ranking</b> (Software Engineering Intern) 06/2016 - 08/2016</p> <ul style="list-style-type: none"> <li>Worked on incorporating mobile data into machine learning models used by the Search Ranking team. Collected and organized data using tools in Hive, Presto, and Scala.</li> </ul> <p><b>eBay Inc., Checkout</b> (Software Engineering Intern) 05/2014 - 08/2014</p> <ul style="list-style-type: none"> <li>Developed an end-to-end pipeline to create a model that classifies checkout transactions.</li> <li>Collected data using Hadoop MapReduce under the Apache Pig framework.</li> </ul>	
<b>Technical Skills</b>	<p><b>Languages:</b> Python, Java, Scala, C, C++, LaTeX.  <b>Software:</b> PyTorch, TensorFlow, Theano, Unix/Linux, Robot Operating System (ROS), OpenCV, Apache Pig, Apache Spark, Hadoop MapReduce.</p>	