Jacob Varley

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Education

Columbia University — **New York City, NY**
Ph.D. Computer Science — *2013–present*
Advisor: Professor Peter Allen

Massachusetts Institute of Technology — **Cambridge, MA**
B.S. in Computer Science (6-3) — *2009–2013*

Awards

AAAI-16 Robotics Fellow — **Phoenix, USA**
Award to robotics students to foster dialogue between Robotics and AI researchers. — *Spring 2016*

NSF EAPSI Fellow — **Daejeon, South Korea**
Collaborated with the HUBO lab at KAIST. — *2014*

Research and Industry Experience

Columbia University Robotics Group — **New York City, NY**
Graduate Research Assistant for Professor Peter Allen — *2013-present*
Explored the intersection of machine learning and robotics with a focus on experience based grasp planning.

Clarifai — **New York City, NY**
Machine Learning Research Intern — *Summer 2015*
Implemented novel Deep Learning algorithms for confidential projects.

HUBO Lab - KAIST — **Daejeon S.K.**
NSF EAPSI Fellow — *Summer 2014*
Developed new experience based planning algorithms for generating multi-fingered robotic grasps.
Shared expertise related to ROS and Gazebo simulator with the HUBO lab.

Level Solar — **Cambridge, MA**
Contract IOS Development — *Summer 2013*
Developed IOS application for use by door to door sales team.

AVG (OpenInstall) — **San Francisco, CA**
Software Engineering Intern — *January 2013*
Researched best practices for and deployed a Continuous Integration Framework for Engineering Team.

MIT EECS Undergraduate Research and Innovation Scholar — **Cambridge, MA**
Undergraduate Research Assistant for Professor Catherine Havasi — *Fall 2012/Spring 2013*
Developed build system for ConceptNet5

Qualcomm Labs — **San Diego, CA**
Software Engineering Intern — *Summer 2012*
Contributed to Gimbal Project (http://www.gimbal.com/)
Interned during product release
Time was split evenly between Android and IOS SDK's and shared server backend.

MIT Undergraduate Research Assistant — **Cambridge, MA**
Undergraduate Research Assistant for Professor Josh Tenenbaum — *Fall 2011*
Developed software in the Computational Cognitive Science Group to model fluids and gain a more quantified understanding of how people perceived and predict the motion of fluids.

TripAdvisor — **Newton, MA**
Software Engineering Intern — *Summer 2011*
Developed machine learning based validation tool to verify outgoing links.

CVision Technologies **New York City, NY**
Software Engineering Intern *Summer 2010*
Expanded company's website to include 20+ other languages in order to increase international business.
Provided analysis of competitors marketing and online presence strategies

Publications

[1] Jacob Varley, Chad DeChant, Adam Richardson, Avinash Nair, Joaquín Ruales, and Peter Allen. "Shape Completion Enabled Robotic Grasping". In: *Intelligent Robots and Systems (IROS), 2017 IEEE/RSJ International Conference on*. 2017.

[2] Iretiayo Akinola, Boyuan Chen, Jonathan Koss, Aalhad Patankar, Jacob Varley, and Peter Allen. "Task Level Hierarchical System for BCI-enabled Shared Autonomy". In: *Humanoid Robots, 2017 IEEE-RAS International Conference on*. 2017.

[3] Jacob Varley, David Watkins, and Peter Allen. "Visual-Tactile Geometric Reasoning (Abstract and Poster)". In: *Data-Driven Manipulation workshop, Robotics: Science and Systems* (2017).

[4] Jacob Varley and Peter Allen. "Reasoning about 3D geometry with Touch and Vision (Talk)". In: *New England Manipulation Symposium* (2017).

[5] Jacob Varley, Srihari Sridhar, Jonathan Weisz, Ethan Rand, Kenneth Lyons, Sanjay Joshi, Joel Stein, and Peter Allen. "Human Robot Interface for Assistive Grasping". In: *Socially & Physically Assistive Robotics For Humanity workshop, Robotics: Science and Systems* (2016).

[6] Jacob Varley, Caroline Weinberg, Srihari Sridhar, Jonathan Weisz, Ethan Rand, Kenneth Lyons, Sanjay Joshi, Joel Stein, and Peter Allen. "Human Robot Interface for Assistive Pick and Place (Abstract and Poster)". In: *HUMORARR workshop, RO-MAN* (2016).

[7] Jacob Varley, Jonathan Weisz, Jared Weiss, and Peter Allen. "Generating Multi-Fingered Robotic Grasps via Deep Learning". In: *Intelligent Robots and Systems (IROS), 2015 IEEE/RSJ International Conference on*. 2015.

[8] Jacob Varley, Jonathan Weisz, Jared Weiss, and Peter Allen. "Multi-Fingered Robotic Grasps via Deep Learning (Talk)". In: *New England Manipulation Symposium* (2015).

Teaching Experience

Humanoid Robots: (COMSW6731) Teaching Assistant *Spring 2016*

Humanoid Robots: (COMSW6998-03) Teaching Assistant *Spring 2015*

Computational Aspects of Robotics: (COMSW4733) Teaching Assistant *Fall 2014*

Invited Talks

Learning to Grasp **New York, NY**
Google Brain NYC Lunch Seminar *August 2017*

Shape Completion Enabled Robotic Grasping **New Brunswick, NJ**
Rutgers University Robotics Seminar *December 2016*

Introduced Big Hero 6 on the flight deck of the USS Intrepid **New York, NY**
Movie Night at the Intrepid Museum *Summer 2016*

Professional Activities

Paper Reviews

International Conference on Humanoid Robots (Humanoids) 2017

International Conference on Intelligent Robots and Systems (IROS) 2017

International Workshop on Advanced Robotics and its Social Impacts (ARSO) 2017

International Conference on Intelligent Robots and Systems (IROS) 2016

International Conference on Robotics and Automation (ICRA) 2015

Workshop Organization.....
New England Manipulation Symposium (NEMS) 2014

Interests

Phi Delta Theta Fraternity: President, Rush Chair, Community Service Chair, Social Chair

Gymnastics: Competed for 10 years including multiple collegiate competitions

MIT Battlecode: Competed with 2 partners against 100+ teams both Jan. 2012 and Jan. 2011