# Mark Cutler

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## EDUCATION

### MASSACHUSETTS INSTITUTE OF TECHNOLOGY

PhD in Robotics and Autonomous Systems
Expected Aug 2015 | Cambridge, MA | GPA: 4.7 / 5.0
Thesis: *Practical Robot Reinforcement Learning through Efficient Simulator Sampling*
Committee: Prof. Jonathan P. How, Prof. Leslie Kaelbling, Dr. Andrea Censi

MS in Aeronautical and Astronautical Engineering
Aug 2012 | Cambridge, MA | GPA: 4.7 / 5.0
Thesis: *Design and Control of an Autonomous Variable-Pitch Quadrotor Helicopter*

### BRIGHAM YOUNG UNIVERSITY

BS in Mechanical Engineering
Apr 2010 | Provo, UT | GPA: 3.99 / 4.0

## SELECTED PUBLICATIONS

- **M. Cutler**, T. Walsh, J. How, Real-World Reinforcement Learning via Multi-Fidelity Simulators. *IEEE Transactions on Robotics*, to appear
- **M. Cutler**, J. How, Efficient Reinforcement Learning for Robots using Informative Simulated Priors. *IEEE International Conference on Robotics and Automation (ICRA)*, 2015
- **M. Cutler**, B. Michini, J. How, Lightweight Infrared Sensing for Relative Navigation of Quadrotors. *International Conference on Unmanned Aircraft Systems (ICUAS)*, 2013
- **M. Cutler**, J. How, Actuator Constrained Trajectory Generation and Control for Variable-Pitch Quadrotors. *AIAA Guidance, Navigation, and Control Conference (GNC)*, 2012

## INDUSTRY EXPERIENCE

### SPOTTERRF | Mechanical Design Engineer

May 2010 – Aug 2010 | Orem, UT

- Developed new heat management techniques for small radar devices resulting in over 20°C high-temperature performance increase
- Designed new carbon-fiber case for radar encasement

### L-3 COMMUNICATIONS | Mechanical Design Engineer

May 2009 – Aug 2009 | Salt Lake City, UT

- Designed demo platform for new modem integration into mobile communication ground station
- Performed thermal, structural, weight, and power analyses to optimize data link and modem case designs

### CORNING INC. | Advanced Machine Design Engineer

June 2008 – Aug 2008 | Corning, NY

- Researched and tested method that reduced tool run-out by 55% in contouring mills
- Designed mechanism enabling the cutting of ceramic extrusions to be performed by one person instead of two

## SKILLS

### PROGRAMMING

- Python
- Matlab
- C++
- C
- LaTeX

### TOOLS

- ROS
- Git
- SVN
- SolidWorks

### HARDWARE

- Embedded real-time microcontroller development
- PCB design (2- and 4-layer boards)
- SMD soldering
- Basic Machining (mill and lathe)

## REL. COURSEWORK

Machine Learning
Inference and Information
Computational Congnitive Science
Real Analysis
Optimal Control
Stochasitc Estimation and Control
Feedback Control
Autonomy and Decision Making
Nonlinear Optimization
Computer Vision

## VOLUNTEER

### THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Volunteer Representative
July 2005 – July 2007 | Rostov, Russia

- Provided leadership, development and training for 16 volunteer representatives
- Oversaw volunteer operations in a geographical area covering over 300 miles