

# Benjamin Reinhardt

Innovation, Intensity, and Tenacity for products that give people superpowers  
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## EDUCATION

### CORNELL UNIVERSITY

PhD Space Robotics

May 2015

NASA Research Fellow

Lester B. Knight Fellow

### CALTECH

BS Mechanical Engineering

History

June 2010

## LINKS

Writing:// [benjaminreinhardt](#)

Github:// [bzreinhardt](#)

LinkedIn:// [benjaminzreinhardt](#)

YouTube:// [SeigeEngineer](#)

Twitter:// [@ben\\_reinhardt](#)

Quora:// [Benjamin-Reinhardt](#)

## UNPAID XP

- SLAM, PF, and RRT Roomba Control
- Amphibious Robots
- Two Story Trojan Horse
- Choreographed lightsaber battles
- Resurrected elevator-wrangling
- Kinect-based robot grasp detector
- Too Many Trebuchets
- Ditch Day Puzzle Hunt:
  - Auto-collapsing concrete wall
  - Reverse geocache box
  - 12-ft ice climbing wall
  - Electric clue-Palantir
  - Light-connection maze

## PAID XP

### MAGIC LEAP | Systems Engineer

Spring 2015 - Present | Mountain View, CA

- Product Lead on an unannounced piece of the product that enables contextual computing.
- Market research and strategy
- Head tracking algorithms

### NASA AMES | Guest Scientist, Intelligent Robotics Group

Summer 2014 | Mountain View, CA

- Designed, fabricated, and tested a robot to demonstrate induction couplers in a space-like environment.

Summer 2013 | Mountain View, CA

- Built a controller that turned a room-sized gantry into a zero-g dynamics emulator.
- Created a learning algorithm to run automated tests and iteratively adjust the system model and tuned gains

### NASA JPL | Technology Research Fellow, Robotics Group

Summer 2012 | Pasadena, CA

- Created new control algorithms for induction-coupled spacecraft.
- Experimentally characterized eddy-current forces for actuation.

### AEROVIRONMENT INC. | Research Initiative Intern

Summer 2009 | Monrovia, CA

- Built a photovoltaic rig for powering aquatic robots and tested in the open ocean.
- Designed roof-based turbine system.

### VIRTUAL LUNG PROJECT | Research Assistant

Summer 2008 | UNC Chapel Hill

- Developed simulations of cilia-driven fluid flow in the lungs to suggest possible cystic fibrosis drugs.

## RESEARCH

### CORNELL SPACE SYSTEMS DESIGN STUDIO | Graduate Student + Lab Manager

Summer 2010 – Spring 2015 | Ithaca, NY

Induction-based Locomotion for Orbital Robotics

- Invented Induction Coupler actuation for space robotics.
- Built a procedural algorithm that generated coupled physical designs and control systems.
- Developed simulation framework and visualizer for electromagnetic spacecraft actuators.
- Mentored masters and senior projects.
- Rebuilt lab website for modernity and mobile friendliness.

## PUBLICATIONS

Please see <http://benjaminreinhardt.com/research/>