

# Travis Deyle, PhD

<address withheld>

<phone number withheld>  
beambot@gmail.com

## Academia

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### Postdoc, Duke University

Durham, NC

- Recipient of Prestigious NSF / CRA Computing Innovation (CI) Postdoc Fellowship
- Mentor: Prof. Matt Reynolds (Duke University)
- Research Topic: Biotelemetry systems using backscattered wireless techniques akin to souped-up, sensorized, passive UHF RFID tags. Focused on a software-defined radio receiver for real-time decoding of high-speed (5Mbps) biotelemetry signals reflected by a custom neuro-telemetry chip affixed to a dragonfly in flight (aka, a “cyborg dragonfly”).

2011 – 2012

### Ph.D., Georgia Institute of Technology (Georgia Tech)

Atlanta, GA

- Thesis Topic: Ultra-High Frequency (UHF) Radio Frequency Identification (RFID) for Robot Perception and Mobile Manipulation
- Advisor: Prof. Charles C. Kemp (Georgia Tech)
- School of Electrical and Computer Engineering (ECE)
- National Science Foundation (NSF) Graduate Research Fellow (GRFP)

2011

### M.S., Georgia Institute of Technology (Georgia Tech)

Atlanta, GA

- Electrical and Computer Engineering (ECE) – GPA 3.92 / 4.0

2008

### B.S. x 2, University of Nebraska at Lincoln and Omaha – The Peter Kiewit Institute

Omaha, NE

- Dual degrees each with double major – GPA 4.0 / 4.0
  - B.S. Electronics Engineering and Computer Engineering
  - B.S. Computer Science and Mathematics

2005

## Work Experience

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### Google, Inc

Mountain View, CA

*Senior Hardware Engineer in Google[x]*

2014 – present

- Work in Google’s secretive “moonshot division” – Google[x].
- Focus on technologies related to the glucose-sensing “Smart Contact Lens,” though my activities are geared toward multidisciplinary rapid prototyping and development of newer, advanced projects.
- Heavily involved with Google[x]’s “Rapid Eval” team that evaluates potential new [x] projects.

### Lollipopuff, Inc.

San Jose, CA

*Co-Founder and CTO, Board Member*

2013 – present

- Online women’s fashion startup: online auctions for authentic designer goods.
- Authentication as combination of automated software and human experts (patent pending).
- Venture Funded: YCombinator class of Winter 2013. Tech stack: Django on Heroku and AWS.
- Departed from daily operations in 2014; currently serve as a board member and technical advisor.

### Georgia Institute of Technology

Atlanta, GA

*Research Assistant – Supervisors: Charlie Kemp & Matt Reynolds*

2007 – 2011

- Supported by NSF Graduate Research Fellowship

### Georgia Institute of Technology

Atlanta, GA

*Teaching Assistant – Supervisors: Ayanna Howard & Patricio Vela*

2006 – 2007

- Fall 2006: “Introduction to Automation and Robotics” with Prof. Patricio Vela
- Spring 2007: “Software for Engineering Systems” (C++ for Engineers) with Prof. Ayanna Howard

## Sandia National Laboratories

Member Technical Staff – Supervisors: Ed Talbot & Katherine Hughes

Livermore, CA

2003 – 2006

- **2006:** < activities withheld, classified. >

Summer Intern – Supervisor: Rene Bierbaum

- **2005:** Optimized radiation-related semiconductor parameters for parallelized Spice simulator called Xyce. Built high-voltage, high-current driver board.
- **2004:** Designed, fabricated, and evaluated a MEMS-based IMU. Authored Sandia Report SAND2005-1548 (see publications).
- **2003:** Used machine learning techniques to detect and localize footsteps on a grid of geophone sensors. Coauthored Sandia Report SAND2003-8589 (see publications).

## Publications

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### Thesis:

[1] Travis Deyle, “Ultra High Frequency (UHF) Radio-Frequency Identification (RFID) for Robot Perception and Mobile Manipulation.” Ph.D. dissertation, Georgia Institute of Technology, 2011.

### Peer-Reviewed Conferences / Journals:

[2] Travis Deyle, Matt Reynolds, and Charles C. Kemp, “Finding and Navigating to Household Objects with UHF RFID Tags by Optimizing RF Signal Strength.” IEEE / RSJ International Conference on Intelligent Robots and Systems (IROS), 2014, pp. 2579–2586.

[3] Stewart J. Thomas, Travis Deyle, Reid Harrison, and Matthew S. Reynolds, “Rich-Media Tags: Battery-Free Wireless Multichannel Digital Audio and Image Transmission with UHF RFID Techniques.” IEEE Conference on RFID (RFID) 2013.

[4] Jordan S. Besnoff, Travis Deyle, Reid Harrison, and Matthew S. Reynolds, “Battery-Free Multichannel Digital ECG Biotelemetry Using UHF RFID Techniques.” IEEE Conference on RFID (RFID), 2013.

[5] A. Prakash, J.M. Beer, T. Deyle, C.A. Smarr, T.L. Chen, T.L. Mitzner, C.C. Kemp, W.A. Rogers, “Older Adults’ Medication Management in the Home: How Can Robots Help?” ACM / IEEE Conference on Human-Robot Interaction (HRI) 2013. pp 283-290.

[6] Travis Deyle, Chris Tralie, Matt Reynolds, and Charles C. Kemp, “In-Hand Radio Frequency Identification (RFID) for Robotic Manipulation,” IEEE Conference on Robotics and Automation (ICRA) 2013.

[7] Travis Deyle, Hai Nguyen, Matt Reynolds, and Charles C. Kemp, “RFID-Guided Robots for Pervasive Automation,” IEEE Pervasive Computing. Volume 9, pp. 37–45, 2010.  
(Acceptance Rate: 11%)

[8] Marc Killpack, Travis Deyle, Cressel Anderson, and Charles C. Kemp, “Visual Odometry and Control for an Omnidirectional Mobile Robot with a Downward-Facing Camera.” IEEE / RSJ International Conference on Intelligent Robots and Systems (IROS), 2010. pp. 139–146.

[9] Travis Deyle, Hai Nguyen, Matt Reynolds, and Charles C. Kemp, “RF Vision: RFID Receive Signal Strength Indicator (RSSI) Images for Sensor Fusion and Mobile Manipulation,” IEEE / RSJ International Conference on Intelligent Robots and Systems (IROS), 2009.

[10] Zhe Xu, Travis Deyle, and Charles C. Kemp, “1000 Trials: An Empirically Validated End Effector that Robustly Grasps Objects from the Floor,” IEEE Conference on Robotics and Automation (ICRA) 2009. pp.2160-2167.

[11] Young Sang Choi, Travis Deyle, Tiffany Chen, Jonathan D. Glass, and Charles C. Kemp, "A list of household objects for robotic retrieval prioritized by people with ALS," IEEE International Conference on Rehabilitation Robotics (ICORR), 2009. pp.510-517, 23-26 June 2009.

[12] Young Sang Choi, Cressel Anderson, Travis Deyle, and Charles C. Kemp, "Human-Robot Interaction Studies for Autonomous Mobile Manipulation for the Motor Impaired," Workshop on Experimental Design for Real-World Systems, AAAI Spring Symposium, 2009.

[13] Travis Deyle, Charles C. Kemp, and Matt Reynolds, "Probabilistic UHF RFID tag pose estimation with multiple antennas and a multipath RF propagation model," IEEE / RSJ International Conference on Intelligent Robots and Systems (IROS), 2008. pp. 1379–1384.

[14] Travis Deyle, Cressel Anderson, Charles C. Kemp, and Matt Reynolds, "A foveated passive UHF RFID system for mobile manipulation," IEEE / RSJ International Conference on Intelligent Robots and Systems (IROS), 2008. pp. 3711–3716.

[15] Travis Deyle, and Matt Reynolds, "PowerPACK: A wireless power distribution system for wearable devices," IEEE International Symposium on Wearable Computers (ISWC), 2008. pp.91-98.  
(Best Paper Award Nominee)

[16] Travis Deyle, and Matt Reynolds, "Surface based wireless power transmission and bidirectional communication for autonomous robot swarms," IEEE International Conference on Robotics and Automation (ICRA), 2008. pp.1036-1041.

[17] Travis Deyle, Szabolcs Palinko, Erica Shehan-Poole, and Thad Starner, "Hambone: A Bio-Acoustic Gesture Interface," IEEE International Symposium on Wearable Computers (ISWC), 2007. pp.3-10.  
(Best Paper Award Nominee)

### **Invited Editorials:**

[18] Erico Guizzo and Travis Deyle, "Robotics Trends for 2012," IEEE Robotics and Automation Magazine, (RAM2012), pp 119-123.

### **Peer-Reviewed Workshops:**

[19] Hai Nguyen, Travis Deyle, Matt Reynolds, and Charles C. Kemp, "PPS-Tags: Physical Perceptual and Semantic Tags for Autonomous Mobile Manipulation," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2009. Semantic Perception for Mobile Manipulation Workshop.

[20] YoungSang Choi, Cressel Anderson, Travis Deyle, and Charles C. Kemp, "Human-Robot Interaction Studies for Autonomous Mobile Manipulation for the Motor-Impaired." ACM SIGACCESS Conference on Computers and Accessibility, AAAI Spring Symposium, 2009.

### **Non-Peer Reviewed Technical Notes:**

[21] Young Sang Choi, Travis Deyle, and Charles C. Kemp, "A List of Household Objects for Robotic Retrieval Prioritized by People with ALS", Rep. 0902.2186 v1. <http://arxiv.org/abs/0902.2186>, 2009.

[22] Travis Deyle, "Low-cost inertial measurement unit," Sandia National Laboratories report SAND2005-1548, 2005.

[23] KD Marx, RC Armstrong, NM Berry, RL Bierbaum, TJ Deyle, JL Dimkoff, AB Doser, CM Pancarella, DA Sheaffer, and EJ Walsh, "Smart Sensor Technology for Joint Test Assembly Flights," Sandia National Laboratories report SAND2003-8589, 2003.

## Scholastic Achievements, Honors, & Funding

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- NSF / CRA Computing Innovation (CI) Postdoc Fellowship** 2011 – 2013
- Prestigious 1-year (optional 1-yr. extension) postdoc fellowship
  - \$75,000 per year plus \$15,000 travel and equipment
- National Science Foundation (NSF) Graduate Research Fellowship (GRFP)** 2007 – 2010
- Highly-selective 3-year graduate fellowship
  - Covers tuition, provides \$2500 / mo. stipend, and travel stipend.
- Georgia Tech Institute Fellowship (GTIF)** 2006 – 2010
- “Georgia Tech’s most prestigious fellowship for graduate students.”
  - 4-year fellowship providing \$12,000 / year.
- Walter Scott, Jr. Scholarship** 2001 – 2005
- Awarded to undergraduates for “outstanding academic achievement, exemplary performance on college admission tests, and demonstration of leadership potential.”
  - Covered tuition, fees, books, and special dormitory living costs for 4 years.
- University of Nebraska Regents Scholarship** 2001 – 2005
- Selection by the Board of Regents.
  - Covered tuition costs for 4 years.
- Wayne F. Bolton Memorial Scholarship** 2004
- Armed Forces Communications and Electronics Association (AFCEA) scholarship
  - Award of \$1500 provided to two undergraduates.

## Professional Contributions

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**IEEE International Conference on Robotics and Automation (ICRA):** Reviewer 2009- 2013  
**IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS):** Reviewer 2008-2013  
**IEEE Conference on Pervasive Computing (Pervasive):** Reviewer 2011  
**ACM Conference on Tangible, Embedded, and Embodied Interaction (TEI):** Reviewer 2011  
**IEEE International Symposium on Wearable Computers (ISWC):** Reviewer 2010  
**IEEE Conference on Rehabilitation Robotics (ICORR):** Reviewer 2009  
**ACM Conference on Ubiquitous Computing (UbiComp):** Reviewer 2008  
**ACM Conference on Interactive Tabletops and Surfaces (Tabletop):** Reviewer 2008

## Miscellaneous

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### Hizook.com

- Founded a robotics-centric company (Hizook, LLC) that includes the website Hizook.com. Cover news and develop niche products for academic and professional roboticists.
- Editor-in-chief and main contributor to the website. Currently (June. 2013) receives over 30,000 visitors per month and over 4.5 million cumulative video (YouTube) views.

### US Citizen

### Former Department of Energy (DOE) ‘Q’ Clearance Holder

### Python programming aficionado