

# Drew (Andrew P.) Sabelhaus

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## EDUCATION

### PHD. MECHANICAL ENGINEERING, CONTROLS

UNIVERSITY OF CALIFORNIA, BERKELEY

Expected May 2018

### B.S. MECHANICAL ENGINEERING

(MINOR IN COMPUTER SCIENCE)

UNIVERSITY OF MARYLAND, COLLEGE PARK

May 2012

### M.S. MECHANICAL ENGINEERING

UNIVERSITY OF CALIFORNIA, BERKELEY

Dec. 2014

Thesis title: "Mechanism and Sensor Design for SUPERball, a Cable-Driven Tensegrity Robot"

## PUBLICATIONS

- **DNA-Structured Linear Actuators.** Zampaglione, K.; Sabelhaus, A.P.; Chen, L.; Agogino, A.M.; Agogino, A.K.; ASME International Design Engineering Technical Conferences (IDETC) / 40th Mechanisms and Robotics Conference, Aug 2016.
- **Mechanism Design and Simulation of the ULTRA Spine, a Tensegrity Robot.** Sabelhaus, A.P.; Ji, H.; Hylton, P.; Madaan, Y.; Yang, C.; Friesen, J.; SunSpiral, V.; Agogino, A.M.; ASME International Design Engineering Technical Conferences (IDETC) / 39th Mechanisms and Robotics Conference, Aug 2015.
- **System Design and Locomotion of SUPERball, an Untethered Tensegrity Robot.** Sabelhaus, A.P.; Bruce, J.; Caluwaerts, K.; Manovi, P.; Fallah Firoozi, R.; Dobi, S.; Agogino, A.M.; SunSpiral, V.; IEEE International Conference on Robotics and Automation (ICRA), May 2015.
- **Design and Control of Compliant Tensegrity Robots through Simulation and Hardware Validation.** Caluwaerts, K.; Despraz, J.; Iscen, A.; Sabelhaus, A.P.; Bruce, J.; Schrauwen, B.; SunSpiral, V.; Journal of the Royal Society Interface, Sept. 2014.
- **Hardware Design and Testing of SUPERball, a Modular Tensegrity Robot.** Sabelhaus, A.P.; Bruce, J.; Caluwaerts, K.; Chen, Y.; Lu, D.; Liu, Y.; Agogino, A.K.; SunSpiral, V.; Agogino, A.M.; The 6th World Conference on Structural Control and Monitoring (6WCSCM), July 2014
- **SUPERball: Exploring Tensegrities for Planetary Probes.** Bruce, J.; Sabelhaus, A.P.; Chen, Y.; Lu, D.; Morse, K.; Milam, S.; Caluwaerts, K.; Agogino, A.M.; SunSpiral, V.; 12th International Symposium on Artificial Intelligence, Robotics, and Automation in Space (i-SAIRAS), June 2014
- **Design and Evolution of a Modular Tensegrity Robot Platform.** Bruce, J.; Caluwaerts, K.; Iscen, A.; Sabelhaus, A.P.; SunSpiral, V.; IEEE International Conference on Robotics and Automation (ICRA), May 2014
- **TinyTeRP: A Tiny Terrestrial Robotic Platform with Modular Sensing.** Sabelhaus, A.P.; Mirsky, D.; Hill, L.M.; Bergbreiter, S.; IEEE International Conference on Robotics and Automation (ICRA), May 2013

## PRESENTATIONS, WORKSHOPS, POSTERS

- **Robotics, Mechatronics, and Intelligent Systems.** Osher Lifelong Learning Institute, Feb 2014. Invited Talk.
- **Fabulous Facilitation Frameworks for LGBTQ College Students.** Out in Science, Technology, Engineering, and Mathematics Incorporated (oSTEM) National Conference, Nov 2013. Workshop.
- **Mechatronic Design of Tensegrity Robotic Systems for Dynamic Locomotion.** NASA Ames Research Center Autonomous Systems Lab Intern Poster Symposium, Aug 2013. Poster Session.
- **TinyTeRP: A Tiny Terrestrial Robotic Platform with Modular Sensing.** International Conf. on Robotics and Automation (ICRA), May 2013. Presentation.
- **Topics in Queer Student Leadership: Assessment, Transitions, and Goal-Driven Planning.** Midwest Bisexual, Gay, Lesbian, Transgender, and Allies College Conference, Feb 2013. Workshop. Also presented at National Gay and Lesbian Task Force Creating Change Conference, Jan 2013. Workshop.
- **TinyTeRP: A Tiny Terrestrial Robotic Platform.** International Symposium on Distributed Autonomous Robotic Systems (DARS), Nov 2012. Poster Session.

# LEADERSHIP, OUTREACH, AND ORGANIZATIONAL WORK

## **EQUITY, DIVERSITY, AND INCLUSION INITIATIVE | GRADUATE PEER ADVISOR**

Aug 2014 - Present | Berkeley, CA

- One of two graduate students spearheading diversity programs in the Mechanical Engineering Department at UC Berkeley
- Held office hours, advised students on matters of inclusion, identity, research, and professional relationships
- Organized lab tours for two high school groups from Santa Cruz, CA
- Organized fellowship application draft reading team for under-represented students in the department
- Currently planning and organizing large “Engineering for All” initiative for spring 2015

## **OUT IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS INCORPORATED**

**COORDINATOR, CHAPTER LEADERSHIP PROGRAMS**

July 2012 - Present | Berkeley, CA

- Led data collection, programs assessment, and new programming efforts for national nonprofit organization serving LGBTQ students in STEM fields
- Organized and led the Chapter Handbook Project team
- Wrote 50+ pages of leadership instructional material for current oSTEM chapter leaders, edited other sections of the 80 page oSTEM Chapter Handbook (distributed Feb 2013)
- Created online assessment strategy for handbook among student users
- Created and presented unique skills workshops at national LGBTQ+ conferences
- Temporarily filled open position on oSTEM Incorporated Board of Directors from late 2012 until mid 2013

## **OUT IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS AT UC BERKELEY**

**SECONDARY ADVISOR**

Aug 2012 - Present | Berkeley, CA

- Provided advice, training, and support to local oSTEM Chapter as a former leader
- Mentored current and upcoming student leaders, in both personal and professional capacities
- Assisted in leadership transitions and programs assessment

## **OUT IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS AT MARYLAND**

**CHAPTER PRESIDENT**

Nov 2010 - April 2012 | College Park, MD

- Co-founded and led chapter of oSTEM at the University of Maryland, College Park
- Wrote budgets for conference attendance and local events
- Coordinated corporate sponsorships, totaling over \$3,000
- Trained current group of student leaders for their leadership transition

## **QUEER COUNCIL AT THE UNIVERSITY OF MARYLAND | FOUNDER, FACILITATOR**

May 2011 - April 2012 | College Park, MD

- Founded organizational inter-group council for LGBTQ+ student group leaders at the University of Maryland
- Led dialogue programs and generated cross-programming between groups
- Facilitated discussions and advocated for the queer community to university staff and management