

Phillip Howard Daniel

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2234 Clements Drive
Durham NC, 27704

Education:

Massachusetts Institute of Technology (MIT) - Cambridge, MA

Candidate for M.S. in Mechanical Engineering

2015 (Expected)

- GPA 4.8/5, Gates Millennium Scholar
- Relevant Coursework: Power Electronics, Analysis and Design of Feedback Control Systems, Mechatronics

Massachusetts Institute of Technology (MIT) - Cambridge, MA

B.S. in Mechanical Engineering, Concentration in Religious Studies

2013

- GPA 4.6/5, Gates Millennium Scholar
- Relevant Coursework: Product Engineering Processes, Design and Manufacturing I & II, Introduction to Robotics

Fellowships and Awards:

- Moore Foundation MURF Fellow
- Gates Millennium Scholarship Program (GMSP) Fellowship Recipient
- GMSP Scholarship Recipient
- Two time featured author on www.Instructables.com
- Awarded \$1,862.08 grant from the Council of the Arts at MIT
- Featured in the MIT Technology Review
- Awarded \$5,000 donation from Draper labs
- Raised \$3,087 on Kickstarter.com

Teaching Experience:

MIT Course - Analysis and Design of Feedback Control Systems – Cambridge, MA

Teaching Assistant

February 2015 – June 2015

- I co-led lab sessions three days per week, hosted office hours, proctored and graded examinations and reports, setup course demonstrations, lectured on the benefit of the L-minus Laplace transform for a special graduate lab session and coordinated with course graders.

Precision Motion Control Laboratory – Cambridge, MA

Undergraduate Research Adviser

November 2014 – May 2015

- I advised undergraduate mechanical engineering students in conducting research that is in line with the focus of my lab.

MIT Momentum – Cambridge, MA

Teaching Assistant

January 2012, January 2014, January 2015

- Mentored MIT undergraduates in an abbreviated design course. I taught inverse kinematics, mechanical design, CAD modeling, advanced fabrication, team management skills, presentation skills, and microcontroller electronics. In 2014 I helped design, build and host the course's first final competition.

Spokes – Cambridge, MA

Instructor

June 2013 – August 2013

- Raised \$3,087 in funding in an online fundraising campaign hosted by Kickstarter.com.
- Taught project based mechanical engineering concepts to four groups of high school and middle school students across the country, during a bike tour from San Francisco to Washington, DC.

MIT Education Studies Program – Cambridge, MA

Instructor

January 2013

- Raised \$5000 in funding from Draper labs and used part of the funds to develop a curriculum and project for teaching hands on learning to middle school students in the Cambridge area.

MIT Interphase – Cambridge, MA

Physics TA and Resident Advisor

June 2010 – August 2010

- Led recitation and office hours to teach Classical Mechanics to incoming freshman at MIT. I also served as a resident advisor to the students in their dormitory for both personal and academic matters.

Research Experience:

Precision Motion Control Laboratory - Cambridge, MA

Research Assistant

September 2013- Current

- Designed and built a flexible hull undersea vehicle to study swimming efficiency.
- Submitted an M.S. thesis documenting the mechanical design and analysis of the system.

Biomimetic Robotics Laboratory - Cambridge, MA

Undergraduate Researcher

October 2011-December 2012

- Designed and fabricated a touch sensitive foot, using shape deposition manufacturing, which improved control by indicating contact with the ground.
- Designed and fabricated a mobile test stand for a quadruped robot's running tests.

NASA JPL - Los Angeles, CA

Moore Foundation MURF Fellow

June 2012- September 2012

- Designed and fabricated a mechanism capable of adhering to smooth, curved surfaces using a NASA designed nanostructure.

MIT-SOS-Lab – Cambridge, MA

Undergraduate Researcher

November 2011-September 2012

- Designed and fabricated a miniature heliostat as a tool to aid in illustrating the labs research.

Publications and Presentations:

- Daniel, Phillip, Church, Joseph, Trumper, David, "Actuation Schemes for Flexible Hull, Undersea Vehicles." 29th American Society for Precision Engineering Annual Meeting. MIT Precision Motion Control Lab. The Westin Boston Waterfront, Boston. 11 November 2014. Poster Presentation.
- Daniel, P., Church, J., Trumper, D. (2014). Series Elastic Actuation for Underwater Robot Locomotion. *Proceedings of the 29th Annual Meeting*. Abstract accepted at 29th American Society for Precision Engineering Annual Meeting. The Westin Boston Waterfront, Boston. 11 November.
- Daniel, Phillip, Church, Joseph, Trumper, David, "Actuation Schemes for Flexible Hull, Undersea Vehicles." NIWeek 2014. MIT Precision Motion Control Lab. Austin Convention Center, Austin. 20 July 2014. Poster Presentation.
- Daniel, P., Parness, A., "End Effector Design and Fabrication for Multi-Surface Adhesion," *California Institute of Technology Undergraduate Research Journal*, Winter 2013, vol. 13, number 1
- Parness, A., Hilgendorf, T., Daniel, P., Frost, M., Kennedy, B., "Controllable ON-OFF Adhesion for Earth Orbit Grappling Applications," *IEEE Aerospace Conference*, Big Sky, Montana, 2-9 March 2013
- Southern California Conferences for Undergraduate Research Presenter (SCCUR), "End Effector Design and Fabrication for Multi-Surface Adhesion," November 2012
- Daniel, P., Slocum, A., "The Design and Fabrication of a Passive and Continuously Repositionable Joint," Thesis. MIT, 2013. Cambridge: MIT, 2013. Print.

Related Professional Experience:

EcoMaps – Cambridge, MA

November 2014- Current

Project Lead

- Leading an interdisciplinary team through the early stage growth of a consumer product company
- Awarded an \$1,862.08 grant from the Council of the Arts at MIT
- Company accepted into MIT's Venture Mentoring Service and featured in the MIT Technology Review.
- Product advertised in a local retail store and has nearly \$1,000 in sales.

Design That Matters (DtM) – Salem, MA

Intern

February 2014-May 2014

- Worked on an interdisciplinary team of engineers, MBA students, and designers from MIT and the Rhode Island Institute of Design.
- Prototyped the electronic system for the first iteration of a pulse oximeter. This was soon after user tested in Vietnam by DtM.
- Our prototype was used to raise \$22,767 in an online fundraising campaign hosted by Indiegogo.com.

Jacobs Vehicle Systems (Danaher) - Bloomfield, CT

Design and Analysis Intern

June 2011-August 2011

- Produced and toleranced component drawings, verified vendor sketches, and designed tools and fixtures for material testing.
- Produced a 76% increase in efficiency for an automated, assembly machine.
- Conducted a finite element analysis of a production brake component and presented my results to the company's president and engineering team.

Skills:

Proficient: SolidWorks (CAD), Machining and Fabrication, Labview

Familiar: Pro Engineer (CAD), Mastercam (CAM), Math CAD, Arduino, Matlab, Spanish

References:

- Professor David L. Trumper (Professor of Mechanical Engineering)
 - Phone: (617) 253-3481
 - Email: trumper@mit.edu
- Professor Wesley L. Harris (Charles Stark Draper Professor of Aeronautics & Astronautics)
 - Phone: (617) 253-0911
 - Email: weslhar@mit.edu
- Tammy Stevens (Associate Dean of Academic and Professional Programs)
 - Phone: 617-253-5010
 - Email: tamste@mit.edu