

Matthew Devlin

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EDUCATION

University of California Santa Barbara – Santa Barbara, CA September 2019 – Present
Mechanical Engineering, Ph.D. student – GPA: 3.64

Georgia Institute of Technology – Atlanta, GA August 2013 – December 2016
Biomedical Engineering, minor in Computer Science - Highest Honors – GPA 3.61

ACADEMIC RESEARCH

Hawkes Lab – Santa Barbara, CA September 2019 – Present
Graduate Research Assistant for Dr. Elliot Hawkes

- Developing novel shape-changing soft hybrid robots for difficult terrain navigation and high force actuation
- Building robots capable of lifting humans, climbing up stairs, and crawling under obstacles
- Constructing novel reconfigurable active matter robot collectives using embryo-inspired mechanics
- Forged and led collaborative research projects with two other labs to develop novel robots

Adaptive Robotic Manipulation Laboratory – Atlanta, GA January 2016 – December 2016
Research Assistant for Dr. Frank Hammond III

- Designed novel materials and manufacturing methods to remedy current limitations in soft robotics
- Prototyped wearable sensors for human prosthetics, focusing on human safety and scalability

BioMEMS and Biomechanics Laboratory – Atlanta, GA March 2014 – January 2016
Research Assistant for Dr. Todd Sulchek

- Developed method to produce functionalized microspheres for use as novel antibiotics
- Innovated a novel evaluation method, overcoming a five-year roadblock in data generation

Yu Lab – Ithaca, NY June 2015 – August 2015
Nanotechnology Research Intern for Dr. Haiyuan Yu

- Iterated through 50+ chip designs to create an optimal surface for protein detection
- Demonstrated first on-chip protein detection in lab history

WORK EXPERIENCE

L'Oréal – Clark, NJ January 2017 – July 2019
Scientist – Rapid Prototyping and Robotics

- Piloted rapid prototyping technology developments on 60+ projects, using techniques such as 3D printing and image processing, to efficiently screen large batches of design iterations
- Created and implemented a new testing method to improve scientists' productivity, reducing time spent on data collection from 4 hours to 15 seconds per test (patented)
- Fabricated new robotic testing procedures that mimic human gestures, reducing human error, and saving weeks of personnel scheduling time per test

L'Oréal – Clark, NJ May 2016 – August 2016
Research and Innovation Intern – Foundation Lab

- Designed mechanically resistant thin films through principle component analysis, generating several launchable candidates among 150 iterations
- Created a proof-of-concept device to quantify foundation characteristics, automating the testing procedure to minimize human error

Wobble Tech, LLC – Atlanta, GA January 2016 – December 2016
Fabrication lead/Cofounder

- Finalist in Georgia Tech's Inventure Prize, winning \$10,000 and all necessary patent fees
- Designed and build a perturbation platform to assess brain health (patent pending US20170258388A1)
- Coordinated product research evaluation geared toward concussion recovery in football players

BME Machine Shop – Atlanta, GA

August 2015 – December 2016

Instructional shop hand

- Aid students and researchers in the fabrication of their projects through consultation and tool training
- Monitor safety practices of all shop users to ensure overall safety

IGNYTA, Inc. – San Diego, CA

June 2013 – August 2013

Research Intern

- Analyzed methylation frequency, coverage, and read depth data to properly validate primers
- Extracted and quantified DNA from blood samples for use in biomarker validation

HONORS AND AWARDS

- Second place Georgia Tech Inventure competition (won \$10,000) *March 2016*
- First place L'Oréal internal hackathon (won internal project funding) *May 2018*
- UCSB Regents Fellowship Award (\$30,000 graduate stipend) *September 2020*
- Second place UCSB Hackathon (won \$300 worth of new electronics) *March 2021*
- First place UCLA Hackathon (won \$1000 worth of new electronics) *May 2021*
- Competitor in national hackathon invitational *September 2021*
- Second place in department research pitch competition (won \$200) *October 2021*

TEACHING EXPERIENCES

UCSB Mechanical Engineering Department – Santa Barbara, CA

Graduate Teaching Assistant

- ME 128 – Design of Biomedical Devices *September 2019*
- ME 153 – Introduction to Mechanical Engineering Design *March 2020*

UA Whitaker Biomedical Engineering Department – Atlanta, GA

Undergraduate Teaching Assistant

- BMED 1300 – Problems in Biomedical Engineering II *January 2015*

MENTORSHIP/OUTREACH

Mentoring undergraduate students

- Podcast series for Georgia Tech on getting started with research, internships, and fabrication *March 2016*
- Overseeing UCSB Mechanical Engineering students as they learn and assist my research *January 2020 – Present*
 - Two undergraduate mentees have been able to contribute enough to have authorship on my publications

Community outreach

- Oversaw a Santa Barbara high school science project on developing an exoskeleton arm *September 2019 – March 2020*
- Visited local elementary schools with L'Oréal to talk about getting involved with STEM *January 2017 – June 2019*
- Led science experiments with children around Atlanta to get them excited about science and technology *August 2015 – August 2016*

INTELLECTUAL PROPERTY

Patents

- T. Susko, E. Hawkes, E. Sloan, M. **Devlin**. "Variable friction shoe" 2020 US Patent App US201962829254P
- M. **Devlin**, C. Pang, A. Tembe. "Automated Imaging System for Evaluating the Curl of a Keratinous Substrate" 2019 US Patent 16/029,624
- M. **Devlin**, I. Mathew, A. McVey, G. Whitfield. "Bioerodible Drug Delivery Implants" 2019 US Patent App 0008792 A1
 - Startup awarded \$1.25 million in Series Seed funding

Journal papers

- M. Fanton, H. V. Alizadeh, A. Domel, M. **Devlin**, M. Kurt, G. Mungal, D. Camarillo, E. Hawkes. "Variable Area, Constant Force Shock Absorption Motivated by Traumatic Brain Injury Prevention" *Smart Materials and Structures*. 2020

Conference papers

- M. **Devlin**, M. Dickens, C. Xiao, E. Hawkes, "SPHR: A Soft Pneumatic Hybrid Robot with extreme shape changing and lifting abilities" *International Conference on Intelligent Robots and Systems*. Prague, Czech Republic 2021
- D.S. Drew, M. **Devlin**, E. Hawkes, S. Follmer. "Acoustic Communication and Sensing for Inflatable Modular Soft Robots" *International Conference on Robotics and Automation*. Xi'an, China 2021
- M. **Devlin**, B. Young, D. Haggerty, N. Naclerio, E. Hawkes. "An untethered soft cellular robot with variable volume, friction, and unit-to-unit cohesion" *International Conference on Intelligent Robots and Systems*. Las Vegas, NV, 2020
- M. **Devlin**, R. Fragoza, H. Yu. "Exploration of Protein Capture Methods for Applications in Microfluidic Devices" *NNIN REU Research Accomplishments*. Ithaca, NY, 2015

Presentations

- E. de Leon Sanchez, M. **Devlin**, G. Hofmann. "DIY MHW for the Budget Scientist: An Affordable System Designed to Simulate Marine Heatwaves in the Laboratory," *Western Society of Naturalists*. Monterey, CA, 2021. Oral Presentation
- M. **Devlin**, K. Park, C. Pang, H. Bui. "In-vitro Evaluation of Volumizing Mascara Deposited on Fake Eyelash" *ACS Colloids and Surface Science Symposium*. Atlanta, GA, 2019. Oral presentation
- M. **Devlin**, B. Gizaw, A. Khaja, A. Mylarapu, C. Patonja, P. Pacheco, T. Sulchek. "Fc-Functionalized Beads in modulating the Complement-mediated Cytotoxicity of Escherichia coli" *Annual Undergrad. Research Symposium*. Atlanta, GA, 2015. Poster presentation
- M. **Devlin**, B. Gizaw, A. Khaja, A. Mylarapu, C. Patonja, P. Pacheco, T. Sulchek. "Complement-mediated Cytotoxicity of Escherichia coli with Fc-Functionalized Beads" *BMES Annual Meeting*. San Antonio, TX, 2014. Poster presentation