

LEAH T. GAETA

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RESEARCH & CAREER INTERESTS

Researcher focused on localized stiffening strategies in wearable devices and soft robotics. Passionate about wearable solutions for rehabilitation, assistance, and athletic performance.

EDUCATION

Boston University September 2021 – May 2025
Ph.D. Mechanical Engineering Boston, MA
M.S. Mechanical Engineering

- Dissertation: *Stiffness Localization in Soft and Wearable Robotics*
- Doctoral researcher in the Morphable Biorobotics Lab (PI: Tommaso Ranzani, Ph.D.)
- Received ‘High Pass’ on both Qualifying Written & Oral Exams in Spring 2022
- Co-instructor for EK 125: Introduction to Programming for Engineers in Fall 2022

Boston University Summer 2019 – May 2021
Late-Entry Accelerated Program (LEAP) in Mechanical Engineering Boston, MA

- College of Engineering Scholarship (maximum award) for being in top 1% of my class
- Teaching Assistant (five semesters) for EK 125: Introduction to Programming for Engineers (MATLAB, C)

University of Southern California Fall 2008 – Spring 2013
B.S. Human Biology (emphasis in Applied Physiology) Los Angeles, CA

- Undergraduate researcher in the USC Biomechanics Lab (PI: Jill McNitt-Gray, Ph.D.)
- NCAA DI Cross Country (Fall) and Track & Field (Spring) Student-Athlete, 2008 – 2012

PEER-REVIEWED JOURNAL PUBLICATIONS

3. L. Kinnicutt, **L.T. Gaeta**, J. Rogatinsky, J. Lee, A. Cameron, A.J. Naik, D.T. Hess, and T. Ranzani. “A soft robotic, modular laparoscopic grasper for atraumatic retraction of the small intestine,” *Device*, Vol. 2, Issue 10, 100560, 2024.
2. **L.T. Gaeta**, M.D. Albayrak, L. Kinnicutt, S. Aufrichtig, P. Sultania, H. Schlegel, T.D. Ellis, and T. Ranzani. “A magnetically controlled soft robotic glove for hand rehabilitation,” *Device*, Vol. 2, Issue 9, 100512, 2024.
1. **L.T. Gaeta**, K.J. McDonald, L. Kinnicutt, M. Le, S. Wilkinson-Flicker, Y. Jiang, T. Atakuru, E. Samur, and T. Ranzani. “Magnetically induced stiffening for soft robotics,” *Soft Matter*, vol. 19, no. 14, pp. 2623–2636, 2023.

JOURNAL PAPERS UNDER REVIEW

1. **L.T. Gaeta**, V.T. Vo, S.-Y. Lee, S. Raste, M. Venkatesam, J. Rogatinsky, M.D. Albayrak, T. Ranzani. “Jamming Metal Sheets Using Electropermanent Magnets for Stiffness Modulation,” *Under Review*, 2025.

CONFERENCE PROCEEDINGS & PRESENTATIONS

2. **L.T. Gaeta**, T. Ranzani. “Magnetically Induced Stiffening for Soft Robotics,” *Material Research Society (MRS) Fall meeting*, 2023, Boston, MA, USA.
1. L. Kinnicutt, J. Lee, J. Oden, **L.T. Gaeta**, S.K. Carroll, A. Rathi, Z.H. Lim, M. Lee, C. Orakwue, K.J. McDonald, D.T. Hess, T. Ranzani. “A Soft Laparoscopic Grasper for Retraction of the Small Intestine,” *The Hamlyn Symposium on Medical Robotics*, 2023, London, UK.

AWARDS & HONORS

Research Supplement to Promote Diversity in Health-Related Research, National Institutes of Health, National Institute of Biomedical Imaging and Bioengineering	2022 – 2024
Distinguished Mechanical Engineering Fellowship, Boston University	2021 – 2022
College of Engineering Scholarship (Max. Award), Boston University	2020 – 2021
All-Academic Track & Field Team, PAC-10 Conference	2009 – 2011
Heritage Association Coaches’ Award, University of Southern California	2010
Dean’s List College of Arts & Sciences, University of Southern California	2010
All-Academic Cross Country Team, PAC-10 Conference	2008 – 2010
Alpha Lambda Delta Honor Society, University of Southern California	2008
Dean’s List College of Arts & Sciences, University of Southern California	2008

ACADEMIC ACTIVITIES

Peer Reviewer For:

- Soft Robotics
- Science Advances
- IEEE International Conference on Intelligent Robots and Systems (IROS)
- IEEE-RAS International Conference on Soft Robotics (RoboSoft)
- IEEE Transactions on Robotics (T-RO)
- International Journal of Robotics Research (IJRR)

Leadership Positions:

- Mentoring Chair, Graduate Women in Science and Engineering (GWISE), 2022 – 2024
- Board Member, GWISE, 2022 – 2024
- Mentoring Representative, GWISE, 2021 – 2022
- Late-Entry Accelerated Program (LEAP) Ambassador 2020 – 2021

TEACHING POSITIONS

Co-Instructor, Boston University EK 125

FA2022

EK 125: Introduction to Programming for Engineers. Students learn to program in MATLAB and C, applying coding concepts to solve engineering problems. As Co-Instructor I led seven lecture sessions weekly and would assist with labs and discussion sections when needed. I also held office hours, wrote homework assignments, and helped construct and grade exams. Received mean teaching evaluation score of 4.9/5.0 from surveyed students.

Teaching Assistant, Boston University EK 125

SP2020 – SU2021

EK 125: Introduction to Programming for Engineers. Students learn to program in MATLAB and C, applying coding concepts to solve engineering problems. My duties consisted of assisting with learning during lecture and lab sections, holding two 1-hour discussion sections weekly, holding two 2-hour office hour sections weekly, writing homework assignments, and grading. I TA'd for five semesters (SP2020, SU2020, FA2020, SP2021, SU2021).

RESEARCH POSITIONS

Boston University, Morphable Biorobotics Lab

September 2021 – May 2025

Doctoral Researcher

Boston, MA

Advisor: Prof. Tommaso Ranzani

University of Southern California, USC Biomechanics Lab

August 2012 – May 2013

Undergraduate Researcher

Los Angeles, CA

Advisor: Prof. Jill McNitt-Gray

Gilead Sciences, Inc.

Summer 2010 & Summer 2011

Medicinal Chemistry Intern

Foster City, CA

Advisor: Dr. Paul Roethle

RESEARCH MENTORSHIP

Undergraduate Mentorship:

1. Mark Lucas – Current student
2. Hanna Schlegel – BS, Mechanical Engineering, 2024
 - Publications: Gaeta et al. (2024)
 - Post-graduation: PhD Student at UC Berkeley
3. Megan Le – BS, Biomedical & Mechanical Engineering, 2023
 - Publications: Gaeta et al. (2023)
 - Post-graduation: Graduate Student, Imperial College London
4. Anushka Rathie – BS, Mechanical Engineering (2023)
 - Post-graduation: PhD Student at University of Michigan
5. Bryson Garriques – BS, Mechanical Engineering, 2023
6. Howell Xia, Former student

Graduate Mentorship:

1. Megha Venkatesam – Current student
 - Publications: Gaeta et al. (Under review)
2. Srushti Raste – MS, Robotics & Autonomous Systems, 2025
 - Publications: Gaeta et al. (Under review)
3. M. Deniz Albayrak – MS, Mechanical Engineering, 2024
 - Publications: Gaeta et al. (2024), Gaeta et al. (Under review)
 - Post-graduation: PhD Student at ETH Zurich
4. Yuyuan Zhang – MS, Mechanical Engineering (2024)
 - Post-graduation: PhD Student at UMass Amherst
5. Yixiao Jiang – MS, Mechanical Engineering, 2022
 - Publications: Gaeta et al. (2023)
 - Post-graduation: PhD Student at Columbia University
6. Piyaporn (View) Chivatanaporn – MS, Mechanical Engineering

Other Mentorship:

1. Susanna Aufrichtig
 - BU RISE High School Intern, Summer 2023
 - Publications: Gaeta et al. (2024)
 - Currently: Undergraduate Student at Cornell University
2. Sidney Wilkinson-Flicker
 - NSF RET Fellow, Summer 2022
 - Publications: Gaeta et al. (2023)
 - Currently: A.C. Whelan Elementary School Teacher

PROFESSIONAL EXPERIENCE

Boston University

January 2020 – July 2021

Teaching Assistant

Boston, MA

- Taught five semesters for Professor Attaway's EK 125: Introduction to Programming for Engineers
- Assisted with learning during the lectures & labs
- Led two discussion sections & two 2-hour office hour sessions weekly
- Wrote homework assignments, including introducing students to MATLAB Mobile data collection, Live Editor, debugging, using C with Unix command line, and statistics in Data Science & Machine Learning
- Graded quizzes, exams, and assignments

Automatic Data Processing, Inc.

January 2019 – May 2019

User Experience Research Coordinator

Pasadena, CA

- Supported the design, analysis, writing, and reporting of quantitative and qualitative research

- Analyzed results from all types of qualitative and quantitative research to recommend product development

Studio Metamorphosis

Senior Trainer

February 2015 – May 2019

Pasadena, Eagle Rock, & Los Feliz, CA

- Instructed over 5,000 strength training, indoor cycling, and running classes at the three studios
- Trained players of the Los Angeles Dodgers (Major League Baseball) during the 2017 and 2018 off-seasons
- Composed private training regimens for clients with post-surgery needs, paraplegia, and muscular dystrophies
- Co-developed the fitness programs at new studio locations and trained entry-level and junior instructors
- Work was featured in The New York Times, CNN, People, and more

Pilates Platinum & Pilates Plus

Freelance Fitness Instructor

June 2013 – March 2016

Greater Los Angeles Area

- Led Lagree Fitness, indoor cycling, and private training sessions for various studios across Los Angeles

Varsity Tutors, LLC

Academic Tutor

April 2013 – May 2014

Greater Los Angeles Area

- Provided in-home tutoring for middle, high school, and undergraduate students in their math and science subjects
- All five clients went from failing grades to A's and B's at the completion of their courses

Gilead Sciences, Inc.

Medicinal Chemistry Intern

Summer 2010 & Summer 2011

Foster City, CA

- Synthesized, isolated, and identified compounds designed to inhibit a novel HIV target
- Used mass-spectrometers, NMRs, and other instruments to isolate and identify products

VOLUNTEER EXPERIENCE

Joint Educational Project (JEP)

- Planned coursework and taught basic human biology to 4th graders at St. Raphael's school in South Central Los Angeles during FA2012
- Formulated a curriculum with varied lesson plans, often adapting based on student and teacher feedback

Kids Enjoy Exercise Now (KEEN)

- Worked with children with physical and mental disabilities in Los Angeles, 2017 – 2019
- Encouraged athletes to play and emphasized the importance of physical activity

Additional Volunteer Experience Includes:

- Mentor through Boston University's ARROWS Mentoring Circles Programs, 2019 – 2025

TECHNICAL SKILLS

Languages	MATLAB, Python (Jupyter Notebook, Numpy, Pandas, Scikit-Learn, TensorFlow), C, L ^A T _E X
Software	Creo, Onshape, Arduino, Inspire, nTopology, Cura, Adobe Creative Cloud Suite, Excel, Git, Salesforce, Eloqua, Qualtrics
Tools	Instron, FDM & SLA 3D Printing, CO ₂ Laser Cutter, UV Laser Cutter, Soft Materials Processing Equipment, Universal Robot Arm, Heat Press, Soldering

INTERESTS

Running (6x Marathoner, 6x Boston Marathon Qualifier) · Strength Training · Baseball · Saber-metric Books, Blogs, & Newsletters