LEAH T. GAETA

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RESEARCH & CAREER INTERESTS

Doctoral researcher focused on localized stiffening strategies in wearable devices and soft robotics. Passionate about research at the intersection of human health & performance, sports, and engineering.

EDUCATION

Boston University September 2021 – Present
Ph.D. Candidate in Mechanical Engineering *Boston, MA*
M.S. in Mechanical Engineering, GPA: 4.0

- Doctoral researcher in the Morphable Biorobotics Lab (PI: Tommaso Ranzani, Ph.D.)
- Dissertation Defense and graduation expected in Spring 2025
- Dissertation Prospectus defended in Fall 2024
- Received 'High Pass' on both Qualifying Written & Oral Exams in Spring 2022
- Fulfilled teaching fellowship as 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, GPA: 3.96 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. in Human Biology (emphasis in Applied Physiology) *Los Angeles, CA*

- Pre-medicine with additional physics and math elective courses
- 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

General Assembly Fall 2017 – Winter 2018
Data Science & Python Courses *Los Angeles, CA*

- Used Python to mine datasets and build statistical models to predict MLB teams' performance

PEER-REVIEWED 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.

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.

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. "Magnetic Metal Jamming." *Under Review*, 2025.

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 May 2021 – Present
Doctoral Researcher *Boston, MA*

University of Southern California, USC Biomechanics Lab August 2012 – May 2013
Undergraduate Researcher *Los Angeles, CA*

Gilead Sciences, Inc. Summer 2010 & Summer 2011
Medicinal Chemistry Intern *Foster City, CA*

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 February 2015 – May 2019
Senior Trainer *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 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 June 2013 – March 2016
Freelance Fitness Instructor *Greater Los Angeles Area*

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

Varsity Tutors, LLC April 2013 – May 2014
Academic Tutor *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. Summer 2010 & Summer 2011
Medicinal Chemistry Intern *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 4^{th} 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 – Present

TECHNICAL SKILLS

Languages	MATLAB, Python (Jupyter Notebook, Numpy, Pandas, Scikit-Learn, TensorFlow), C, LaTeX
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

INTERESTS

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