

# Julia Costacurta

jcostac@stanford.edu | jcostacurta11.github.io | +1 (484) 896-8577

## EDUCATION

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### Stanford University

M.S. and Ph.D. in Electrical Engineering, Ph.D. Minor in Education

Thesis Advisor: Scott Linderman

Funding sources: NSF Graduate Fellowship, Stanford Graduate Fellowship, Diversifying Academia, Recruiting Excellence (DARE) Fellowship

Stanford, CA

09/2020–present

### Johns Hopkins University

B.S. in Biomedical Engineering, Mathematics, and Applied Mathematics & Statistics

Baltimore, MD

09/2016–05/2020

## RESEARCH EXPERIENCE

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### Stanford University

Graduate Researcher, Linderman Lab

Primary Advisor: Scott Linderman

Stanford, CA, USA

03/2021–present

### Johns Hopkins University

Undergraduate Researcher, Neuromedical Control Systems Lab

Advisors: Sridevi Sarma & Luke Osborn

Baltimore, MD, USA

09/2017–05/2020

### Fields Institute for Research in the Mathematical Sciences

Undergraduate Summer Researcher

Advisors: Adam Stinchcombe & Mihai Nica

Toronto, ON, Canada

Summer 2019

### University of Washington

Undergraduate Summer Researcher, Steele Lab

Advisors: Kat Steele & Michael Rosenberg

Seattle, WA, USA

Summer 2018

## TEACHING EXPERIENCE

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- **Teaching Assistant** at Stanford University Fall 2023  
*Introduction to Matrix Methods: undergraduate computational linear algebra course*
- **Math Instructor** for Stanford Summer Engineering Academy Summer 2023  
*Prepared and taught inquiry-oriented linear algebra and college readiness content for four-week summer bridge program attended by first-generation/low-income and underrepresented incoming freshmen*
- **Coding for Engineers Instructor** at Stanford Equity & Inclusion Office Summer 2022, 2023  
*Design and co-teach scientific Python course for students in Equity and Inclusion summer programs*
- **Data Science Instructor** at The Carpentries 2023–present  
*Certified to teach and assist with data science workshops (Python and R) via The Carpentries global network*  
*Introduction to Git, Bash, & Python for incoming Neuroscience PhD students (Fall 2023)*  
*Introduction to Computing using R for Stanford Cardiovascular Institute Summer Research Program (Summer 2023)*
- **Engineering Learning Consultant** at Stanford Center for Teaching and Learning 2022–present  
*Develop and present engineering academic skills workshops, e.g. Data Visualization in Python*
- **Instructor** at Stanford Climbing Wall Fall 2021–Winter 2023  
*Taught introductory climbing classes and belay clinics*

- **Course Assistant** at Stanford Additional Calculus for Engineers Fall 2021  
*Hosted weekly drop-in support hours for CME 102, Ordinary Differential Equations for Engineers*
- **Teaching Assistant and Counselor** at Bridge to Enter Advanced Mathematics Summer 2020  
*Four-week summer program for eighth graders from underserved groups*
- **Teaching Assistant** at Johns Hopkins University 2018–2020  
*Differential Equations: undergraduate mathematics course (Fall 2018, Spring 2019, Spring 2020)*  
*Systems and Controls: undergraduate control theory course (Spring 2019, Spring 2020)*  
*Calculus III: undergraduate mathematics course (Fall 2019)*
- **Volunteer Tutor** at Johns Hopkins Jail Tutorial Project 2017–2020  
*Tutored incarcerated students at Jessup Women’s Correctional Institution*
- **Tech Fellow** at Johns Hopkins Center for Educational Resources 2018–2019  
*Developed and deployed educational applet for engineering course which demonstrated applications of control theory*
- **PILOT Leader** at Johns Hopkins University 2017–2018  
*Led supplemental problem-solving sessions for students enrolled in linear algebra*
- **Course Assistant** at Art of Problem Solving 2017–2018  
*Online prealgebra courses for middle school students*

## PUBLICATIONS

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### Conference & Journal Publications

- **JC Costacurta**, L Duncker, B Sheffer, AH Williams, W Gillis, C Weinreb, JE Markowitz, SR Datta, SW Linderman. Distinguishing discrete and continuous behavioral variability using warped autoregressive HMMs. 36th Conference on Advances in Neural Information Processing Systems (NeurIPS). New Orleans, 2022.
- C Martin, H Zhang, **JC Costacurta**, M Nica, A Stinchcombe. Solving Elliptic Equations with Brownian Motion: Bias reduction and Temporal Difference Learning. Methodology and Computing in Applied Probability. 2021.
- **JC Costacurta**, L Osborn, NV Thakor, SV Sarma. Designing Feedback Controls for Human-Prosthetic Systems Using H-Infinity Model Matching. 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). Honolulu, 2018.

### Conference Abstracts

- **JC Costacurta**, AH Williams, B Sheffer, C Weinreb, W Gillis, JE Markowitz, SR Datta, SW Linderman. Time-warped state space models for distinguishing movement type and vigor. Computational and Systems Neuroscience (COSYNE). Lisbon, 2022. (waitlisted for talk)
- **JC Costacurta**, JM Lee, R Sczerba, SV Sarma. An Interactive Applet for Teaching Biomedical Applications of Feedback Control Theory. Biomedical Engineering Society (BMES). Philadelphia, 2019.
- S Aggarwal, P Chansky, **JC Costacurta**, N Garza, T James, M McDonald, N Mohan, S Rahmeh, E Logsdon, S Harvey. Deskillling Breast Cancer Biopsy Using Novel Device for Coordination. Biomedical Engineering Society (BMES). Philadelphia, 2019.
- MC Rosenberg, M Eyre, **JC Costacurta**, KM Peters, KM Steele. Kinematic and myoelectrical response to ankle exoskeletons during non-steady state locomotion in healthy adults. Congress of the International Society of Biomechanics. Calgary, 2019.
- **JC Costacurta**, L Osborn, NV Thakor, SV Sarma. Sensitivity Analysis of Feedback Controllers for Human-Prosthetic Systems Using H-Infinity Model Matching. Biomedical Engineering Society (BMES). Atlanta, 2018.

## DEI WORK, MENTORSHIP, & VOLUNTEERING

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### Stanford Engineering Equity and Inclusion Initiatives

- **Application Reader** for Summer Undergraduate Research Fellowship 2021 –present  
*Participate in yearly holistic review of over 500 applications for Stanford summer research program*
- **Program Coordinator** for Summer Undergraduate Research Fellowship 2021  
*Organized professional development workshops, graduate school application resources, and social events for diverse cohort of summer undergraduate researchers*

### Mentoring & Volunteering

- **One-on-one mentoring:** Stanford Women in EE (2022-present), Stanford EDGE Fellows (2022-present), Project SHORT (2020-present), Stanford Undergraduate Research Fellowship (Summer 2022, 2023), Johns Hopkins Women Mentoring Whiting (2020-2023), Stanford Inclusive Mentoring in Data Science (Spring 2022), Stanford Women in Math Mentoring (2021-2022), Stanford Women's Community Center STEM Mentoring (2021-2022)  
*Mentor undergraduate students interested in applying to graduate school, with a focus on students from underrepresented and underresourced backgrounds*
- **Penpal outreach:** Letters to a Pre-Scientist (2021-present), Stanford Science Penpals (2020-present)  
*Participate in a letter exchange with middle and high school students from underserved schools, answer questions about scientific careers and offer advice and perspective*
- **Remote research assistant** for Mt Tamalpais College at San Quentin State Prison (2023-present)  
*Source articles for incarcerated students completing biology research projects at Mt Tamalpais College/San Quentin State Prison*
- **Volunteer** for Prisoners Literature Project (2021-present)  
*Respond to requests for reading materials from incarcerated individuals by selecting and mailing books*

## PROFESSIONAL ACTIVITIES

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### Professional Development

- Stanford Diversifying Academia, Recruiting Excellence Fellowship 2023–2025  
*Two-year fellowship and career development seminar for late-stage PhD students interested in faculty careers*
- Stanford Preparing Future Professors Program 2023  
*Faculty shadowing and career development seminar with a focus on teaching-intensive institutions*
- Center for the Integration of Research, Teaching, and Learning (CIRTL) Certificate Program 2022–present  
*Coursework and seminars focused around evidence-based teaching practices*
- Methods in Computational Neuroscience Summer Course August 2022  
*Month-long summer course focused on learning techniques and history of the field of computational neuroscience, culminating in a final project*

### Service to Community

- Stanford Mind, Brain, Computation, and Technology Seminar Organizer 2022–2023  
*Invite and host speakers for computational neuroscience speaker series*
- Seminar on Mentoring Undergraduate Research in the Computational Sciences 2022–present  
*Organize working group and seminar series on best practices for mentoring undergraduate research*
- Women in Data Science June 2022  
*Prepared and delivered online tutorial on hidden Markov models for WIDS worldwide (10k+ YouTube views)*
- Stanford Women in Electrical Engineering Social Chair 2020–present  
*Plan community-building events for women in the department*

## GRANTS, HONORS AND AWARDS

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- **Diversifying Academia, Recruiting Excellence Fellowship** 2023–2025  
*Two-year fellowship awarded to advanced graduate students interested in academia, who will diversify the professoriate*

- **National Science Foundation Graduate Research Fellowship** 2020–2023  
*National fellowship awarded in support of graduate studies at Stanford*
- **Sang Samuel Wang Stanford Graduate Fellowship** 2020–2025  
*Internal fellowship awarded in support of graduate studies at Stanford*
- **Enhancing Diversity in Graduate Education Fellowship** 2020–2025  
*Internal fellowship awarded in support of graduate students from underrepresented backgrounds*
- **NeurIPS Scholar Award** 2022  
*Awarded complimentary registration to NeurIPS conference*
- **Stanford Justice, Equity, Diversity, & Inclusion Travel Award** 2021  
*\$750 travel award used to attend COSYNE conference*
- **Stanford Mind, Brain, Computation and Technology Travel Award** 2021  
*\$1,500 travel award used to attend COSYNE conference*
- **Richard J. Johns Award for Outstanding Academic Achievement** 2020  
*Graduation distinction from Johns Hopkins Biomedical Engineering Department*
- **Departmental Honors, Biomedical Engineering and Applied Mathematics & Statistics** 2020  
*Graduation recognition for outstanding academic achievements*
- **Professor Joel Dean Excellence in Teaching Award for Undergraduates** 2020  
*In recognition of outstanding teaching contribution from an undergraduate mathematics teaching assistant*
- **David T. Yue Memorial Teaching Award** 2020  
*In recognition of outstanding teaching contribution from an undergraduate biomedical engineering teaching assistant*
- **Goldwater Scholarship** 2019  
*\$7,500 national award for excellence in undergraduate research*
- **JHU Provost's Undergraduate Research Award (PURA)** 2019  
*\$3,000 grant award to pursue undergraduate research during the academic year*
- **JHU Center for Educational Resources Tech Fellowship** 2019  
*\$4,000 grant award to pursue a project in undergraduate biomedical engineering education*