

## EDUCATION

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### Massachusetts Institute of Technology

PhD Mechanical Engineering, GPA: 4.90/5.00

Cambridge, MA

2020–Present

- Advisor: Prof. Alberto Rodriguez
- Master’s Thesis: “Estimating Global Object Pose from Tactile Images”

### University of California, Berkeley

B.S. Mechanical Engineering, GPA: 3.89/4.00

Berkeley, CA

2015–2019

## RESEARCH EXPERIENCE

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### MCube Lab @ MIT

Graduate Research Assistant

Cambridge, MA

2020–Present

- Advisor: Prof. Alberto Rodriguez
- My ongoing research is a probabilistic tactile perception algorithm with three primary strengths. First, it accurately tracks global object pose through unique streams of tactile images. Second, it is fast enough to ultimately inform real-time control of an in-hand manipulation sequence. Third, it quantifies the uniqueness of a tactile trajectory to assign solution confidence.

### Dynamics @ Berkeley

Undergraduate Research Assistant

Berkeley, CA

2019

- Advisor: Prof. Oliver O’Reilly
- Derived equations of motion and developed Matlab simulations to understand spontaneous jumping phenomena and unusual gliding behavior of a weighted hoop. Published findings in the Royal Society: *Proceedings A* (Fall 2019).

### Berkeley Emergent Space Tensegrities (BEST) Lab

Undergraduate Research Assistant

Berkeley, CA

2016–2019

- Advisor: Prof. Alice Agogino
- Formed and led a team of four undergraduates to design a tensegrity robot that uses inertial mechanisms, rather than cable actuation, for locomotion. Presented findings at 2019 SURF conference.

## PUBLICATIONS

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1. M. Bauza, **A. Bronars**, Y. Hou, N. Chavan-Dafle, and A. Rodriguez, “simPLE: a Method Learned in Simulation to Precisely Pick, Localize, and Place Objects without Prior Interaction”, in preparation.
2. M. Bauza\*, **A. Bronars\***, and A. Rodriguez, “Tac2Pose: Tactile Object Pose Estimation from the First Touch”, *IJRR 2022*, under review.
3. **A. Bronars** and O. O’Reilly, “Gliding Motions of a Rigid Body: The Curious Dynamics of Littlewood’s Rolling Hoop”, *Proceedings of the Royal Society of London A: Mathematical, Physical and Engineering Sciences*, 2019.
4. L.-H. Chen, B. Cera, E.L. Zhu, R. Edmunds, F. Rice, **A. Bronars**, E. Tang, S.R. Malekshahi, O. Romero, A.K. Agogino, and A.M. Agogino, “Inclined surface locomotion strategies for spherical tensegrity robots”, *IROS 2017*.

## PRESENTATIONS

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1. **A. Bronars**, Y. Chen, H. Gamliel, and F. Cuellar. “Tensegrity Locomotion Using Inertial Mechanisms”, *SURF 2019 Conference, August 22-23, 2019, Berkeley CA*.

## FELLOWSHIPS AND AWARDS

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- **Steidel Award** for Undergraduate Research 2019
  - Awarded to one graduating senior in the UC Berkeley department of Mechanical Engineering for commitment and ingenuity in undergraduate research.
- **Drake Scholarship** for Mechanical Engineering 2015–2019
  - Four-year full-ride academic scholarship for top 10 incoming UC Berkeley ME students.
- **SURF Rose Hills Independent Undergraduate Research Fellowship** 2019
  - Summer research fellowship awarded for original undergraduate research in STEM.

## WORK EXPERIENCE

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| <b>Apple</b><br>Mac Product Design Internship  | Cupertino, CA<br>Summer 2018 |
| <ul style="list-style-type: none"><li>– Designed computer parts and mechanisms for the next generation of Mac products</li><li>– Intern project selected as best-in-cohort, escalated to Senior VP of Hardware Engineering</li></ul> |                              |
| <b>Apple</b><br>Global Commodity Management Intern   | Cupertino, CA<br>Summer 2017 |
| <ul style="list-style-type: none"><li>– Manufacturing and supply chain analysis for metal component parts</li><li>– Intern project selected as best-in-cohort, escalated to VP of AppleCare</li></ul>                                |                              |
| <b>UC Berkeley Mechanical Engineering Department</b><br>Course Reader, Lagrangian Dynamics   | Berkeley, CA<br>Fall 2019    |
| <ul style="list-style-type: none"><li>– Wrote solutions for problem sets, and graded problem sets and exams.</li></ul>   |                              |

## MENTORSHIP

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- **Women’s Technology Program** at MIT 2021, 2022
  - Mentored week-long project on prosthetic device development for high school students
- **Undergraduate Students**
  - Shreya Skarpoor - Nonparametric filtering techniques for tactile perception (2022)
  - Claudia Lozano-Perez - Machine learning methods for tactile perception (2021)
  - Ying Ying Chen - Mechatronic design for tensegrity robot hardware (2019)
  - Hadar Gamliel - Software development and control system design for tensegrity robot (2019)
  - Felipe Cuellar - Mechanism design and failure analysis for tensegrity robot hardware (2019)