# Vainavi Viswanath

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## EDUCATION

**University of California, Berkeley | Junior Standing | GPA: 3.84/4.0** **August 2019 - May 2023**
B.S Electrical Engineering and Computer Science

- Relevant Coursework: Data Structure, The Structure and Interpretation of Computer Programs, Discrete Mathematics and Probability Theory, Designing Information Devices and Systems I, Designing Information Devices and Systems II, Physics for Scientists and Engineers- Electricity & Magnetism
- Upcoming Courses: Computer Architecture, Optimization Models in Engineering, Operating Systems & System Programming, Signals & Systems, Web Design

**Mira Costa Community College (courses taken in high school) | GPA: 4.0/4.0** **January 2019 - June 2019**

- Significant Courses: Multivariable Calculus, Linear Algebra

**Canyon Crest Academy | GPA: 4.85/4.0** **August 2015 - June 2019**

- Notable awards: FIRST Tech Challenge - Rockwell Collins Innovate Award (2018), 2nd Place (in category) at the Greater San Diego Science and Engineering Fair 2018 among 600 participants

## SKILLS & INTERESTS

**Technical Skills:** Java, Python, C, RISC-V (assembly language), Logisim, linear programming, state machines, Blender, HTML & CSS, Arduino, Linux, OpenCV, docker, macOS, SQL, Scheme, C++ (learning), JavaScript (learning), PyTorch (learning)
**Other:** Git, GitHub, Docker, MS Office, Markdown, LaTeX
**Personal:** Excellent written and verbal communication skills (English), organization, and time management
**Interests:** Bharatanatyam (Indian Classical Dance), Horseback Riding

## PROJECTS

**Space Enterprise at Berkeley | Avionics Engineer** **May 2020 - Present**

- Fast-paced, highly motivated team of engineers with the aim of building the first space shot, liquid fueled rocket made by a college team.
- Systems dev for liquid fueled rocket: programming sensor integration and in-flight communication using Python and Arduino (C++).
- Innovated solution using minimal and reusable code to collect data from sensors in flight and communicate with ground station.

**Gitlet Version Control System** **March 2020**

- Implemented version control system in Java that mimics the basic features of Git.
- Thought abstractly about object-oriented design, data structures, and algorithms to manage complexity of different features.

## RESEARCH EXPERIENCE

**Autolab (Dr. Ken Goldberg's Lab at UC Berkeley) | Undergraduate Researcher** **February 2020 - Present**
Learning Robot Policies for Untangling Dense Knots

- Co-authoring a paper, effectively articulated the technical challenge of solving the ambiguous problem of training a robot to detangle ropes in various, unseen configurations.
- Conceived a novel simulator of robotic grippers and their interaction with ropes in Blender using Python to analyze robot interaction.
- Improving sim to real transfer: working on domain randomization and training models for better perception of rope (OpenCV, docker)

Pivot Optimized Motion Planning

- Solved ambiguous and undefined problems related to optimizing motion.
- Lead on developing and implementing constraints in Python for robotic arm to transport open top container with fluid without spills.
- Created a physics simulator in Blender using Python to test trajectories and visualize contents spilling.

**Computational Imaging Lab (UC Berkeley) | Undergraduate Researcher** **February 2020 - May 2020**

- Programmed in JavaScript to perform Fourier transform on image data for further use in compression.
- Designed a website using HTML & CSS to take image inputs and output compression suggestions and warning messages.

**San Diego Supercomputer Center | Student Researcher** **June 2018 - August 2018**

- Statistical analysis of a large-scale data set of Supercomputer usage to analyze latency issues and reduce network traffic. Link to poster
- Interpret results and suggest improvements to scheduler to increase efficiency.

**BioChemCoRe (UC San Diego) | Student Researcher** **July 2017 – December 2018**

- Researched in Computational Biochemistry on Protein Kinase A to study the effects of mutations on the protein's function.
- Published the work in Journal of Youths in Science Issue 10.1, February 2019.

## LEADERSHIP

**Science Olympiad | Team Coach** **August 2013 – June 2019**

- Took initiative in coaching a new event with limited resources; 4 out of 6 teams coached won awards.
- Competed and coached in Science Olympiad in middle and high school.

**Girls Who Code | Head of Outreach** **August 2016 – June 2019**

- Developed a curriculum to teach over 30 middle and elementary school girls programming and other engineering concepts.

## AWARDS/ ACHIEVEMENTS

- Java SE 8 Programmer 1 Oracle Certified Programmer (2019)
- Claes Nobel Women of Tomorrow Leadership Award (2019)