

# Daniel Zhan

UNDERGRADUATE RESEARCHER, SOFTWARE ENGINEER

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## Education

### Cornell University

Ithaca, NY

B.S. IN ENGINEERING PHYSICS AND COMPUTER SCIENCE: GPA: 3.5/4.0

Expected May 2023

#### Coursework:

Physics: Mechanics (*Honors*) (TA), Electromagnetism I (TA), Waves (TA), Quantum Mechanics I, Electromagnetism II, Astronomy & Cosmology

Computer Science: Machine Learning, Algorithms, Functional Programming, Operating Systems, Computer System Organization, Object

Oriented Programming and Data Structures, Market Networks

Math: Mathematical Physics I, Differential Equations, Multivariable Calculus, Linear Algebra, Discrete Structures (*Honors*)

## Experience

### Honeywell

Broomfield, CO

PHYSICS LAB TECHNICIAN INTERN

Jun. 2021 - Aug 2021

- Developed a custom designed Surface Ion Trap chip tester to automate scalable testing of Honeywell Quantum's surface electrode traps.
- Automated the implementation of live hardware calibration, capacitance tests, and resistance tests over hundreds of PCB pins to measure the electrical characteristics of the ion traps at the device level.
- Ensuring that trap chips are capable of comprehensive ion transport by maintaining low-noise connections to surface electrodes in this manner is fundamental to Honeywell Quantum's approach to commercial quantum computing.

### Cornell Mars Rover

Ithaca, NY

SOFTWARE ENGINEER

Sept. 2020 - Present

- Optimized the Rover's Hardware Abstraction Layer to enable lag-less responsiveness to 150 remotely transmitted instructions per minute by implementing bundled message formatting and processing.
- Upgraded the Rover's messaging format to ASCII for improved legibility.
- Currently planning out an implementation of Inverse Kinematics for the Rover's arm to enable intelligent endpoint movement without requiring specification for individual motor writes.

### Merck

Kenilworth, NJ

AUTOMATION DEVELOPER INTERN

Jun. 2020 - Apr. 2021

- Implemented efficient automation processes to time-consuming business tasks within the Merck Research Lab Workspace to enable up to 2000% speed-ups.
- Developed web-scraping automation tools using Python, Selenium, and Pandas to automate the collection and processing of competitor drug information.

### Cornell Physics

Ithaca, NY

UNDERGRADUATE TEACHING ASSISTANT

Jan. 2019 - Dec. 2020

- Improved students' understanding of physical concepts and reasoning in discussion sections as a teaching assistant for Mechanics, Electromagnetism, and Waves.
- Guided students towards creative, multi-pronged approaches of replicating lecture results in a Mechanics laboratory section.

## Projects

### Exoplanet Data Visualizer

PYTHON, FLASK, ASTROPY

- Assisted in the development of a Flask web application that displays transmission spectra of a theoretical exoplanet with adjustable characterization parameters.
- Developed functionality to interpret parameters using AstroPy and big datasets from ten known exoplanets to display transit depth versus wavelength graphs.

### Foodie - Submission for Everest Hacks 2020

PYTHON, TKINTER

- Developed a desktop application that suggests recipes to create and ingredients to purchase for said recipes with the TkInter GUI library.
- Placed top 10 overall at Everest Hacks 2020.

## Skills/Activities

### Languages/Frameworks

Python, Flask, Git, Java, C++, C, OCaml, HTML/CSS, LaTeX

### Activities/Interests

Badminton, Electric Bass, Civ V, Breakdance (I'm pretty bad), Chess (I'm really bad) Cornell  $\Lambda\Phi E$ , Mentor @ ACSU