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*
- Currently developing a Python application to automate the circuit verification of a qubit ion trap board, which runs capacitance and resistance tests on hundreds of PCB pins to ensure proper qubit communication and manipulation.

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 (extremely proficient), Electric Bass (somewhat proficient), Civilization V (somewhat proficient), Breakdance (not proficient), Cornell ΛΦΕ, Mentor @ ACSU