Catherine Kauber

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EDUCATION

California Institute of Technology October 2019 – June 2023
B.S. Electrical Engineering **GPA:** 3.7
Activities: Caltech Women's Soccer Captain; Society of Women Engineers Treasurer; Fleming House Secretary & Social Coordinator
Awards: Alliant Group STEM Scholarship; SCIAC All-Academic Team; Ben Sze Science & Math Scholarship; Columbia University Book Award; Outstanding Achievement in Computer Science

SKILLS

Languages: Python (2 years), VHDL (1 year), TCL (1 year), Assembly (1 year), Java (1 year)
Other: Synopsys Fusion Compiler, LTSpice, Altium, Circuit Design, Linux, GitHub, Raspberry Pi, Arduino

WORK EXPERIENCE

Silicon Engineering Intern – Physical Design
Microsoft • June 2022 – September 2022

- Incorporated lower leakage cell libraries into the physical design flow, causing leakage power in macros to decrease by 44.6% while successfully hitting timing constraints
- Fixed bugs in Microsoft's physical design flow by writing TCL scripts to correct design reports, unveiling important statistics about macro logic cell usage and timing
- Wrote TCL scripts that revealed 5% of a macro's scan chains were too long. Analyzed scan chains and found areas where unnecessary routing congestion could be avoided.

Electrical Engineering Intern
Medtronic • June 2021 – August 2021

- Tested circuits using the Altium simulation tool, saving approximately $100,000+ and 9+ months in the product development timeline
- Taught colleagues how to use the Altium simulation tool with live tutorial sessions and PDF guides, therefore making their own work more time-efficient
- Created Altium Designer templates that generated a standardized, semi-automated output to be provided to suppliers, saving time and reducing risk of human error

Radar Science and Engineering Intern
NASA JPL • February 2021 – May 2021

- Developed a pre- and post-processing algorithm to increase the accuracy of unwrapped interferometric data obtained by the UAVSAR mission from 50% to 77% accuracy
- Identified and implemented modifications to be made to the algorithms for different applications of the UAVSAR repeat-pass interferometry system

COVID-19 Computational Biology Research Intern
Caltech SURF • June 2020 – September 2020

- Developed algorithms in Python, intended for large datasets, that revealed important datapoints about the SARS-CoV-2 genome, such as the most common type of mutation or regions where synonymous mutations were popular
- Discovered that 16/17 vaccine candidates are found to be conserved in 165 SARS-CoV-2 genomes from different continents by comparing k-mer similarity in amino acid and nucleotide sequences
- Used open-source code to analyze the taxonomic history of SARS-CoV-2 genomes, which revealed the origin of over 100 genomes

LEADERSHIP

Fleming House Social Coordinator
Caltech • January 2020 – Present

- Scheduled weekly events for 120 undergraduate students with a budget of $200/week
- Led team of 20 students to fundraise over $2,000 on behalf of Friends Outside in Los Angeles

RELEVANT COURSEWORK

Completed: Electronic Systems and Laboratory; Digital Logic and Embedded Systems (VHDL and FPGAs); Analog Electronics Lab; Signal Processing; Experimental Robotics; Deterministic Analysis of Systems and Circuits; Physics of Electrical Engineering; Quantum Mechanics; Mechanical Prototyping; Data Structures and Algorithms; Programming Methods; Introduction to Finance