

Mahesh Vegiraju

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Education

University of California, Santa Cruz

Bachelor of Science Computer Science

Minor in Biology

Expected — June 2023

GPA: 3.5

Relevant CS Coursework: Programming Abstractions in Python, Assembly Language & Computer Systems, Embedded Systems & C Programming, Data Structures and Algorithms, Computer Architecture, Introduction to Computer Networks, Computer Systems Design, Foundations of Programming Languages, Introduction to Software Engineering

Relevant Biology Coursework: General Chemistry I, General Chemistry II, General Chemistry III, Cell & Molecular Biology, Biology: Development & Physiology, Genetics

Involvements: Santa Cruz NeuroTech, Cycling Club, Brooks Lab

Experience

Brooks Lab

Undergraduate Researcher

February 2022 - Present

Santa Cruz, CA

- Working with long read & short read simulated data to compare statistical data between the two

Acorn Basket Studios

Software Engineering Intern - Game Mechanics

June 2019 - August 2019

San Jose, CA

- Helped implement object collision & procedural generation of the game map
- Worked in the ActionScript framework to make the game accessible to a wider audience

Projects

Huffman Compression Algorithm

- Implemented Huffman Compression and Decompression in C
- Created fundamental data structures including nodes, priority queues and stacks
- Used these fundamental data structures in tandem

Content Scraper

- Uses BeautifulSoup to scrape comics and videos from websites
- Automatically opens new chapters/episodes in a new window

Hamming Encoding

- Implemented the error correction Hamming encoding algorithm in C
- Used data structures like bit vectors and bit matrices

Simple Motion Detection

- Implemented a simple motion detection algorithm
- Created sliding window Averagers

Core of PyTorch

- Created a simplified version of the core of PyTorch
- Implemented gradients and auto propagation

Faster Merge Sort

- Made Merge Sort run faster using UNIX and POSIX child processes
- Also made a multi-threaded implementation using POSIX threads

Pintos Project

- Improving the Pintos learning Operating System
- Changed the way Pintos puts threads to sleep as to not use busy wait
- Implemented a priority ready queue that takes into account processes' priority when scheduling onto the CPU

Skills

Programming Languages

- Python, Java, C, C++, MIPS Assembly, RISC-V Assembly

Technologies

- Git, Bash, LaTeX, ActionScript, BeautifulSoup