Brandon Penilla

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Education

University of California, Berkeley | Berkeley, CA
Bachelor of Science - Electrical Engineering and Computer Science August 2020 - May 2024 (Expected)

Relevant Coursework

CS61B | Data Structures (IP) - In Progress
- Object-Oriented Programming, Class Structures, Inheritance, Bit manipulation, Hashing

CS61C | Great Ideas in Computer Architecture (Machine Structures)
- The internal organization of and operation of digital computers, Machine Architecture, Operating systems

EECS 16A | Designing Information Devices and Systems I
- Vectors and Matrices, Eigenvalues and Eigenvectors, Design and Circuit Analysis, Intro to Machine Learning

CS70 | Discrete Mathematics and Probability Theory
- Logic, and Induction, Primality Testing and Cryptography, and Probability

Experience

Project Brightline Data Analyst December 2021 - Present
- Analyzed trends in pm2.5 air quality data collected for over 2 years using 15 Clarity Node-S Sensors around the San Francisco tenderloin and Market street in order to present to legislative officials and support the low-income communities disproportionally affected by environmental racism.

PrimeraVista Co-Founder April 2021 - Present
- Developed class curriculum & taught introductory Python to over 30 low-income high school students in STEM.
- Hosted professional support workshops to increase success in college applications and in university environments.

Berkeley PREP Calculus Instructor June 2021 - August 2021
- Planned and organized technical instruction for over 80 incoming low-income Berkeley students.
- Focussed on maximizing student learning and academic success of underrepresented minorities in Engineering.

Programming Projects

MiniNumpy - C
- Developed a library for performing mathematical operations on matrices and arrays with specific attention to memory allocation using SIMD instructions and OpenMP for parallelization in order to achieve maximum speed and efficiency

Enigma Encryption Machine - Java https://github.com/I-am-brandon/Enigma-Machine (private)
- Translated an analog Enigma machine into code that functions like its original used in WW2 to encrypt input. Accomplished primarily using scanners, Hashmaps, String Manipulation(Regex), and ArrayLists.

Jump Game with AI - Java https://github.com/I-am-brandon/JumpGame (private)
- Built classic jump game with support for human players as well as AI that finds the optimal move to make with adjustable difficulty.
- Achieved by recursively using the MiniMax algorithm which incorporated the use of Alpha-Beta Pruning as well as through the use of Stacks, 2D Arrays, and ArrayDeques.

Gitlet Version Control System - Java https://github.com/I-am-brandon/Gitlet (private)
- Built version-control system that utilizes SHA1 hashing system and serialization to maintain persistence of files within the program, with the ability to commit file changes, revert to previous versions, and create branches.
- Implemented through the use of the breadth-first search algorithm, sets, maps, deques, and other data structures.

Skills

Java · Python · C · RISCV · Web Development · Go · Scheme · SQL · Spanish · Git · Regex · Github · Bit Manipulation

Organizations

Alpha Tau Omega · CS Scholars · Engineering Scholars as Engaged Scholars · ASUC · Project Brightline · Semiconductor Research Organization

Honors and Awards

· UC Regents and Chancellor's Scholarship Finalist · Questbridge Scholar · Hispanic Scholarship Fund Scholar · Texas Instruments Undergraduate Research Scholar