William Alex Greenwald

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Education

University of California - Santa Barbara   Sept 2021 - June 2025
Bachelor of Science, Computer Science
• **Engineering/CS Courses:** Object Oriented Design; Computer Organization & Architecture; Data Structures
  & Algorithms; Digital Design; Computational Programming (numpy); Automata & Formal Languages
• **Math Courses:** Multivar. Calc, Linear Algebra & Diff. Equations, Discrete Mathematics, Prob. & Stats

Skills

Languages: C/C++, MIPS Assembly, HTML, CSS, Verilog, Python, Java
Technologies: Github, Numpy, Sockets, Visual Studio, Makefile, SCons, LaTeX, pyRTL, Unix, T32
Areas: TCP/IP, Computer Architecture/Design (Memory Management, RTL), Data Structures
Other: Native Bilingual (Spanish+English), Guitar, Piano, Club Ultimate Frisbee

Work Experience

Qualcomm | Embedded System Software Engineer Intern   June 2023 - Sept 2023
• Worked with the Multiprocessor Communications team to implement the usage of an open source IP
  stack to communicate between 2 processors within a Qualcomm proprietary system on chip.
• Created a custom physical transport layer for the IP stack by leveraging APIs developed by other teams.
• Wrote BSD socket & raw API tests, which were cross compiled for a Qualcomm platform, and traced
  through the executable/C code using T32 to debug runtime errors, memory issues, and interrupt system.
• Presented my work to other interns, managers, and engineers at the end of internship.

Seaworld San Diego | Ride Operator   June 2022 - Sept 2022
• Seasonal summer ride operator for "Shipwreck Rapids" ride at Seaworld San Diego.
• Loaded, unloaded, grouped, and monitored ~500 guests/hour at this attraction.
• Used teamwork, communication, and efficiency to maintain guest and employee safety at all times.

Projects

Array Encoder/Decoder & Python instruction assembler   MIPS Asm., Python
• Assembly program, takes an array of integers, calls an encode and decode 'function', which takes the
  values and applies/undoes arithmetic (power, subtraction) to them and returns/prints values.
• Python program that takes in a MIPS Asm. instruction and displays binary & hex of instruction on tkinter.
• Gained assembler knowledge with python assembler; worked with jumps, the stack, & branches in Asm.

Binary search tree card game   C++, Python
• Created a card game by implementing a binary search tree class from scratch in C++
• Used .txt files as inputs. Learned how to use ifstream to read and parse through the .txt file contents.
• Mapped unique strings from .txt files to weighted int values, and translated those ints back to the same
  strings at the end of program for more efficiency.
• Average runtime was ~2.6 times faster vs. basic linear search comparisons in personal tests.
• Inserted, compared, and deleted all values as nodes in 2 unique BSTs. Program represents a game
  simulation, where 2 .txt files of strings representing cards are compared using my BST.
• Wrote python script to create random test cases. Used numpy for consistent tests written onto .txt files.

Personal Website | william-greenwald.com   HTML, CSS
• Developed my first website using CSS & HTML
• Implemented hover animations, interactive buttons, and image positioning, using multiple files.
• Gained an understanding of domains and web hosting, as well as built on my git and github skills to link
  this and my other projects on my github to this site.