Brian Nguyen

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EDUCATION

UNIVERSITY OF CALIFORNIA, SANTA CRUZ **Expected Jun 2024**

Bachelor of Science, Major in Computer Science **| Cumulative GPA: 3.94**

Awards: Dean's Honors List (Fall 2020 – Winter 2022, Fall 2022, Winter 2023)

Relevant Coursework: Principles of Computer Systems Design, Data Structures and Algorithms (Using C and C++), Computer Systems and C programming, Programming Abstractions Using Python, Analysis of Algorithms, Machine Learning, Computer Graphics, Computer Architecture, Discrete Math, Multivariate Calculus, Linear Algebra

EXPERIENCE

UCSC Rocket League Director **Oct 2021 - Present**

- Increased active community size by 40% with effective leadership and advertisement using social media outlets (Twitter and Instagram)
- Supervised 9 teams of 3 to 4 players with involvement in 4 total college events and tournaments or leagues

VCHS Rocket League Team Captain **Aug 2018 - Jun 2020**

- Led 2 separate rosters of 3 players to 3 playoff appearances in a national high school league

PROJECTS

Multi-Threaded HTTP Server | C **Mar 2023**

- Built a server that accepts HTTP requests, then responds to the client through a socket and port
- Utilizes a dispatcher thread, N (user-specified) thread worker pool, and thread-safe circular queue
- Concurrently processes up to N requests at a time for higher throughput and produces an atomic, linearized audit log

CM1 Motor Tester App | Windows Forms C# **Aug 2022**

- Developed an app with 3 tab windows, 2 console log text boxes, and many buttons and text fields
- Controlled and tested 1 Cool Muscle CM1 Motor through TCP IP connection by sending ASCII commands
- Rotates the motor precisely given set parameters via manual control or automated looping with optional delay

Message Filtering ("Firewall") Program | C **Dec 2021**

- Built a program that parses through text from prior given files containing blocklist words used for censoring subsequent deciphered user-inputted messages containing matching words, which utilize 4 data structures and algorithms:
  - Incorporated Bloom Filters, using a space-efficient array of bit vectors making the time complexity O(1) and false negative rate 0% for cases of words not existing in the list
  - Incorporated Hash Tables with an O(1) lookup, using Binary Search Trees to avoid hash collision for 100% match accuracy and an overall O(log n) time complexity for cases where words could be in the list
- Filtered and censored 4 messages with 100% accuracy, given the correct spelling of all words

RSA Public-Key Cryptography Program | C **Nov 2021**

- Developed a program using the RSA algorithm, which encrypts and decrypts 1 file for secure file transfer between 2 or more clients that led to 5 successful secure file transfers across 2 different machines
- Implemented number theory includes an O(log(n)) step modular inverse, $O(\log_2(n))$ step modular exponentiation, O(log(min(a, b)) step greatest common division, and probabilistic prime number checker with a 0% false positive rate
- Created 5 modules, including the 4 number theory functions (via the GMP C library), RSA library, key generator, encrypter, and decrypter

SKILLS

Languages: Python, C++, C#, C, Java, JavaScript, HTML

Tools: Git/GitHub, Linux/Unix, Visual Studio

Technologies: Unity3D, Construct 3, Maya, Source Engine, VEX

Soft Skills: Project management, effective and consistent communication, and decisive leadership