CHRISTOPHER CHEN

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EDUCATION

BROWN UNIVERSITY   Providence, RI| September 2022 - May 2026
Sc.B in Applied Mathematics—Computer Science   *Cumulative GPA: 3.88/4*

Relevant Coursework: Database Management Systems; Computer Networks; Operating Systems; Design and Analysis of Algorithms; Numerical Optimization; Operations Research in Probabilistic and Deterministic Models

TECHNICAL SKILLS

Languages: Python, Java, Javascript, TypeScript, C/C++, Go, Rust, SQL, Dart, HTML/CSS
Technologies: React, Express.js, Node.js, RESTful API, MongoDB, MySQL, AWS, Django, Flutter, Git, Docker, VIM, Figma, TailwindCSS

PROFESSIONAL EXPERIENCE

Brown Interactive 3D Vision & Learning Lab (BRICS)   Providence, RI
Undergraduate Research Assistant   September 2024 - Present
- Spearheading the development of a WebAssembly-based web interface to streamline C++ code management for IVL's 60+ motion capture cameras; facilitating real-time parameter adjustments to enhance research efficiency
- Maintaining and optimizing a 10,000+ line C++/Python codebase while writing clear documentation to improve scalability and ease of use by future researchers

Vane   Remote
Software Engineering Intern   June 2024 - Present
- Led the migration from MongoDB to Supabase by designing database schemas and APIs, resulting in a 40% improvement in query performance and support for user management, authentication, and social features
- Designed and implemented landing pages for the Flutter-based iOS app, including friend addition, event search, and user profile pages, contributing to the app's initial launch preparation
- Automated data collection with a Python-based web scraper, populating the Supabase database with event information and reducing manual data entry by 80%

TetherView   Oceanport, NJ
Data Analysis and Marketing Intern   January 2022 - June 2022
- Developed Python web scrapers to collect and analyze datasets on web traffic and keyword frequencies to write effective meta descriptions and ad copies, increasing TetherView's web traffic by 20%
- Created, edited, and published advertising material for TetherView's blog and YouTube channel, garnering hundreds of views for each domain

PROJECTS

IP/TCP, *CSCI1680: Computer Networks*   October 2024 - November 2024
- Architected a complete network stack from scratch in Rust (3,000+ lines of code), including device and interface abstractions, IP/TCP protocols, and multi-threading support
- Implemented IP routing, TCP connection management, and congestion control algorithms, mimicking standard library TCP/IP functionality
- Synthesized flow control, reliable data transfer, and packet fragmentation/reassembly for a fully functional network simulation environment

Weenix OS, *CSCI2670: Operating Systems*   January 2024 - May 2024
- Engineered a comprehensive Unix-based kernel in C, encompassing over 5,000 lines of code for process management, virtual memory, and file systems
- Scaled the system to handle 1,000+ simultaneous user processes, implementing robust memory management and system calls
- Integrated a virtual file system (VFS) layer and S5FS on-disk file system, achieving 99% reliability in file operations during testing