

Joshua Liu

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EDUCATION

Duke University

Durham, NC

Bachelor of Science in Computer Science, Minor in Electrical and Computer Engineering

Aug 2024 – May 2028

- Completed Coursework: Data Structures and Algorithms, Linear Algebra
- Anticipated Coursework: Computer Architecture, Operating Systems, Fundamentals of Electrical and Computer Engineering, Introductory Electricity / Magnetism / Optics

Ravenwood High School

Brentwood, TN

High School Diploma

Aug 2019 – May 2023

- Coursework: AP Computer Science Advanced, Honors Robotics, AP Calculus BC

EXPERIENCE

Software Engineer Intern

Mar 2025 – Jun 2025

Trio Labs

Morrisville, NC

- Built a Rust GUI to configure PVT profile editing with cubic spline interpolation, enabling precise control over printer movement while eliminating manual JSON edits
- Enhanced 12 ERP pages and strengthened form validation using Jinja, Python, HTMX, and SQLAlchemy / PostgreSQL migrations to prevent invalid data entry and reduce future cleanup
- Wrote 65+ PyTest cases for page access, form input, PDF exports, and slicer bugs to improve code coverage
- Optimized pricing model visualization through lazy loading and correlation analysis using Pandas / Numpy, achieving 4x faster chart rendering for monthly shipping data insights

Software Engineer Intern

Nov 2024 – Jun 2025

MyGymBuddy

Remote

- Created a robust messaging system with React Native and Pocketbase, enabling seamless in-app communication
- Implemented live push notifications using Expo's notification API, providing users with real-time distance updates
- Integrated location search with Google Places API autocomplete, supporting fuzzy matching for gym discovery
- Debugged 8 issues across route navigation, API calls, and SQLite queries to improve application stability

PROJECTS

Competitive Programming Stress Tester

- Developed a tool to compare solution algorithms and brute force algorithms against generated test cases
- Engineered a multithreaded process to compile, execute, and compare the outputs without disrupting the UI
- Utilized file I/O and the JavaCompiler API to dynamically execute user-inputted code
- Containerized CLI tool with Docker and bash script for consistent, portable execution across environments

Real Life “Among Us” Game

- Built a MERN + TypeScript webapp deployed on Heroku to automate Duke's “BioSci Assassins” game
- Stored global player and game state using Zustand to reduce passing data across the component tree
- Handled session management by storing and retrieving player IDs in Redis via cookies sent by the client
- Implemented real-time multiplayer with Socket.io to synchronize game state across all players

Pixel Art Maker

- Engineered a pixel art maker using Pygame and OOP principles with features such as drawing, color selection, pen sizes, eraser, trash, shape creation, and screenshots
- Implemented the bucket fill feature using DFS and the undo / redo feature using a stack
- Converted the program into an executable using PyInstaller for easy distribution without any setup

SKILLS

Languages: C++, Python, Rust, JavaScript / TypeScript, Java, HTML / HTMX, CSS

Tools, Cloud, and Platforms: Git, GitHub, PyTest, Docker, AWS EC2

Databases: MongoDB, PostgreSQL, SQLAlchemy, Pocketbase

Frameworks and Libraries: React, React Native, Node.js, Express.js, Flask, Socket.io, Redis, Zustand, Jinja, Pandas, Numpy, egui