Joshua Liu

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EDUCATION

Duke University   Durham, NC
Bachelor of Science in Computer Science   *Aug 2024 – May 2028*
- Coursework: Data Structures and Algorithms, Java OOP, Linear Algebra, Calculus II, Robotics

EXPERIENCE

Software Engineer Intern   Mar 2025 – Jun 2025
Trio Labs   *Morrisville, NC*
- 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
- Built a Rust tool with an egui interface to configure PVT profile editing with cubic spline interpolation, enabling precise control over printer movement while eliminating manual JSON edits

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

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

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

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: JavaScript / TypeScript, Python, Rust, C++, Java, HTML / HTMX, CSS
Databases: MongoDB, PostgreSQL, SQLAlchemy, Pocketbase
Frameworks and Libraries: React, React Native, Node.js, Express.js, Flask, Socket.io, Redis, Zustand, Jinja, Pandas, Numpy, egui
Tools, Cloud, and Platforms: Git, GitHub, PyTest, Docker, AWS EC2