

# William Roche

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## EDUCATION

### New York University

New York, NY

*Bachelor of Science in Computer Science, Minor in Mathematics*

September 2025 - May 2027

GPA: 4.0 | Dean's List (1/1 Semester)

### The College Of New Jersey

Ewing, NJ

*Major in Computer Science, Minor in Mathematics*

September 2023 - May 2025 (Transferred)

GPA: 3.92 | Dean's List (4/4 Semesters) | Upsilon Pi Epsilon Honor Society

## EXPERIENCE

### Quantum Hardware Research Intern

New York, NY

*NYU Center for Quantum Information Physics*

June 2025 – August 2025

- Fabricated a vertical graphene Josephson junction for superconducting qubits using standard nanofabrication techniques
- Mentored 2 high school students building a cost-effective (\$250) magnetic levitation system to model trapped ion qubits

### Blockchain & Digital Assets Research Assistant

Ewing, NJ

*The College of New Jersey*

September 2024 – May 2025

- Researched distributed ledger technologies, focusing on consensus mechanisms (Proof-of-Work, Proof-of-Stake, etc)
- Assessed the scalability potential of the top 5 cryptocurrency tokens via analysis of their blockchain security protocols

### Social Media Growth Consultant

*Freelance Consulting Services*

January 2024 – May 2025

- Built a personal brand with 3M+ views, 22K followers, and \$25,000+ in revenue via algorithm-driven growth strategies
- Mentored 7 small-scale creators on TikTok Live, driving a 38% average revenue increase through heightened viewership

### Software Engineer

Ewing, NJ

*The College of New Jersey Library Application*

September 2023 – May 2024

- Created a cross-platform PWA to improve campus resource access for 7,000+ students by modifying TCNJ Library App
- Aimed to improve student efficiency by tracking availability of 27 study rooms via MySQL/PHP and motion sensor data

## PROJECTS

### Songify | [songify-wjr.vercel.app](https://songify-wjr.vercel.app) | Next.js, React.js, Cohere API, TMDB API, Tailwind CSS, Vercel

- Built a song recommendation app based on movies with a Next.js/React front-end, integrating Cohere and TMDB APIs
- Applied REST API principles for data exchange, styled the UI with Tailwind CSS v4.0, and deployed the app on Vercel

### Live Stock Tracker | [stocktracker-z7er.onrender.com](https://stocktracker-z7er.onrender.com) | FastAPI, WebSockets, Chart.js, Docker Compose, Render

- Engineered a live stock tracker with a FastAPI backend, WebSocket protocols, and a responsive frontend for stock info
- Containerized with Docker Compose and deployed on Render for scalable hosting and live financial market monitoring

### Custom Linux Shell | [github.com/WillRoche2587/linuxShell](https://github.com/WillRoche2587/linuxShell) | C

- Built a Unix-like shell supporting command history, piping, I/O redirection, process execution, and Linux commands
- Implemented process management, directory management, and IPC with system calls (fork, execvp, pipe, chdir)

### Personal Portfolio | [WillRoche2587.Github.io](https://WillRoche2587.Github.io) | HTML, CSS, JavaScript, Three.js

- Developed a web portfolio using HTML, CSS, and JavaScript to showcase academic and personal achievements

## SKILLS

**Programming Languages:** Python, C++, C, Java, SQL, JavaScript, TypeScript, MATLAB

**Dev Tools:** HTML, CSS, Git, Docker, FastAPI, Node.js, Next.js, React, Tailwind CSS

**Platforms & Methodologies:** Windows, macOS, Linux, REST APIs, Agile, Waterfall, CI/CD, Vercel, Render, Jira, Slack

## RELEVANT COURSEWORK

**Computer Science:** Object Oriented Programming, Data Structures, Discrete Structures, Computer Architecture, Introduction to Databases, Analysis and Implementation of Algorithms, Operating Systems

**Mathematics:** Calculus, Mathematical Proof Writing, Advanced Linear Algebra, Probability and Statistics