Neil Roy

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Education

University of California, Santa Barbara — Santa Barbara, CA

B.S./M.S. in Computer Science (B.S. Expected June 2026, M.S. Expected June 2027) — *Sept. 2022 – June 2027*

- GPA: **3.77**

Relevant Coursework:

- Operating Systems
- Databases
- Object Oriented Design
- Data Structures / Algorithms
- Distributed Systems
- Computer Architecture
- Artificial Intelligence
- Cryptography
- Automata Theory

Experience

Software Engineering Intern — Web3 Storage Capstone — Sept. 2025 – Present

Mysten Labs (Sui / Walrus) — *Santa Barbara, CA*

- Leading a team of **5 software developers** to design and build a **hybrid centralized/decentralized storage platform** using the **Walrus API** on the **Sui blockchain**
- Developing a web-app for users to manage high-throughput file storage while abstracting blockchain complexity
- Working with **Alberto Sonnino** to refine architecture, API integration, storage efficiency, & encryption protocols
- Managing the project through **GitHub**: creating issues, overseeing PR reviews, maintaining code quality, and coordinating task assignments both client-side and server-side

Artificial Intelligence Research Assistant — Feb. 2021 – Nov. 2022

Tobacco Watcher — *San Diego, CA*

- Worked closely with **Ph.D. John W. Ayers**, training and editing the **Artificial Intelligence** program
- Learned the applications and importance of **big data**, **AI development**, and **data analysis**
- Explored various algorithms to find strongly connected components in articles to sort by relevance

Blockchain Research Assistant — Sept. 2021 – June 2022

Canyon Crest Academy — *San Diego, CA*

- Worked to develop a course for future students (Advanced Engineering and Technology) about **blockchains**, **decentralized currency**, and how **distributed systems** work both on a high and low level
- Created instructions for students to develop an **ETH** network using **Geth** on **Raspberry Pi's** and local machines
- Course is still being taught at CCA within **Advanced Engineering and Technology** using my slides

Projects

User-Level Thread Library | *C++, POSIX Signals* — Sept. 2025 – Dec. 2025

- Implemented a full **user-level threading library** using `sigsetjmp`, stack allocation, and context initialization
- Built a **preemptive round-robin scheduler** driven by `SIGALRM` interrupts via `setitimer` to support time slicing
- Designed synchronization primitives including **semaphores with wait queues**, blocking/wakeup logic, and signal-masked critical sections to prevent deadlocks and protect global variables

Scrypt | *C++, Git, Docker* — Sept. 2023 – Dec. 2023

- Developed a **full-stack** programming language using **C++** with a small group of 3 other students
- Has a **lexer** and **parser** - read and convert to **AST**, supporting **recursion**, logic, operators, variables, and lists
- End result - **Turing Complete** programming language with functions, control statements, and **error handling**

SmoothieShot | *C++, Git, OpenGL, Docker, XQuartz* — Sept. 2023 – Dec. 2023

- Full-stack development of a game, coded in **C++** and implemented locally with **XQuartz** for graphics
- Supports full character control, **NPCs**, score, map randomization. Works with linux, mac, and windows systems
- Over **5,000** lines of code across multiple files - learned importance of **code organization** and comments

Technical Skills

Languages: Typescript, Python, Javascript, C/C++, Java, OCamel, Assembly, R, SQL
Frameworks: Node.js, Spring, JSON, React, OpenGL
Developer Tools: Git, Sui SDK, Docker, Google Cloud, VS Code, R Studio, Eclipse, Jacoco, PyCharm, dotenv
Libraries: Pandas, NumPy, Matplotlib, CMake, Axios