Arnav Nepal

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Education

University of California, Santa Cruz — Santa Cruz, CA
Bachelor of Science in Computer Science — *Aug. 2021 – Jul. 2025*

Technical Skills

Languages: C, C++, Python, HTML/CSS, JavaScript, TypeScript, Go
Frameworks: React, Next.js, Express, FastAPI, PostgreSQL, gin, SQLX
Developer Tools: Docker, AWS, Oracle Cloud, Linux, Excel, Jest, Puppeteer

Experience / Projects

Arsenal Biosciences, Inc. Project | *Company Sponsored Internship* — Jan 2025 – Jul 2025

- Developed a full stack web application to track the lineage and evolution of chemical and biological samples within laboratory microplates in order to aid cancer research
- Utilized Next.js and Material UI to build a intuitive and responsive UI with continuous input from Scientists and Users
- Worked in a team of 10, taking leadership as a Scrum Master to drive team meetings, keep the team on track, and resolve issues and blockers that arose during the development process
- Developed a backend in Go, utilizing gin for routing, and SQLX for interactions and management of a PostgreSQL database
- Worked On Core application features, including defining the database schema, developing an administrative portal to manage user permissions, and visualization of experiment lineages on a interactive, responsive graphs

SlugSync | *Social Media Web App Team Project* — Apr 2024 - July 2024

- Worked alongside a team to develop a full stack web application, building a task management application with social features for group driven motivation
- Utilized a modern Web Development stack consisting of React, Express, Node, and PostgreSQL
- Achieved 100% test coverage across the entire codebase using Jest and Puppeteer, gaining extensive knowledge in testing web applications
- Primarily worked on Testing and Frontend development, creating and designing the UI for the primary dashboard and homepage

Distributed Key-Value Store | *Computer Systems Design Course* — Apr 2025 – Jun 2025

- Built a causally consistent distributed KV store, simulated using multiple Docker containers and Docker networking
- Implemented horizontal scaling with sharding, request proxying, and data migration during view changes using consistent hashing
- Applied causal consistency concepts, trading some availability for consistency in a sharded, multi-node setup with simulated node failures

Coursework

Relevant Coursework | *University of California, Santa Cruz*

– Full-Stack Web Development, Distributed Systems, Analysis of Algorithms, Computer Graphics, Database Systems, Natural Language Processing, Principles of Computer Systems Design, Computer Networking