

Siddharth Sivalanka

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EDUCATION

University of California San Diego

La Jolla, CA

Bachelor of Science in Biology, Specialization in Bioinformatics

Sep. 2024 – Present

- Expected Graduation: June 2027
- **Courses:** Data Structures, Algorithms, Advanced Object Oriented Programming, Discrete Math, Probability and Statistics, Linear Algebra, Systems Programming, Computer Organization, Multivariable Calculus

EXPERIENCE

Software Engineering Intern

May 2025 – Present

Wild Genomics

La Jolla, CA

- * Built a Python pipeline to analyze plant-related airborne genetic data
- * Reduced sequencing data loss with a custom demultiplexing script
- * Created a local FASTQ/BLAST file parser and species-tracking ML model
- * Aimed to minimize fertilizer use by targeting infested farmland zones
- * Tools: Python, ONT Barcoder, OpenCV, Pandas, NumPy, Seaborn

Research Assistant

April. 2024 – Present

University of California San Diego

La Jolla, CA

- * Analyzed mouse hippocampus (CA3, DG regions) brain activity
- * Helped develop a microscope and tracking device for better readings
- * Built light-threshold cell detection model; ran ImageJ/Suite2P analysis
- * Tools: Python, ImageJ, Suite2P, OpenCV, NumPy, Seaborn, TensorFlow

PROJECTS

NebulaDB | *C++, Linux*

- Built a modular in-memory database engine with SQL-like shell and B+ Tree indexing
- Implemented ACID-style transaction scaffolding, lock manager, and thread pool concurrency
- Integrated optional REST API to accept raw SQL over HTTP
- Designed clean separation of engine, parser, and storage layers with unit testing and benchmarking

StudySync | *React, Node.js, TypeScript, Claude API*

- Built a full-stack AI flashcard app that generates quizzes from the Claude API based on user category
- Implemented quiz modes including timer, stopwatch, and difficulty filters
- Allowed users to create cards or upload notes for batch flashcard generation manually
- Designed a clean tab-based UI for quiz, card creation, and document upload

Alethia | *Python, Letta, Streamlit, Gemini API, Slack API*

- Designed a multi-agent health assistant that parses medical docs and identifies pills from images
- Implemented an insurance trust index and AI chat assistant with transparent reasoning
- Integrated FDA datasets and Slack escalation for urgent medical cases
- Built a secure, Streamlit-based UI with real-time uploads and agent feedback

Mini Shell | *C, Linux, GNU Readline*

- Developed a custom command-line shell with support for piping, redirection, and job control
- Added alias persistence, tab completion, command substitution, and environment variable expansion
- Supported script execution, command chaining, runtime timers, and colored prompts
- Implemented background job handling (fg, bg, kill) and .rc file-based customization

TECHNICAL SKILLS

Languages: Java, Python, R, Typescript, HTML/CSS, Javascript, C, C++

Frameworks: React, Node.js, JUnit, Express.js, Pandas, Numpy, Matplotlib, OpenCV

Developer Tools: Git, Streamlit, Github, VS Code, PyCharm, IntelliJ