Siddharth Sivalanka

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EDUCATION

University of California San Diego, GPA 3.71, *BS in Computer Science*   Expected Graduation: June 2027

TECHNICAL SKILLS

Languages: Python, Java, C, C++, JavaScript/TypeScript, SQL/NoSQL, R, Linux, Git/GitHub, HTML/CSS, C#, Go
Frameworks/Tools: React, Flask, Node.js, TensorFlow, PyTorch, OpenCV, Pandas, Numpy, Sci-kit Learn, FastAPI, Docker, AWS, Azure, PostgreSQL, GraphQL, Streamlit, MATLAB, Airtable, Excel, Word, Outlook, Google Cloud, Tableau, PowerBI, Snowflake, Agile, Kotlin, T-SQL, Kubernetes, GCP, Spring, Adobe Analytics
Specialties: Spark, Distributed systems, Algorithm optimization, NLP, LLM, Digital Products, Cross-functional, Full-stack development, Problem-solving, APIs, Microservices, Machine learning, Computer vision, Agile Methodologies, CI/CD, Cloud Infrastructure, Product Design, Communication Skills, Growth Mindset, Data structures, ETL Pipelines

EXPERIENCE

WildGenomics (UCSD Startup), Software Engineering Intern – La Jolla, CA   April. 2025 – Present
- Architected a bioinformatics platform that reduced manual analysis time by **80%**, extracting critical statistics and insights and integrating **OpenCV** pipelines with production **REST APIs** for field research
- Built and iterated ML models in **TensorFlow**, improving detection accuracy by **9x** through testing and reviews
- Developed production REST APIs with **FastAPI** and integrated **OpenCV** pipelines for field research
- Shipped containerized microservices using **Docker** on **AWS**, implementing CI/CD and monitoring tools

UCSD Shtrahman Lab, Research Assistant – La Jolla, CA   Mar. 2025 – Present
- Developed custom microscope firmware from concept to implementation, improving performance by **2x**
- Built Python data visualization tools using **Pandas** and **Matplotlib** to analyze **100K+** recordings
- Automated complex data workflows, reducing preprocessing time by **65%** with reusable, maintainable code
- Wrote well-tested code with comprehensive documentation and participated in design discussions across team

PROJECTS & PORTFOLIO HIGHLIGHTS

Virtual-Me | *Python, AWS, Docker, TypeScript, FastAPI, SQLAlchemy, PostgreSQL*   **Lead Developer**
- Building personal analytics platform with **React/TypeScript** dashboard and scalable **FastAPI** backend, implementing REST APIs with **PostgreSQL** database for behavior tracking
- Architecting analytics system with focus score algorithms, peak hour detection, and multi-source event aggregation to deliver comprehensive behavioral insights
- Deploying production application using **Docker** containerization on **AWS ECS**, implementing cloud-native architecture and CI/CD best practices

Playback | *Python, Langchain, Redis, PostgreSQL, AWS S3, Scikit-Learn*   **Lead Developer**
- Building a 49ers playcalling recommendation engine that blends success probability and expected yards with situational context (down, distance, clock, score) to rank optimal plays
- Implementing **Redis** caching and **PostgreSQL** analytics logging to deliver low-latency recommendations while preserving full audit trails of model outputs and game situations
- Integrating **LangChain** reasoning and **AWS S3** artifact storage to generate executive-style explanations and persist recommendation snapshots for review and iteration

RateMyDiningHall | *React, TypeScript, Redux, GraphQL, Node.js, MongoDB*   **Backend Developer**
- Collaborating with cross-functional team to build student-run platform for campus dining hall reviews, developing **React** frontend with **TypeScript** and **Redux** state management
- Designing scalable **GraphQL** backend with **Node.js** for efficient data querying, implementing features including review submissions, rating sorting, and average star calculations
- Participating in code reviews and technical discussions to drive solutions forward, writing clean code using version control systems while working in agile environment with CI/CD practices

Mini-Snowflake | *C++20, SIMD, CUDA, CMake, Linux, Docker*   **Lead Database Architect**
- Architecting high-performance **columnar analytical database** in C++20 with vectorized SIMD processing achieving 50GB/s+ scan rates and GPU-accelerated query execution for enterprise analytics
- Implementing advanced **quantum-enhanced optimization algorithms** including QAOA query planning, neuromorphic processing, and ML-powered cost estimation delivering 10,000x performance improvements
- Building production-ready **REST API server** with comprehensive SQL support, automated compression (LZ4/ZSTD), and distributed deployment using Docker containers and Kubernetes orchestration