Sage Taddeo

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Education

California State University, Long Beach — Long Beach, CA
Bachelor of Science in Computer Science — *Expected May 2028*
Relevant Coursework: Data Structures, Algorithms, Computer Architecture, Networking, Systems Programming, Software Engineering

Experience

Undergraduate Research Assistant — Oct. 2026 - Present
California State University, Long Beach — *Long Beach, CA*

- Researching LLM-driven approaches to software performance testing and optimization, exploring how AI agents can identify bottlenecks and recommend code improvements.
- Developing a Python-based benchmarking framework to measure execution time, memory usage, and performance changes across workloads.
- Evaluating LLM-generated optimizations through automated testing, comparing runtime improvements while verifying functional correctness.

Software Engineer Intern — May 2026 - August 2026
Vince's Marine Detailing — *Costa Mesa, CA*

- Built a full-stack business operations platform with Java, Spring Boot, and JavaScript to replace manual booking and quoting workflows, contributing to a reported **35% increase in revenue**.
- Designed REST APIs for customers, vehicles, services, estimates, and detailing jobs; centralized operational records to reduce administrative work by an estimated **63%**.
- Automated service estimates using vehicle type, selected packages, and add-ons, reducing repetitive quoting tasks and improving customer response times.

Projects

Collaborative 3D Brain MRI Learning Platform
Cal Hacks 13.0 - 3rd Place, Best Use of Convex

- Architected a real-time collaboration backend using TypeScript and Convex, implementing a unified, type-safe mutation pipeline to synchronize user interactions and AI-agent commands across clients with **300ms latency**.
- Engineered secure, token-based session access with role-based authorization, protected invite links, and secret-safe queries; validated access controls through **160+ automated tests**.
- Optimized reactive data synchronization by throttling 3D camera updates to **5 writes/sec** and isolating presence heartbeats, reducing redundant database writes and unnecessary client updates.

CSULB ProfCheck | *JavaScript, GraphQL, Chrome MV3*

- Built and published a Chrome extension embedding Rate My Professors ratings in CSULB course search, eliminating separate lookups and reaching **150+ user installs**.
- Optimized GraphQL queries and implemented TTL caching to reduce unnecessary API requests by **50%** and response payload size by roughly **90%**.
- Built instructor-name matching, missing-profile fallbacks, and rating filters to handle inconsistent data and incorporate feedback from real users.

Scheduling Optimization Engine | *Java, Spring Boot, React, Docker*

- Developed an automated shift scheduler using Java, Spring Boot, and React to enforce five hard constraints on skills, availability, overlaps, and work-hour limits, plus a soft overtime penalty.
- Reduced workforce scheduling time from **3-10+ hours/week** to a **sub-1 second** second execution through constraint-based optimization.
- Built a REST API to allow users to manage employee availability, shift assignments, and scheduling constraints, integrating the optimization engine with a React dashboard for real-time schedule generation and review.

Skills

Core Technologies: Java, Python, Spring Boot
Databases: PostgreSQL, DynamoDB, Redis
Infrastructure: AWS, Docker, Kubernetes, CI/CD