Jackson Newman

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Work Experience

AMD **San Jose, CA**
Software Engineer Intern, Internal Development Tooling June 2023 - September 2023

- Accelerated Vivado constraint processing by 50% with a new C++ pattern matching function.
- Developed unit tests achieving 100% coverage to ensure performance and accuracy for Wildcard Matching.
- Reduced Vivado memory usage by 2% by refactoring code to utilize Tessil C++ Hash map package.
- Automated memory, encryption tests, and key upgrades using Python, cutting testing time by 50%.

Shellie.us **San Francisco, CA**
Full Stack Software Engineer Intern, MERN Stack June 2022 - September 2022

- Developed a React-based hierarchical UI with dynamic modals and edit functionality for exhibits.
- Created REST API integrations for editing and saving exhibit data in the NoSQL backend database.
- Created reusable React components, improving maintainability and reducing development time by 30%.
- Used React and Redux for state management, enhancing data consistency and reducing errors by 20%.

Projects

Historical Stock Information Visualization Website | *Flask, Python, Javascript, SQL, CI/CD, GitHub Actions, REST API*

- Developed a Flask-based REST API with 6+ endpoints for database retrieval, enabling real-time data.
- Created a custom Trie data structure with 6000+ ticker prefix matching and market cap-based ranking.
- Implemented GitHub Actions testing pipeline for ticker search, validating 100% of autocomplete accuracy.
- Improved stock info retrieval time by 80% through optimized API design and local database storage.
- Developed a custom caching system that cut GitHub Actions workflow time by up to 60%.

REST API implementation and Database Management | *Java, Javascript, React, PostgreSQL, Spring Boot, Maven, Swagger,*

- Developed CRUD operations in a Java backend for PostgreSQL database, deploying 6 key functions.
- Reduced course search query volume by 60% by implementing search by instructor SQL query.
- Configured Maven backend unit and mutation testing into CI/CD workflow, ensuring 100% up time.
- Created a comprehensive testing suite to cover 100% of query functionality, including error handling.

AI Model Demonstration Wesbite | *Flask, AWS, REST API, HTTP, JSON*

- Configured and deployed 3 AWS EC2 Linux VMs for website hosting and development and AI hosting.
- Deployed an end-to-end Flask web app with Nginx to showcase OpenAI-like LLM inference via HTTP.
- Developed a Flask API server capable of handling hundreds of image generation requests per second.
- Benchmarked Llama.cpp and vLLM server with LLMPerf to determine the fastest LLM inference on CPU.

Website for Daily Commute Information | *React, Javascript, CSS, Bootstrap, OAuth, GCP, Firebase, Git*

- Created 3 CRUD APIs for user commute information, including time, address, and destination.
- Configured Firebase for 1000+ users for secure user authentication and database storage.
- Utilized GCP Functions and Google Maps API for scheduled email sending and fastest route info.
- Designed and styled interactive interfaces using CSS, increasing usability and readability by 20%.

Education

University of California Santa Barbara **Santa Barbara, CA**
Bachelor of Science in Computer Engineering September 2020 - June 2024

3.7 GPA, Dean's Honors, Relevant Coursework:
Data Structures, Algorithms, Operating Systems, Machine Learning, AI, Embedded Systems, Web Development

Technical Skills

Programming Languages: C/C++, Java, Python, PostgreSQL, SQL, SQLite, JavaScript, HTML, CSS, JSON, YAML
Frameworks: React, Node.js, Flask, Bootstrap, Material-UI, Storybook, Spring Boot
Developer Tools: Git, Docker, Jira, Google Cloud Platform AWS, GitHub, Confluence, Perforce, NPM, Firebase, GitHub Actions, MongoDB, Jenkins
Libraries: pandas, NumPy, TensorFlow, PyTorch, Keras, Seaborn, matplotlib