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.
- Decreased testing time by 80% through automation of memory and encryption performance tests.
- Cut Vivado project update time by 50% by automating encryption key upgrades for custom IP.

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

- Created a React frontend allowing 50+ admins to edit exhibit information/permissions through modals.
- Developed JavaScript backend with Firebase REST APIs to process and store 10 user inputs.
- Enhanced user experience, eliminating 100% of 30+ monthly inquiries about exhibit updates.
- Streamlined new exhibit page launches, reducing time by 60% (from 5 days to 2 days).

Projects

AI Model Demonstration Wesbite | *Flask, AWS, GCP, LLM, REST API*

- Configured and deployed 3 AWS EC2 Linux VMs for AI model performance testing and benchmarking.
- Benchmarked Llama.cpp and vLLM server with LLMPerf to determine the fastest LLM inference on CPU.
- Improved Stable Diffusion performance with NNCF quantization, cutting image generation time by 80%.
- 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.

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

- Developed a custom Trie autocomplete, indexing over 6000 stocks by market cap, allowing for ticker search.
- Automated unit testing for the Trie autocomplete, achieving 100% coverage of all possible tickers.
- Improved stock info retrieval time by 90% through optimized API design and database storage.
- Created custom GitHub Actions to automate 100% of database management for 3 SQLite databases.
- Developed a custom caching system that cut GitHub Actions workflow time by up to 60%.

REST API implementation and Database Management | *HTTP, PostgreSQL, Java, Springboot, Swagger, React*

- Developed CRUD operations in a Java backend for PostgreSQL database, deploying 6 key functions.
- Created a comprehensive testing suite to cover 100% of query functionality, including error handling.
- Integrated frontend and backend testing into the CI/CD workflow, ensuring 100% up time in production.

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

- Designed and developed a user-friendly commute reminder website, providing 100% current traffic info.
- Configured Firebase for secure user authentication and data storage, optimized for over 1000 users.
- Utilized Google Cloud Functions for serverless computing, sending emails with optimal routes daily.

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, Azure, AWS, GitHub, Confluence, Perforce, NPM, Firebase, GitHub Actions, MongoDB, Jenkins, Kubernetes
Libraries: pandas, NumPy, TensorFlow, PyTorch, Keras, Seaborn, matplotlib