

JACKSON NEWMAN

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WORK EXPERIENCE

AMD Software Engineer Intern, Internal Development Tooling	San Jose, CA June 2023 - September 2023
<ul style="list-style-type: none">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 Full Stack Software Engineer Intern, MERN Stack	San Francisco, CA June 2022 - September 2022
<ul style="list-style-type: none">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

AI Model Demonstration Website <i>Flask, AWS, GCP, LLM, REST API</i>	<ul style="list-style-type: none">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.
TinyGPT <i>Python, PyTorch, Numpy, Self Attention, Transformers</i>	<ul style="list-style-type: none">Implemented a cutting-edge language model using PyTorch, enabling the generation of text from input.Utilized advanced NLP techniques inspired by GPT-2, including Transformers, for effective pattern capture.Demonstrated expertise in training and optimization within the GPT-2 framework for text generation.
Autoencoder Visual Classification <i>PyTorch, Numpy, Seaborn, Pandas, Matplotlib</i>	<ul style="list-style-type: none">Trained autoencoder for precise letter recognition and transistor positioning on MNIST and MVTEC dataset.Engineered efficient autoencoder architecture with optimized feature extraction for image classification.Demonstrated 100% accurate image classification using threshold pixel-by-pixel differences.
Wafer Map Failure Classification <i>PyTorch, Numpy, Seaborn</i>	<ul style="list-style-type: none">Architected a 14-layer model classifying wafer types with > 90% accuracy using the WM-811k dataset.Devised Augmentation layers for a noise-resistant network, slashing 80% of random chip failures.Analyzed and visualized accuracy and loss throughout iterations to identify over- or under-training.

EDUCATION

University of California Santa Barbara Bachelor of Science in Computer Engineering	Santa Barbara, CA September 2020 - June 2024
3.7 GPA, Dean's Honors, Relevant Coursework: Data Structures, Algorithms, Operating Systems, Applied Machine Learning and AI, Embedded Systems	

TECHNICAL SKILLS

Programming Languages: C++, Java, Python, C, SQL (Postgres), JavaScript, HTML/CSS
Frameworks: React, Node.js, Flask, Bootstrap, Material-UI, Storybook
Developer Tools: Git, Docker, Jira, Google Cloud Platform, Confluence, Perforce, NPM, Firebase, GitHub Actions
Libraries: pandas, NumPy, TensorFlow, PyTorch, Keras, Seaborn, matplotlib