

# JACKSON NEWMAN

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## WORK EXPERIENCE

<b>AMD</b>	<b>San Jose, CA</b>
Software Engineer Intern, Internal Development Tooling	June 2023 - September 2023
<ul style="list-style-type: none"><li>Accelerated Vivado constraint processing by 50% with a new C++ pattern matching function.</li><li>Developed unit tests achieving 100% coverage to ensure performance and accuracy for Wildcard Matching.</li><li>Reduced Vivado memory usage by 2% by refactoring code to utilize Tessil C++ Hash map package.</li><li>Automated memory, encryption tests, and key upgrades using Python, cutting testing time by 50%.</li></ul>	
<b>Shellie.us</b>	<b>San Francisco, CA</b>
Full Stack Software Engineer Intern, MERN Stack	June 2022 - September 2022
<ul style="list-style-type: none"><li>Developed a React-based hierarchical UI with dynamic modals and edit functionality for exhibits.</li><li>Created REST API integrations for editing and saving exhibit data in the NoSQL backend database.</li><li>Created reusable React components, improving maintainability and reducing development time by 30%.</li><li>Used React and Redux for state management, enhancing data consistency and reducing errors by 20%.</li></ul>	

## PROJECTS

<b>AI Model Demonstration Website</b>   <i>Flask, AWS, GCP, LLM, REST API</i>
<ul style="list-style-type: none"><li>Configured and deployed 3 AWS EC2 Linux VMs for AI model performance testing and benchmarking.</li><li>Benchmarked Llama.cpp and vLLM server with LLMPERF to determine the fastest LLM inference on CPU.</li><li>Improved Stable Diffusion performance with NNCF quantization, cutting image generation time by 80%.</li><li>Deployed an end-to-end Flask web app with Nginx to showcase OpenAI-like LLM inference via HTTP.</li><li>Developed a Flask API server capable of handling hundreds of image generation requests.</li></ul>
<b>TinyGPT</b>   <i>Python, PyTorch, Numpy, Self Attention, Transformers</i>
<ul style="list-style-type: none"><li>Implemented a cutting-edge language model using PyTorch, enabling the generation of text from input.</li><li>Utilized advanced NLP techniques inspired by GPT-2, including Transformers, for effective pattern capture.</li><li>Demonstrated expertise in training and optimization within the GPT-2 framework for text generation.</li></ul>
<b>Autoencoder Visual Classification</b>   <i>PyTorch, Numpy, Seaborn, Pandas, Matplotlib</i>
<ul style="list-style-type: none"><li>Trained autoencoder for precise letter recognition and transistor positioning on MNIST and MVTEC dataset.</li><li>Engineered efficient autoencoder architecture with optimized feature extraction for image classification.</li><li>Demonstrated 100% accurate image classification using threshold pixel-by-pixel differences.</li></ul>
<b>Wafer Map Failure Classification</b>   <i>PyTorch, Numpy, Seaborn</i>
<ul style="list-style-type: none"><li>Architected a 14-layer model classifying wafer types with &gt; 90% accuracy using the WM-811k dataset.</li><li>Devised Augmentation layers for a noise-resistant network, slashing 80% of random chip failures.</li><li>Analyzed and visualized accuracy and loss throughout iterations to identify over- or under-training.</li></ul>

## EDUCATION

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

## TECHNICAL SKILLS

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