JONATHAN MACOCO

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EDUCATION

Masters of Science, Computer Science   May 2026
San José State University, San José, California
- GPA: 3.60

Bachelor of Science, Computer Science   May 2023
Chico State University, Chico, California
- GPA: 3.29

TECHNICAL SKILLS

Languages & Frameworks: C, C++, Python, JavaScript/Typescript (Node.js, React, Next.js), Golang
Cloud/DevOps: AWS (ECS, EC2 S3, SES), GCP, Docker, Terraform
ML/AI: PyTorch, LLMs, RAG, Vector Databases, GANs
Database: MongoDB, PostgreSQL, Pinecone
Tools/Other: Git, OpenGL, CUDA, APIs, Agile, System Design, Distributed Systems, Multi-Threading

EXPERIENCE

Full Stack Software Engineer Intern, Coinable, Remote   Feb 2024 - June 2024
- Built email verification system with AWS SES, reducing onboarding friction for new users
- Architected scalable schemas, enhancing performance and ensuring data integrity
- Implemented responsive login and signup flows in Flutter, improving user authentication efficiency and usability
- Developed modular backend system with with Node.js, to allow easy integration of different system components

PROJECT EXPERIENCE

Distributed Collaborative Code Editor
- Built distributed editor with Golang backend, Node.js WebSocket server, Next.js frontend, deployed on AWS ECS
- Scaled to 10,000 requests and 1,000 concurrent sessions with 0 failures, sustaining 1,170 requests per second
- Implemented CRDT-based conflict resolution, achieving less than 100ms median edit latency
- Ensured fault tolerance and even load distribution under reduced ECS capacity

LLM Codebase Navigator
- Engineered LLM-powered tool indexing GitHub repos by files/functions with embeddings stored in Pinecone
- Achieved 83% accuracy on over 60 context aware code queries
- Designed a RAG pipeline with metadata filtering, multi-vector search, and FastAPI based responses

Stock Market Predictor Website
- Architected and deployed a full-stack stock market predictor platform using Django and TensorFlow
- Engineered a LSTM neural network to analyze time series financial data using historical prices for future forecast
- Developed an interactive data visualization comparing historical stock performance to predicted trajectories

N-Bodies Simulation
- Developed CUDA kernels for parallel computation, increasing particle generation capacity 10x
- Parallelized particle generation with OpenMP across 16 CPU cores increasing generation capacity 3x
- Visualized real time gravitational interaction between particles using C++, OpenGL and GLSL shaders

Synthetic Malware Images
- Built Conditional GAN in PyTorch generating synthetic malware images from 9,300+ samples across 25 families
- Designed CNN classifier to validate GAN quality, improving class distinguishability
- Applied one-hot encoding and dataset balancing to enhance model generalization