JACK CHANG

SOFTWARE ENGINEER (AI/ML Focus)

jack8883@gmail.com
(858) 353-1522
https://jackchang.dev

EDUCATION

University of California, Irvine
B.S. Computer Science
Class of June 2026

Planned graduate studies:
San Diego State University
M.S. AI and Technology
Class of June 2028

RELEVANT COURSEWORK

Computer Vision, Intro to AI
Machine Learning & Data Mining,
Graph Algorithms, ML Optimization,
Systems Programming,
Linear Algebra, Diff. Equations

PROFESSIONAL DEVELOPMENT

NVIDIA Developer Courses
Intro to Deep Learning,
Intro to Graph Neural Networks,
Accelerated Computing Python,
GPU Acceleration with C++

SKILLS

Languages & Frameworks:
Python, C++, PyTorch, TensorFlow,
NumPy, OpenCV, Node.js, OpenAI

Systems & Tools:
CMake, Docker, Github Actions,
Git, Supabase, FastAPI

HONORS/AWARDS

Eagle Scout
C++ Professional Certification
CompTIA A+ Certification
USA Computing Olympiad Gold

HOBBIES

Chess; rated 2200 on chess.com
Jazz guitar player
Backpacking

WORK EXPERIENCE

Software Engineer | *C++, Python, Node.js, Electron.js, Supabase*
AI Tech Knowledge (June 2023 - September 2024)

- Built a cross-platform **Node.js** desktop service (Windows + macOS) to queue and execute **AI model inference** tasks for a scheduler app
- Developed backend optimization modules in **C++** & **Python** using **Google OR-Tools,** with **multithreading** to reduce solver runtime
- Designed an **Electron.js** authenticator app integrated with Supabase, improving login flow and reducing authentication errors
- Implemented automated **CI/CD pipelines** using **GitHub Actions** for multi-OS build distribution (macOS + Windows)

Intern Research Scientist | *Python, OpenAI*
MetaGuru (June 2023 - November 2023)

- Investigated capabilities of **large language models**, including prompt design, fine-tuning feasibility, and cross-language behavior
- Developed a question-answering system in Python using **OpenAI's GPT-4 API** that is capable of answering internal company questions and reducing manual HR load

PROJECTS

Orion: AI Threat Assessment System | *Python, C++, OpenAI, scikit-learn*

- Built a multi-layer AI threat-scoring system combining a deterministic **C++ scoring engine**, a **Python ML ensemble** (Isolation Forest, Random Forest, KMeans), and an LLM reasoning layer with grounded **RAG-based Q&A** and scope enforcement
- Simulated a full sensor-to-decision pipeline including physics propagation, **Kalman-lite tracking**, and noisy sensor fusion across 9 threat scenarios (drone swarms, ballistic approach, orbital debris, etc)
- Integrated live public data sources (**OpenSky, CelesTrak, NASA/JPL**) with a **signature-matching** catalog for real-world track enrichment

Geometric Computer Vision Pipeline | *PyTorch, NumPy, OpenCV*

- Built an end-to-end computer vision pipeline for image alignment and panorama construction using **feature detection**, **homography estimation**, inverse warping, and blending
- Implemented robust feature matching with **ORB** and **RANSAC**, visualizing correspondences, inliers, and intermediate warping stages to validate alignment quality

Chess Commentary Generator | *Python, PyTorch, OpenAI, Gemini*

- Built an AI pipeline to generate chess commentary from board states using feature extraction, engine evaluation, and a **T5 seq2seq model**
- **Trained** and **evaluated** the model on large-scale generated data, compared against GPT4o-mini with rubric-based scoring for faithfulness, informativeness, and human-likeness