

HSIANG-CHEN (CHARLIE) CHIU

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Skills

Languages & Frameworks: Python, C/C++, JavaScript, TypeScript, R, React, Ruby on Rails, FastAPI

AI/ML: PyTorch, RAG, AI Agents, OpenCV, NumPy, Scikit-learn, YOLO, Transformers

Database & Tools: PostgreSQL, Redis, Git, Docker, Linux, Firebase, Heroku

Education

Texas A&M University

Aug 2025 – Dec 2026

Master of Computer Science

College Station, TX

- Relevant Courses: Software Engineering, Parallel Computing, Deep Learning

National Tsing Hua University (NTHU)

Sep 2020 – Dec 2024

Bachelor of Science in Computer Science

Taiwan

Work Experience

SaturnAI

Jun 2025 – Aug 2025

AI Software Engineer | Personal Protective Equipment Detection System

Taiwan

- Engineered a real-time PPE detection system for industrial RTSP video streams, scaling ingestion from **1 to 30** concurrent streams and sustaining **50+** FPS inference on edge devices
- Implemented multithreaded Python ingestion to enable parallel RTSP stream processing
- Integrated YOLOv8-based PPE detection with CUDA acceleration for real-time inference on edge devices
- Delivered a PyQt6 dashboard with real-time detection overlays for multi-zone monitoring by non-technical staff

Computer Graphics and Vision Lab, NTHU

Sep 2022 – Dec 2023

Research Assistant | ML-based Image Quality Assessment

Taiwan

- Built a Unity-based data generation pipeline producing **10,000+** samples to accelerate dataset creation and improve robustness to aliasing artifacts
- Fine-tuned CNN models on the generated dataset, achieving a **10%** lift in AUC over baseline approaches
- Optimized EfficientNetV2 to cut inference latency by **46%** and reduce CUDA memory usage by **69%**

Fortune Technology Systems Corp.

Jul 2022 – Sep 2022

Assistant Engineer | IT Infrastructure Optimization

Taiwan

- Saved **3,000+** hours of manual effort by automating system upgrades with custom batch scripts, reducing deployment time from **2 hours to 30 minutes** for **2,000+** users
- Standardized network group assignments and configuration scripts across departments to minimize rollout errors and ensure consistent IT operations

Selected Projects

ZapMail - AI-Driven Email Automation Platform | Ruby on Rails, PostgreSQL, Redis, Sidekiq, Heroku

- Architected an email automation platform in Ruby on Rails, integrating GPT-4o to generate personalized content
- Engineered a scalable background processing system using Sidekiq and Redis to manage high-volume async delivery
- Spearheaded the adoption of TDD/BDD principles across a 4-developer team, enforcing comprehensive RSpec/Cucumber test coverage to prevent regression in critical workflows

ART - Agentic Resume Tailor | React, Python, FastAPI, RAG, AI Agents, SQLite, ChromaDB

- Built a local-first tailoring system using React and FastAPI, utilizing SQLite for data persistence and ChromaDB for vector retrieval to generate single-page PDF/TeX artifacts
- Designed a multi-agent loop (Query → Retrieve → Rewrite → Score) with iterative boost terms, optimizing content coverage against Job Description requirements
- Implemented rewrite safety guardrails to prevent hallucinations (semantic-drift checks, fact-freezing), ensuring **100%** adherence to original resume facts while adapting tone

Kuiz - Educational Video Platform | Vue, TypeScript, Python, FastAPI, Firebase

- Led a 5-member team to win 1st Prize at Meichu Hackathon by developing a TikTok-inspired educational platform
- Built a mobile-first frontend with swipe navigation and VOD playback optimized for learning
- Developed a FastAPI backend with authentication, video tagging, and playlist endpoints deployed to Firebase
- Improved user engagement by implementing a neural collaborative filtering recommendation engine