Darrell Cheng

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EXPERIENCE

AI & Automation Engineer Intern — Planned Systems International
Remote | May 2026–Present

- Sole technical ownership for the ground-up development of a contract-workforce platform connecting Project Management and Accounting, built with Next.js, React, TypeScript, and PostgreSQL; supported transactional assignments across up to 20 charge codes and bulk imports of up to 500 records.
- Automated staffing approvals, audit history, reporting, and in-app, email, and Microsoft Teams notifications through 30 transactional database workflows and 49 row-level security (RLS) policies protecting sensitive workforce data.
- Building an HR status-change platform comparing 26 UKG-sourced personnel and compensation attributes, with sequential approvals, stale-data detection, immutable history, and 264 automated unit and database-integration tests across both platforms.

Software Engineering Fellow — Major League Hacking (MLH)
Remote | Sep 2026–Present

- Selected for the MLH Fellowship to contribute to open-source software on the Solana blockchain using the Rust programming language.

AI Research Fellow — Algoverse
Remote | Summer 2026

- First author on a manuscript under anonymous review evaluating runtime corrective retrieval as a mitigation for unsafe behavior in a Qwen2.5-14B clinical LLM model organism.
- Evaluated 31,360 model responses across 27 runs and six experimental conditions, using ChromaDB retrieval and cluster-bootstrap analysis to measure harmful-response mitigation and over-refusal.

XR Software Developer — Arizona State University EdPlus
Scottsdale, AZ | Dec 2022–Jul 2025

- Owned the graphics pipeline for six multiplayer XR experiences supporting 25+ synchronized VR users per session; published research found a 5% improvement in STEM retention across 4,000+ enrolled students and a 5/5 median experience rating.
- Engineered water, foliage-decay, subsurface-scattering, outline-shader, and modular particle-VFX systems; used CPU/GPU profiling to maintain 60+ FPS on target VR hardware.
- Built autonomous-agent behavior and ocean-simulation systems for *Wayfinders*, a permanent Bishop Museum planetarium installation engineered for a 10-year lifespan and in continuous public use since March 2025.

PROJECTS

ShaderWrap — Full-Stack Generative AI Developer Tool

- Built an end-to-end product that converts natural-language prompts into HLSL shader code using a TypeScript frontend, FastAPI/Python backend, Ollama local inference, and cloud fallback.
- Fine-tuned and quantized Qwen2.5-Coder (14B parameters) on 250+ curated shaders for approximately 10 GB consumer-GPU inference; published the model on Hugging Face.

Lockbox — Rust File Encryption Utility

- Built a Rust CLI and egui app for AES-256-GCM file encryption with per-file random keys/nonces and in-memory key zeroization.

EDUCATION

Arizona State University | 2025
Master of Science (M.S.), Computational Biology
Bachelor of Science (B.S.), Sustainability | Minor in Business

SKILLS

Languages: Python, TypeScript, C/C++, Rust, C#, Go, Java, HLSL/GLSL
Full Stack / Data: React, Next.js, FastAPI, PostgreSQL, Supabase, REST APIs, data pipelines
Artificial Intelligence / Machine Learning: PyTorch, LLM fine-tuning, model quantization, Ollama, LangGraph
Graphics / Systems: Unity, real-time rendering, shader development, GPU profiling, high-performance computing (HPC), SLURM
Infrastructure: Git, Docker, Kubernetes, Vercel, CI/CD, Microsoft Entra ID, Microsoft Graph, automated testing