

Ryan Zheng

rzheng1232@gmail.com | (423) 767-6997 | rzheng1232.github.io/

Education

University of Illinois Urbana Champaign, Bachelor of Science in Computer Science Expected May 2028

- GPA: 3.91/4.0
- Relevant Coursework: CS 225 Data Structures and Algorithms, CS 233 Computer Architecture

Experience

Software Engineer, Disruption Lab – Urbana, IL February 2026 - Present

- Developing a distributed LLM inference system across physical MakerLab machines, overcoming legacy GPU and backend limitations to aggregate idle hardware into a functional compute cluster

Course Assistant, MATH 257 (Computational Linear Algebra) – Urbana, IL January 2026 - Present

- Facilitate weekly office hours to help students connect linear algebra concepts to practical Python implementations (e.g., Markov matrices, least squares regression, and eigendecomposition)
- Support 2–3 lab sections per week for 200+ students, providing hands-off guidance to help students debug NumPy-based code and reason through problems independently

Project Lead, Sig:Robotics – Urbana, IL September 2025 - Present

- Engineering a data acquisition pipeline to capture and preprocess multi-channel EMG signals via Arduino; implemented digital signal processing (DSP) techniques to filter noise and extract features from raw neuromuscular data
- Designing a real-time ML pipeline to classify complex arm movements from multi-channel EMG data into discrete control signals for robotic arm manipulation

Research Intern, University of Tennessee TENNLab – Knoxville, TN June 2024 - May 2025

- Architected a custom Python/Pygame visualization suite to replace a legacy Lua-based rendering engine that lacked macOS support
- Improved autonomous navigation efficiency by 35% in the F1Tenth simulator through applying evolutionary algorithms and reinforcement learning to Spiking Neural Networks and refining heuristic functions
- Researched evolutionary optimization of Liquid State Machines for lightweight and real-time radio signal modulation classification under Professor Catherine Schuman

Projects

CATCare, Best Beginner Hack – HackIllinois 2026 March 2026

- Built a multi-agent AI system for hands-free heavy equipment inspections, converting natural speech and photos into structured, actionable reports. Developed the FastAPI backend powering real-time multimodal pipelines (mobile → backend), implemented audio-based anomaly detection (MFCC features) for engine diagnostics, built computer vision auto-localization via anchor-point feature matching, and refined multi-agent reasoning prompts for structured report generation and managerial reflection.
- Tools Used: Tech: Gemini (Google GenAI + ADK), PyTorch, LightGlue, Flutter, FastAPI, Uvicorn, WebSockets, Firebase, Silero VAD

EcoQuest, District Runner-up – Congressional App Challenge 2024 July 2024 - November 2024

- Engineered backend for a computer vision + LLM app that classifies recyclable materials and provides accessible recycling guidance
- Tools Used: Python, Tensorflow, Flask, Firebase, Cloudflare

Skills

Languages: Python (NumPy, Scikit-learn), C++, Rust, Java, SQL (SQLite), Bash

Technologies: PyTorch, FastAPI, Gemini (GenAI + ADK), Firebase, Linux/Unix, Git, Docker, Conda, AWS, Arduino, Raspberry Pi, Pygame