

# Ryan Zheng

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## Education

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

- Relevant Coursework: CS 225 Data Structures and Algorithms, CS 233 Computer Architecture

## Skills

**Languages:** Python, C++, Java, Rust, SQLite, HTML, CSS

**Technologies:** Tensorflow, Pytorch, Conda, Linux, Bash, Git, Raspberry Pi, Flask, Firebase, AWS

## Relevant Experience

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

- Prototyping novel machine learning approaches for extracting silent speech from jaw-muscle electromyography (EMG) signals, aimed at enabling intuitive human-robot interaction and control (PyTorch)
- Developing experimental data collection procedure for real-world neural-network performance validation (Python, C++)
- Leading efforts in integrating neuromorphic computing into silent speech pipeline to boost temporal data processing capabilities and device energy efficiency (Python, Linux)

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

- Resolved critical bug in the LiDAR simulation for the F1Tenth autonomous navigation training environment that prevented training of neural networks (Python)
- 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 (Python)
- Researched evolutionary optimization of Liquid State Machines for lightweight and real-time radio signal modulation classification under Professor Catherine Schuman (Python)

**Lead Programmer**, Science Hill FIRST Robotics Team – Johnson City, TN August 2022 - May 2025

- Developed computer-vision based auto-alignment for autonomous routines and real-time teleop assistance, enabling the team to become regional finalists for the first time in program history (Java)
- Built a real-time dashboard to monitor telemetry and provide interface for controlling automated robot functions, improving match readiness and on-the-fly debugging speed (Python, Flask, HTML/CSS)
- Mentored and trained 6 new programmers to completion, developing a Java-based robotics programming course that doubled the team's software capabilities (Java)

## Select Projects

**Server-based Chat Application** October 2025 - Present

- Developed the backend for a locally hosted chat application that handles user creation/authentication, group chats, asynchronous message queuing/processing, and local caching features.
- Tools Used: Rust, SQLite, AWS

**EcoQuest** July 2024 - November 2024

- Engineered backend for a computer vision + LLM app that classifies recyclable materials and provides accessible recycling guidance; awarded Runner-up in Congressional App Challenge 2024
- Tools Used: Python, Tensorflow, Flask, Firebase, Cloudflare

## Involvement

### Leadership

- President & Founder, Science National Honor Society, Science Hill High School December 2023 – May 2025
- President, Sustainability Club, Science Hill High School November 2023 – May 2024

### Community Service

- Hurricane Helene disaster relief in Northeast Tennessee 2024
- Robotics STEM outreach program in Elementary Schools in Northeast Tennessee 2021 – 2024