# Shanrong Wu

312-619-7636 | sw101@illinois.edu | linkedin.com/in/shanrong-wu | github.com/ShanrongW

## Education

**University of Illinois Urbana-Champaign** — Urbana, Illinois

*Bachelor of Science in Computer Science — GPA: 3.88* — *Expected Graduation Date: May 2028*

Related Coursework: *Introduction to Computer Science I, Introduction to Computer Science II (Honors), Discrete Structures, Data Structures, Computer Architecture, Software Design Lab*

## Projects

**HackIllinois 2026 – HackAstra** | *React, Python, Flask, Gemini API, Supermemory* — Feb 2026

- Collaborated in a team of 3 to develop an AI inspection software application for Caterpillar Track, automating daily inspections through audio, video, and image-based input.
- Integrated the Gemini API to deliver real-time AI-generated inspection feedback during the inspection workflow.
- Built full stack features using React and Flask, including inspection processing and reporting.
- Implemented a machine inspection history to store and display previous inspection results for machines.
- Improved report generation by debugging inspection output and creating functionality to consolidate multiple same day inspections into one unified report in daily checklist and history.

**Raytracer in Rust** | *Rust* — Oct 2025 – Jan 2026

- Developed a ray tracing application in Rust with a 3 person team, utilizing Rust crates for rendering and systems level performance improvements.
- Designed and implemented geometry processing utilities to convert 3D coordinates and STL mesh data into triangle objects for ray object intersection testing using the Möller–Trumbore algorithm.
- Optimized runtime by about 10x with parallel processing, multithreading, and denoising techniques.
- Created scenes with STL based models and geometric objects to check rendering accuracy and scene composition.

**FRC Path Following Robot** | *Java, WPILib Library* — Jan 2023 – Feb 2023

- Developed an autonomous path following system for an FRC robot using Java and the WPILib framework, increasing the number of autonomous paths available for competition.
- Tuned PIDF control loops and motor configuration to reduce tracking error and improve autonomous accuracy.
- Improved the process for creating, testing, and deploying autonomous paths, making development more efficient.

## Extracurriculars

**SIGrobotics - F1tenth** — Sep 2025 – Present

*Simulation/Programmer* — *Urbana, Illinois*

- Develop autonomous driving functionality for the F1TENTH racecar in the F1TENTH Gym simulation using C++, ROS 2, PID control, and path planning/control algorithms across multiple track layouts.
- Support development for the physical racecar by working with 2D LiDAR, stereo vision, and Jetson Nano.
- Participate in meetings to collaborate on project progress and continued learning of autonomous racing concepts.
- Help define project goals and contribute to software development for both simulated and physical racecar testing.

**FIRST Robotics Competition** — Aug. 2021 – May 2025

*Software Lead, Technician, Programmer, Electrical* — *Bradley, Illinois*

- Mentored team members in Java and LabVIEW through hands on demonstrations and programming activities.
- Fixed electrical and software issues before and after matches to maintain robot reliability, contributing to fewer match time failures and improved competition performance.
- Upgraded robot software and hardware systems by migrating from legacy tools and deprecated software to updated platforms and current standards.
- Supported robot development in programming, control tuning, wiring, and testing as part of a team.

## Technical Skills

**Languages**: C++, Java, JavaScript, TypeScript, HTML/CSS, LabVIEW, Rust
**Frameworks**: React, Next.js, TailwindCSS, ROS2
**Developer Tools**: Git, GitHub, GitLab, Docker, VS Code, IntelliJ, Supabase
**Spoken Languages**: English, Mandarin Chinese