

# Ritvik Gupta

xxx-xxx-xxxx | [ritvikg4@illinois.edu](mailto:ritvikg4@illinois.edu) | [linkedin.com/in/ritvikgupta11](https://www.linkedin.com/in/ritvikgupta11) | [ritvikg.net](https://ritvikg.net) | [github.com/ritvikg4](https://github.com/ritvikg4) | US Citizen

## EDUCATION

---

### University of Illinois at Urbana-Champaign

*Bachelor of Science in Computer Engineering*

GPA: 4.000/4.000

*Expected Dec 2028*

### Millburn High School

*High Honors, SAT: 1580, National Merit Scholarship Finalist*

GPA: 4.602/4.000

*Sep 2021 – Jun 2025*

## EXPERIENCE

---

### Illini Electric Motorsports - Formula SAE

*Circuit Design Project Lead*

Sep 2025 – Present

*Champaign-Urbana, IL*

- Leading development of main vehicle control board handling critical driver safety faults and CAN communication
- Used Altium to design vehicle control board schematics, including power, fault management, and status indicators
- Validated circuit interconnections using detailed top-level schematic to ensure functionality before PCB layouting
- Analyzed Buck converter component datasheets to determine suitable candidates for main vehicle control board
- Designed V1 board layout, routing digital and analog signals to maximize signal integrity and thermal performance
- Executed a structured test and validation plan for each circuit to verify functionality, informing V2 changes

### Wolfram Research

*Education Software Development Intern*

Feb 2025 – Jul 2025

*Remote*

- Engineered full-stack web portal for High School Summer Research Program, using Wolfram Cloud and JavaScript
- Streamlined application submission, progress tracking, and program management for 100+ students and faculty
- Designed and implemented database schema and backend logic in Wolfram Language to organize daily staff tasks

### Millburn Robotics

*Team Captain*

Sep 2021 – Jun 2025

*Millburn, NJ*

- Led FIRST Tech Challenge (FTC) team 23650 MillburnX to NJ state championship overall grand finalists
- Presented fully autonomous VEX AI robots at the VEX World Championship for NASA and Google reps
- Founded the Garden State Alliance community of New Jersey based FTC robotics teams with 350+ members

## PROJECTS

---

### Cellular Automata Generation of 3D Printer Infill | *Wolfram Mathematica*

Sep 2024 – Mar 2025

- Implemented 3D cellular automata in Wolfram Language to algorithmically generate 3D printer infill geometries
- Parameterized infill density and connectivity rules to optimize structural efficiency and print material usage
- Conducted successful test prints on a Bambu Lab printer to validate automata-generated infill structures

### Parametric GVF | *Wolfram Mathematica, Java, Control Theory*

Jun 2024 – Jul 2024

- Implemented a bird flocking simulation in Wolfram Language demonstrating emergent behavior from simple rules
- Integrated a guiding vector field to direct flock behavior, achieving convergence and following of parametric paths
- Presented project at the Wolfram Summer Research Program; featured as a Staff Pick on Wolfram Community

### Spot@MHS | *Python, Boston Dynamics*

Nov 2023 – Mar 2024

- Developed comprehensive educational curriculum for the Spot robot, streamlining its use as a classroom tool
- Designed and open-sourced a modular payload system for Spot to expand its capabilities in a cost-effective manner

### SignSensei | *Python, MediaPipe, OpenCV, Tensorflow*

Sep 2023

- Built a web-app using MediaPipe hand-recognition to teach American Sign Language through interactive feedback
- Placed in the top 15% of projects at PennApps XXIV for innovative and impactful use of real-time pose estimation

## TECHNICAL SKILLS

---

**Programming Languages:** Python, C, Verilog, C++, Java, JavaScript, Wolfram Language

**Frameworks and Libraries:** TensorFlow, PyTorch, MediaPipe, OpenCV, pytest, Flask, React, NumPy, Matplotlib

**Tools:** Altium Designer, Bazel, Vivado, Git, Wolfram Mathematica