

# Adhiraj Agarwala

aa166@illinois.edu · (217) 778-1509 · [linkedin.com/in/adhirajagarwala1](https://www.linkedin.com/in/adhirajagarwala1) · [adhirajagarwala.com](https://adhirajagarwala.com)

---

## EDUCATION

---

### University of Illinois at Urbana-Champaign

GPA: 4.0 — Expected May 2028

*Bachelor of Science (B.S.) in Electrical Engineering (EE)* — *Minor: Semiconductor Engineering*

James Scholar — Samsung Semiconductor Track Scholar — Dean's List

## SKILLS

---

**Languages:** Python, Rust, C, C++, TypeScript, Assembly

**Web & Frameworks:** Next.js, React, HTML/CSS

**Hardware & Tools:** MATLAB, LTSpice, ngspice, Controller Area Network (CAN) Bus, Sensor Calibration, Embedded Systems, Sky130 Process Design Kit (PDK)

**Dev Tools:** Git, GitHub Actions, Continuous Integration (CI), Linux, pytest

## TECHNICAL EXPERIENCE

---

### LC-3 Assembler and Compiler

Jan 2026 – Present

*Independent Research Project, Supervisor: Professor Steve Lumetta, UIUC*

- Developed a full-pipeline LC-3 assembler in Rust implementing lexical analysis, two-pass assembly, symbol table construction, and binary object file generation supporting 15 instruction types, trap pseudo-ops, and assembler directives
- Engineered line-accurate error diagnostics for undefined labels, operand range violations, and malformed syntax; validated output against reference assembler across 100+ test cases

### Illini Electric Motorsports | Low Voltage and Sensors Teams

Aug 2025 – Present

- Perform hardware-level sensor calibration and embedded systems debugging for a Formula SAE electric race car, ensuring real-time data integrity across the sensor pipeline under high-noise operating conditions
- Designed and validated sensor integration for wheel speed, temperature, pressure, and Inertial Measurement Unit (IMU) systems; interfaced components using Controller Area Network (CAN) bus protocol

### CurveCraft | Semiconductor Device Modeling Toolkit

Jan 2026 – Apr 2026

- Built a Python and ngspice device-modeling toolkit implementing diode I-V curve fitting, MOSFET Id-Vgs and Id-Vds characteristic fitting, and Rds\_on extraction; achieved ~95% accuracy validated against SPICE simulations

### International Space Settlement Design Competition (ISSDC)

Sep 2024 – Aug 2025

- Directed systems engineering design of a lunar habitat power distribution network, optimizing energy allocation and fault-tolerant load management across uneven terrain with solar storm resilience
- Secured international runner-up position from 100+ competing teams; presented technical design to Boeing aerospace engineers

### CERN Beamline for Schools | Team Lead

Nov 2023 – Feb 2024

- Led a six-member team authoring an experimental proposal to measure muon lifetimes using delay wire chambers and scintillation counters; shortlisted internationally from hundreds of global submissions

## WORK EXPERIENCE

---

### ECE Department Front Desk Assistant | UIUC

Jan 2026 – Present

- Serve as primary point of contact for students, faculty, and visitors to the Electrical and Computer Engineering (ECE) department; coordinate facility access and direct inquiries across administrative offices
- Participated in 5+ admitted student panels; maintained ongoing mentorship with prospective ECE students and proactively escalated student-facing issues to department leadership

### BrightBytes | Founder

Aug 2022 – Present

- Founded and scaled a STEM education program from 50 to 150 learners across three community centers by standardizing a curriculum in digital literacy, programming fundamentals, and introductory hardware

### Levana Floors Pvt Ltd | Software and Operations Intern

May 2025 – Aug 2025

- Automated inventory tracking workflows reducing manual processing errors by 30%; redesigned and deployed responsive company website ([levanafloors.in](https://levanafloors.in))

## LEADERSHIP

---

### James Scholar Honors Board | Communications and Outreach Chair

Oct 2025 – Present

- Manage end-to-end outreach to 800+ James Scholars through Instagram, email newsletters, and targeted campaigns promoting research opportunities, honors seminars, and networking events

### Institute of Electrical and Electronics Engineers (IEEE) | Student Member

2025 – Present