

# Sam Karson

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A recent graduate with coterminial B.S and M.S. degrees from IIT, who led a team in developing a prize-winning embedded systems project focused on senior healthcare. Demonstrated ability in leadership, programming, and IoT system architecture design. Seeking opportunities to apply and expand technical expertise in a mission-driven team.

## EDUCATION

### ILLINOIS INSTITUTE OF TECHNOLOGY

Chicago, IL

Master of Science - Computer Engineering, 3.81 GPA

8/2020 – 5/2025

Area of Concentration: Networks and Telecommunications

Bachelor of Science - Computer and Cybersecurity Engineering, 3.55 GPA

## EXPERIENCE

### ILLINOIS INSTITUTE OF TECHNOLOGY

Chicago, IL

**Teaching and Lab Assistant** - Electrical and Computer Engineering

8/2024 – 12/2024

- Supervised and mentored a fellow TA in classroom management, grading decisions, and instruction
- Led two weekly lab sessions for 80+ undergraduate students
- Instructed on circuit analysis, embedded programming, and system hardware integration
- Evaluated lab reports, competition presentations, and term project proposals/defenses
- Conducted student safety training covering electrical, fire, and chemical hazard protocols in a laboratory setting

**Instructor** - Summer Robotics Camp

7/2024 – 8/2024

- Led hands-on instruction for 45+ middle and high school students
- Facilitated robot assembly and Arduino code debugging, provided troubleshooting and fostered critical thinking
- Interpreted sensor and Arduino datasheets, taught wiring, board configuration, and component integration
- Designed and implemented iterative sprint challenges and demo tasks to drive iterative design and testing
- Optimized future lesson plans by documenting technical challenges and learning pain-points

## PUBLICATION

S. Karson, D. Gilyls, D. Skvyrski, N. Cook, M. Gromov, and J. Saniie, "RiskWatch: Wearable Fall Detection and Healthcare Accountability Device," 2025 IEEE EIT, pp. XXXX, doi: XXXXXXXX.

## PROJECTS

**RiskWatch Fall Detection** | Java, Python, C, Android Studio, Arduino, Git, Firebase, Bluetooth

- Earned 1st Place (Undergraduate IIT ECE Day) and 2nd Place (Grainger Computing Innovation Prize)
- Led a 4-person team in developing a wearable fall detection system integrating inertial sensors (accelerometer, gyroscope) and ESP-32 microcontroller for real-time motion sensing and event notification
- Built a connected Android application with Firebase integration to alert users/caregivers and visualize data trends
- Engineered Raspberry Pi-based base stations to support in-home video monitoring and data relay
- Designed and implemented Bluetooth LE-based communication protocol for both mobile and indoor deployments
- Oversaw cross-platform development, system integration, and troubleshooting, while coordinating progress reports, technical presentations, and design iterations over three semesters (Spring 2024 to Spring 2025)

**Phishing Link Detection Backend** | Python, HTML, CSS, Django, Amazon EC2, REST API

- Created and managed Amazon EC2 instance for backend server
- Utilized Django for frontend website, and backend server via MySQL-based DjangoDB

## SKILLS

**Soft Skills:** Problem Solving, Detail Oriented, Teamwork, Time Management, Communication, Project Management

**Technical Languages:** Java, Python, HTML, CSS, C, C++, MIPS Assembly, SQL, Verilog, VHDL

**Tools & Technologies:** Git, GitHub, Docker, MySQL, Firebase, Arduino, 5G, Android Studios, Visual Studio Code