Medhansh Garg | Computer Engineering @ UIUC

Linkedin | GitHub | Portfolio | Email | Phone Number

Education

University of Illinois, Urbana-Champaign — *BS, Computer Engineering* | August 2023 - May 2027 (Expected)

- **Relevant Coursework:** Data Structures, Discrete Math, Linear Algebra, Electronics, Probability, University Physics

Skills

Languages: C, C++, Python, JavaScript, TypeScript, Java, SQL, HTML/CSS
Web & Frameworks: React, Next.js, Flask, Spring Boot, Tailwind CSS, Node.js
ML & Tools: TensorFlow, PyTorch, Pandas, Tesseract.js
DevOps/Security/Systems: Docker, Kubernetes, Linux, Git, GStreamer, Firebase, WebRTC, Vercel, BurpSuite, Nmap, Frida
Hardware/Embedded: ESP32, Raspberry Pi, Arduino, Qt, MQTT

Certifications

NYUx MicroBachelors Certification in Cybersecurity Fundamentals | June 2022 - April 2023

- Completed 9-course program (A grade) covering **auth/access control**, **network security**, and **penetration testing**

Work Experience

Care Health Insurance, Gurugram — *Cybersecurity Intern* | June 2025 - Present

- Mapped attack surface for **4 high-value domains + API** with **Nmap**, passive-recon **fuzzing**, and **custom scripts**; logged **60 exposed services** and delivered detailed prioritized reports to SOC following industry standards
- Reverse-engineered AppTrana/Akamai WAF signing scheme via **Burp Suite** intercepts and targeted injection tests
- Authored **Python** PoC that forges signed API calls, proves replay-attack viability

Sigpwny — *CTF & Badge Development Team* | RSO for Cybersecurity at UIUC | January 2025 - Present

- Working with **embedded systems** + **PCB design** to engineer DEFCON-style PCB badge featuring **ESP32** integration and SAO compatibility
- Co-designing CTF challenges for annual UIUCTF

IoT++, Remote — *Intern* | June 2024 - August 2024

- Trained and optimized **YOLO-based** fire and human detection (**13x faster**, **62% more accurate**)
- Streamlined **GStreamer** pipeline for **Orange Pi NPU**; deployed via **Docker**, **Kubernetes**, **Minikube**, **Azure**
- Trained **RNNs** and **Random Forests** to route vehicles based on traffic and efficiency
- **Fine-tuned image models** for route display; helped build **RAG tools** for internal data

Projects

RemoteCam — *Personal Project* | March 2025 - Present

- Building cross-platform webcam streaming app using **WebRTC** with **Firebase** signaling and secure code-based pairing
- Developing mobile **PWA** frontend with **Next.js**, **React**, **Tailwind CSS**, and **TypeScript** for real-time camera streaming
- Implementing Linux desktop client in **QtPython** with **GStreamer** integration for virtual webcam output

Smart LED Strip Controller — *Personal Project* | January 2025

- Developed **Flask web** app on **Raspberry Pi** to control LED strips via smartphone in real time
- Designed **MOSFET-based circuit** for GPIO control, reducing costs by **60%**
- Containerized app with **Docker**; integrated **ESP32** with **MQTT** for automation
- Currently adding **Matter protocol** for Alexa/Google Home interoperability

Uplift, Illinois — *Hackathon Project* | February 2024

- Built cross-platform **React Native** app for hackathon; designed UI in **Penpot** under time constraints
- Integrated **LangChain** + **OpenAI** for contextual chat responses; used **Tesseract.js** for OCR

Athletic Court Booking System — *Social Impact Project* | September 2022 - January 2023

- Built full-stack court booking app (React, Spring Boot, SQLite) used by **300+ apartments**, reducing manual errors
- Designed UI/UX in Figma and later ported frontend to React Native; received **85% positive user feedback**
- Developed user portal with real-time conflict prevention + updates using industry-standard polling techniques
- Developed admin dashboard to streamline booking management

Research Experience

Independent Research, Shobhit University — *Author* | June 2022 - October 2022

- Authored research on Leet Speak's impact on password security (**834K+ samples**); published with **13 references**
- Used **Hashcat**, **zxcvbn**, and **entropy metrics** to assess password strength and inform policy recommendations
- Found that Leet Speak can increase password complexity, but has marginal impact on password vulnerability
- Proposed actionable recommendations for password policies to mitigate risks
- Published paper with **13 references**: https://doi.org/10.32628/IJSRST229567