

# Medhansh Garg | Computer Engineering @ UIUC

[Portfolio](#) | [github.com/HackOverflow404](https://github.com/HackOverflow404) | [linkedin.com/in/medhansh-garg/](https://linkedin.com/in/medhansh-garg/) | [medhansh2005@gmail.com](mailto:medhansh2005@gmail.com) | +1 (217) 904-2064

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## 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
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## 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**
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## Work Experience

**Sigpwny** — *CTF & Badge Development Team* | RSO for Cybersecurity at UIUC

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

**IoT++, Remote** — *Intern* | June 2024 - August 2024 (15 weeks)

- 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

**Athletic Court Booking System, Gurugram** — *Social Work* | September 2022 - January 2023

- Built a full-stack court booking app (**React, Spring Boot, SQLite**) used by **300+ apartments**, reducing manual errors
  - Designed UI in **Figma** and later ported frontend to **React Native**
  - Created an admin dashboard to streamline booking and minimize conflicts
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## Projects

**RemoteCam** — *Personal Project* | March 2025 – Present

- Building cross-platform webcam streaming app using **WebRTC** with **Firestore** 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

**Cyber Awareness Website** — *Personal Project* | March 2024 - November 2024

- Created a responsive cybersecurity education site (**HTML, CSS, JS**)
  - Designed interactive lessons and wireframes in **Figma**
  - Explained technical topics for non-technical users
  - Scored **88/93** (performance/best practices) in **Google Lighthouse testing**
  - Link: <https://hackoverflow404.github.io/cyberawareness/>
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## 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>
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## 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 & Systems:** Docker, Kubernetes, Linux, Git, GStreamer, Firebase, WebRTC

**Hardware/Embedded:** ESP32, Raspberry Pi, Arduino, Qt, MQTT