

Harsh Verma (he/him)

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EDUCATION

- **National Institute Of Technology** Hamirpur, India
Bachelor of Technology - Electrical Engineering *July '24 - May '28 (Expected)*
- **Vidya Bhawan Public School** Udaipur, India
Class 12th - Maths, Physics, Chemistry *May '22 - April '23*

SKILLS SUMMARY

- **Automation:** GitHub Actions, GitLab CI/CD, GitHub API
- **Programming:** Kotlin, Python, C, C++, SQL, Bash
- **Embedded & Hardware:** Embedded Systems, PCB Designing, Power Management Circuits, Raspberry Pi
- **Android Development:** Jetpack Compose, Navigation, Firebase Authentication, Firestore
- **Desktop Development:** GIMP Toolkit (GTK+)
- **Backend & Databases:** Django, Firebase (Auth, Realtime DB, Firestore), MySQL
- **Tools and systems:** Git & GitHub, Linux, FFmpeg

OPEN SOURCE

- ***GNU Network Object Model Environment - GNOME*** [GitLab \(@harshverma\)](#)
Active Contributor *February '26 - Now*
 - **Unit Testing - GIMP:** Built a *Unit Testing Framework* from scratch for core GIMP libraries, *covering 65+ files* and significantly improving test coverage; designed test cases to ensure functionality and edge cases, integrated the suite into *GitLab CI/CD* pipelines for *Automated Validation* on every commit, and identified a previously undetected environment variable bug through the test analysis.
 - **Unit Testing - BABL & GEGL:** Discovered a crucial flaw in GitLab actions, which allowed a single commit to spawn two parallel pipelines. Authored the solution for it, *Reducing the resource usage by 50%*
 - **Blur Strength - GIMP:** Replaced traditional weighted blur algorithms with *Gaussian-distributed kernels* and refined kernel specifications to align better with user requirements.

VOLUNTEERING EXPERIENCE

- ***Society for Promotions of Electronics Culture*** *NITH*
Volunteer - Executive *September '24 - Now*
 - **Electrothon 8.0:** Managed and coordinated the 8th Iteration of MLH backed Hackathon for *500+ students* across various colleges, from scratch. Managed many technical facilities and administrative facilities.
 - **Breakout Brigade 4.0:** Organised and directed the workshop for *120+ students* of NIT Hamirpur. As a result, Hardware was rated best among the four workshops.
 - **Electrothon 7.0:** Organised an MLH-backed hackathon with *2500+ registrations*, Administered venue arrangements for more than 500 students from nearby colleges.

PROJECTS

- **[Real-Time Video Streaming System](#)- *A real-time surveillance system with motion detection:* Built a Raspberry Pi Zero-based CCTV system with motion detection, live streaming, and local video storage. Directed camera input through a custom backend pipeline that created a virtual video device and streamed video using FFmpeg. Implemented motion detection logic to start recording only when activity was detected. The system achieved smooth video streaming over a local network and provided hands-on experience with embedded Linux, video processing, and system-level debugging.
*Tech Stack: Raspberry Pi, Python, FFmpeg (September '25)***
- **[Network-Level Ad Blocking System](#)- *My own DNS Server with Ad Filtering:* Developed a network-wide ad blocking system using a Raspberry Pi by configuring a custom DNS-based filtering setup. All devices on the network routed DNS requests through the Pi, allowing unwanted domains to be blocked centrally. Engineered and programmed DNS configuration, request handling, and maintaining blocklists. This project strengthened understanding of networking concepts, Linux services, and deploying always-on embedded systems for real-world use.
*Tech Stack: Raspberry Pi, Python, Network Engineering (August '25)***
- **[AyurGyanam](#) - *An Android app dedicated towards Herbal Health:* Built a full-stack Android application using Kotlin and Jetpack Compose focused on herbal health and Ayurveda. Built a Django backend to handle app requests such as plant information, symptom-based responses, and chatbot queries. Integrated Firebase Authentication for user login and database support for storing bookmarked plants. The project involved designing backend endpoints, handling request-response flow between the Android app and server, and managing user-specific data securely.
*Tech Stack: Kotlin, Jetpack, Python, Django, Firebase***

- **[Kissan-Connect](#)**– *An Android-based marketplace app for farmers*: Built an Android marketplace app using Jetpack Compose to connect farmers directly with consumers. Implemented backend functionality using Django and Firebase to manage user authentication, product data, and listings. Firebase was used for authentication and data storage, while the backend handled core application logic and communication with the Android client. This project provided hands-on experience in building backend-supported mobile applications with real user workflows.
Tech Stack: Python, Kotlin, Jetpack Compose, Firebase and Django

CERTIFICATIONS

- **HackerRank Python Developer Certification**: [Certificate](#) (February '25)
- **HackerRank SQL Developer Certification**: [Certificate](#) (January '25)

HACKATHONS

- ***HackSecure - NITH***: Built a cybersecurity application for Android, which allowed a user to quantify information about every data which is coming to the device and leaving the device. Developed a Network tunnel of my own to do so, also created my own VPN whilst.
- ***Rekkathon - NITH***: Build a Network Security Enhancer tool which enabled protection against multiple cyber attacks, like MITM, DDoS, Phishing attacks etc. It was a portable device which also prevented network wide ads, with private DNS routing and also had sensing options like fire and smoke. Also, It had a live video monitoring feature which allowed the admin to watch live video from device.
- ***Hack 5.0 - NITH***: Built a Integrated Chrome Extension, which converted live sign language into readable english, with help per frame hand recognition.

SUMMARY

- **Overview**: Open-source contributor and backend-focused developer with experience in automation, CI/CD workflows, and scalable system design. Contributed to large-scale projects like GIMP by implementing test frameworks and integrating them with CI pipelines. Comfortable building developer tooling, backend systems, and automation workflows using Python, Bash, and GitHub/GitLab ecosystems.