

Prajapati Harsh Pareshkumar

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SUMMARY

Computer Science undergraduate at IIT Bhilai with a strong background in software development, cybersecurity, and networking. Proficient in C, C++, Python, and experienced with tools like Docker, ns-3, and Gurobi. Experienced in developing innovative projects, including encryption tools and congestion control algorithms. Active leader and contributor to technical and organizational initiatives.

EDUCATION

- Indian Institute of Technology, Bhilai Durg, Chhattisgarh, India
Bachelor of Technology - Computer Science and Engineering; GPA: 8.14 October 2022 - Expected May 2026

Courses: Computer Networks, Operating Systems, Cryptography, Data Structures, Algorithms, Database Management System, Computer Organization and Architecture, Information Security, Quantum Computing, Mobile and Wireless Networks

SKILLS SUMMARY

- Languages:** C, C++, Python, SQL, PHP, Bash Scripting
- Other Tools:** Docker, Git, LaTeX, ns-3, Gurobi Optimizer
- Compiler Tools:** Lex, Yacc
- Platforms:** Linux (Ubuntu, Kali Linux), Windows, VM Virtualbox
- Cybersecurity Tools:** Burp Suite, Wireshark, Nmap, Hashcat, John the Ripper, Tcpdump, Ettercap, Aircrack, Metasploit
- Soft Skills:** Leadership, Event Management, Public Speaking, Time Management, Report Writing

PROJECTS

- Security Assessment on Hungama Digital Media Pvt. Ltd.:**
 - Discovered critical vulnerabilities, including **OTP bypass, stream ripping, and unauthorized access to user data.**
 - Developed automated scripts to extract **100%** of the platform's premium audio and video content without a subscription, highlighting security loopholes.
 - Conducted in-depth reverse engineering and HTTP traffic analysis to assess and exploit weaknesses in authentication and content protection mechanisms.

Skills: Python, Burp Suite, HTTP Requests, Browser Devtools, Reverse Engineering (December 2024 - January 2025)

- Optimization Solution for ULD Packing:**
 - Proposed an efficient ULD packing solution for **FedEx** at the InterIIT Tech Meet 13.0 with **80%** volume efficiency.
 - Designed linear constraints in **Gurobi** to meet real-world packaging requirements.

Skills: Gurobi Optimizer, Linear Programming, Python. (November 2024 - December 2024) GitHub Repository

- Custom Congestion Control Algorithm Design in ns-3 (Computer Networks):**
 - Implemented a TCP NewReno-based congestion control algorithm with **Hystart** for improved slow start.
 - Monitored key metrics: congestion window dynamics, fairness, RTT, and slow start thresholds.
 - Used **AsciiTraceHelper** and **TraceConnect** for performance evaluation.

Skills: C++, ns-3 simulator, TCP/IP, network performance analysis (October 2024) GitHub Repository

- Secure File Compression Tool with Encryption (Cryptography):**
 - Implemented a lightweight encryption algorithm using a substitution-permutation network (SPN) with substitution and permutation layers, key scheduling, and padding mechanism.
 - Developed functionality to compress directories into ZIP files, integrating encryption for secure data storage and transfer.

Skills: Cryptography, Python (November 2024) GitHub Repository

VOLUNTEER EXPERIENCE

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|---|------------------------------|
| Head of the Finance Team, College Festival | IIT Bhilai |
| Led a team of financial volunteers for the college festival (Meraz). | October 2024 - December 2024 |
| Founding and Core Member of the Cybersecurity Club | IIT Bhilai |
| fostering cybersecurity awareness, skill development, and collaborative projects. | October 2024 - Present |
| Volunteer at Student Mentorship Team | IIT Bhilai |
| Assisted freshers with registration and orientation process along with academic guidance. | July 2023 - March 2024 |