

Pranav Waghanna

Rochester, New York

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Education

University of Rochester, Master of Science in Computer Science Aug 2024 – Dec 2025

- CGPA: 3.6/4.0

- **Coursework:** Computer Security Foundations, Collaborative Programming, Intro to Cryptography

Pune Institute of Computer Technology, Bachelor in Information Technology Aug 2020 – Jun 2024

- CGPA: 8.19/10

- **Coursework:** Operating Systems, Computer Networks, Processor Architecture, Data Structures and Algorithms

Experience

Full Stack Developer, Huf India Pvt. Ltd – Pune, India Jul 2023 – May 2024

- Led and managed a team of 8 engineers in developing a MERN stack application; provided real-time production data, enabling quicker decision-making.
- Integrated Ant-Design forms for streamlined data submission and automated task scheduling through cron jobs, decreasing manual data entry errors by **15%** and freeing up **10 hours per week** for plant supervisors.
- Leveraged ThingSpeak to store and retrieve data of produced items sent by ESP32 microprocessor. Utilized AWS EC2 instance to host the server along with Netlify for the frontend.
- Engineered role-based access controls enabling technicians to monitor production via CanvasJS dashboards, trigger automated maintenance alerts, and perform quality assessments, resulting in **15% fewer errors weekly**.
- Reduced the manual processing time of the internal work from **1 week to a few seconds** through digitization of documents and instant generation of graphs.
- Facilitated daily stand-ups and weekly reviews, improving team communication and reducing blockers, which accelerated overall development progress by **20%**.

Projects

Houdini: VFS-layer Rootkit for FreeBSD (GitHub) Sept 2025 – Dec 2025

- Implemented kernel-mode rootkit at the VFS layer, intercepting getdirentries64() and process list VFS operations, hiding 6 files and processes.
- Evaded security tools by bypassing traditional syscall based monitoring using VFS function pointers, demonstrating deep kernel compromise and overcoming challenges with defined constants.
- Demonstrated expertise in kernel-mode programming on the FreeBSD operating system through VFS layer manipulation, investing 60 hours in rootkit design and implementation.

HTB Penetration Testing Certification (GitHub) Jul 2025 – Present

- Gained hands-on experience in simulated real-world environments by completing over 7 HTB labs, utilizing reconnaissance, vulnerability assessment, exploitation, and reporting methodologies, demonstrating a commitment to developing cybersecurity expertise.
- Developed 2+ custom scripts using Python to automate exploitation tasks within HTB labs, decreasing average exploit development time by 30% and improving workflow for penetration testing.
- Analyzed logs and documented the root cause of security vulnerabilities, accelerating incident response times by 15% through rapid identification and efficient communication processes.

Skills

Languages: C++, C, Java, SQL, JavaScript, Python, Rust, HTML, CSS, Shell, Bash.

Technologies: MERN stack (MongoDB, Express, ReactJS, Node.js), nmap, Sockets, Cybersecurity, CAD, Cryptography, Computer Networks, Penetration Testing, Web Fuzzing, Footprinting, AWS(EC2, S3), Git, Unix, CAD

Publications

Effects of Adopting Industry 4.0 on a Manufacturing plant Mar 2024

P. Waghanna, A. Reddy, S. Deshpande, S. Chavan, V. R. Jaiswal and V. Naranje

10.1109/ICRITO61523.2024.10522189