



Mr. Nehal Sahu has recently completed his M.Tech. in Computer Science and Engineering from PDPM Indian Institute of Information Technology, Design and Manufacturing (IIITDM) Jabalpur. His primary focus is on Network Security, IoT Security, and Machine Learning-based threat detection systems.

His research interests span across Software-Defined Networking (SDN), malware analysis, and edge computing security, with an emphasis on building practical, deployable security frameworks for modern network environments.

Research Interests

- Network Security
- IoT Security
- Software-Defined Networking (SDN)
- Malware Analysis and Detection
- Edge Computing Security
- Intrusion Detection Systems
- Binary Analysis and Reverse Engineering
- Behavioral and Anomaly-Based Detection

Professional Highlights

- Conducted static and dynamic analysis of Windows PE malware binaries for feature extraction and classification.
- Extended the analysis to IoT malware targeting MIPS-based embedded devices such as routers and IP cameras.
- Developed a hybrid static-dynamic malware detection pipeline combining ELF binary analysis with sandbox-based behavioral execution.
- Integrated the malware detection system with SDN infrastructure for automated network-level threat containment using Ryu and OpenFlow.
- Built a syscall-based runtime monitoring system to detect API-abuse attacks on the SDN controller.

- Deployed and evaluated the complete framework on a real hardware testbed using Mininet, Open vSwitch, and a QEMU-based MIPS emulator.

Vision and Goals

Mr. Nehal Sahu aspires to contribute to impactful research in network security, intelligent threat detection, and programmable network defense. His vision is to develop practical and scalable security systems that can operate effectively in resource-constrained environments. He aims to explore advanced intersections of machine learning, network security, and IoT to address emerging cybersecurity challenges.

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