

# Ditikrushna Routray

## Cybersecurity Associate

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## PROFILE

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Aspiring **Cybersecurity Associate** and **B.Sc** **Computer Science Candidate (2026)**. Specialized in **Linux system administration** and **network security**. Developer of custom security tools including **Ironclad Relay** (Anti-Forensics) and **Sentinel-FIM** (OS level System audit). Proficient in **packet analysis** with **Wireshark** and **vulnerability scanning** with **Nmap**, with a focus on building secure, scalable IT environments.

## SKILLS

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- **Category: Security & Networking**
  - *Skills:* Wireshark, Nmap, ProxyChains, TCP/IP, Firewalls, Cryptography (XOR/AES).
- **Category: Operating Systems**
  - *Skills:* **Linux (Mint/Ubuntu Power User)**, Windows Administration, Shell Scripting (Bash).
- **Category: Development**
  - *Skills:* Python (Security Automation), C++, Git/GitHub.

## PROJECTS

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### Sentinel-FIM | Linux File Integrity Monitor (Python/Bash)

12/2025 – 02/2026

*Real-Time Linux File Integrity Monitor & Forensic Auditing System*

- **Engine Architecture:** Engineered a **real-time system monitoring agent** using Python and the watchdog API to hook into **Linux kernel file system events**.
- **Critical Asset Protection:** Configured the engine to monitor the **/etc directory**, providing instant detection of **unauthorized modifications** to system configurations and password files.
- **Forensic Auditing:** Developed a **persistent logging system** that generates timestamped sentinelaudit.log files, capturing a **forensic trail** of every created, modified, or deleted file.
- **Background Automation:** Integrated **Bash daemon scripts (startsentinel.sh** ) to **ensure 24/7 surveillance** by executing the Python engine as a **background system process**.
- **Threat Intelligence Report:** Built an **automated reporting tool (getreport.sh** ) that parses audit logs to generate a **color-coded security dashboard** for rapid **threat assessment**.

### Ironclad Relay: Anti-Forensic Chat Engine

02/2026 – 04/2026

*Python, C++, WebSockets, Applied Cryptography*

- **Summary:** Developed a **secure, hardware-anchored messaging protocol** with **forensic-grade file shredding** to ensure **zero-trace communication**.
- **Key Bullets:**
  - Implemented a **spoof-proof challenge-response authentication** system using **RSA-2048** and **SHA-256**, anchoring **cryptographic identity** directly to the Linux / etc/machine-id.
  - Engineered a **real-time, zero-logging backend** using **Python FastAPI** and **WebSockets** to route secure, **full-duplex anonymous messaging**.
  - Developed a **custom anti-forensics defense engine in C++** that **executes low-level zero-fill (0x00) disk overwrites** to **neutralize advanced data recovery**.

## EDUCATION

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**B.Sc. Computer Science | Utkal University | 2023 – 2026 (Expected)**

*Class 12 (Science) | CHSE Odisha | 2021 – 2023*