

Rakshit Awasthi

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Summary

Undergraduate at IIT Roorkee. Aspiring software development and software security enthusiast with experience in Low-Level Programming, Malware Analysis and Full-Stack web development. I also actively contribute to open-source projects.

Projects

Parserella

🔗 C++

- Developed a robust command-line Portable Executable (PE) parser, equipped with colored output for enhanced readability and usability. The parser is designed to handle PE32 executables, providing comprehensive insights and information about these file types.

Real World Jigsaw

🔗 JAVA, NODE.JS, MONGODB, ANDROID STUDIO, EJS

- Designed and developed an Android game focused on jigsaw puzzles with camera integration.
- Implemented the functionality to create puzzles using both front and rear cameras.
- Included a custom mode that generates random jigsaw puzzles for added variety and challenge.

Dissectix

🔗 DJANGO, REACT.JS, SQLITE

- Developed the backend for a gamified reverse engineering platform, specializing in disassembling code written in C++, C, and Rust.
- Implemented a user-friendly interface where administrators could upload challenges, creating an engaging platform for users.
- Designed a point-based reward system where users can earn points by successfully reverting assembly code to its original form, promoting competition.

sh4dy.com

🔗 MALWARE ANALYSIS, EXPLOIT DEVELOPMENT

- My personal site where I add blogs related to malware analysis and software exploitation.

Achievements

- 2023 **Completed the Flare-On 10 Challenge**, Flare-On challenge by Mandiant
- 2023 **1st in CSAW-India region**, CSAW CTF Finals, part of InfoSecIITR
- 2023 **Onsite Winner**, Winja CTF 2023
- 2022 **Winner**, DevCTF, conducted by IIT Delhi
- 2023 **1st in India**, CSAW CTF Quals, part of team April's Worshippers
- 2023 **4th globally**, nullcon HackIM CTF Goa 2023, part of team InfoSecIITR
- 2023 **6th globally**, Hackday CTF Quals 2023, part of team InfoSecIITR
- 2023 **9th globally**, BYUCTF 2023, part of team InfoSecIITR
- 2022 **1st in India**, CSAW CTF Quals, part of team InfoSecIITR
- 2022 **3rd globally**, Jade CTF, part of team InfoSecIITR
- 2022 **14th globally**, Lake CTF Qualifications, part of team InfoSecIITR
- 2022 **7th globally**, Ritsec CTF, part of team InfoSecIITR
- 2022 **9th globally**, Wolverine Security Conference, part of team InfoSecIITR
- 2022 **9th globally**, Access Denied CTF, part of team InfoSecIITR
- 2022 **11th globally**, Foobar CTF, part of team InfoSecIITR
- 2022 **7th globally**, MHSCTF, part of InfoSecIITR

Experience

Resec Systems

SECURITY ANALYST

November 2022 - August 2023

- Strengthened container runtimes to improve security for Capture The Flag (CTF) challenges, particularly in scenarios involving OS command injection. Designed and crafted engaging CTF challenges that required participants to showcase their skills in binary exploitation and reverse engineering. Developed the backend infrastructure for premium web-exploitation based CTF challenges

Saptang Labs

ANDROID SECURITY RESEARCHER

May 2022 - June 2022

- Tech Stack: Java, Node.js, MongoDB, EJS
- Developed the entire backend for a remote administration tool
- Patched android applications by injecting smali code into them

Clouddefense.AI

SOFTWARE ENGINEERING INTERN

January 2023 - August 2023

- Designed and developed a cutting-edge tool that automatically generates policies by scanning AWS Cloudtrail logs
- Played a pivotal role in advancing an existing eBPF-based agent, making critical enhancements to its functionality, and optimizing its performance for improved system monitoring and security.
- Implemented cryptographic algorithms for secure transfer of Google Cloud credentials from frontend to backend
- Created robust Spring Boot APIs to enhance the security and compliance of an organization's Google Cloud infrastructure, simplifying the process of scanning for vulnerabilities and strengthening protective measures.

Skills

Languages	C, C++, Rust, GO, Python, JavaScript, Java, SQL, HTML, CSS
Security Tools	IDA, Unicorn Engine, Bochs, Ghidra, pwntools, gdb (gef and pwndbg), wireshark, burpsuite, Metasploit framework, nmap, x64dbg, etc.
Security	Reverse engineering, malware analysis, AWS Cloud security, penetration testing, binary exploitation, GLIBC Heap exploitation
DevOps	Docker, Kubernetes, AWS, Google Cloud
Development	React, Redux, Express.js, MongoDB, EJS, Spring Boot, Tailwind CSS, MySQL, Django
Others	In-depth working of the GLIBC heap

Extracurricular Activity

InfoSecIITR | Information Security Club, IIT Roorkee

Secretary

[HTTPS://INFOSECIITR.IN](https://infoseciitr.in)

May 2023 - Present

- Active participation in CTFs
- Participated and won external hackathons and CTFs
- Organized CTFs such as BackdoorCTF 2021, BackdoorCTF 2022 and n00bCTF2022
- Organized lectures, CTFs to promote information security in campus.

Tinkering Lab, IIT Roorkee

Web Developer

[HTTPS://TINKERINGLAB.IITR.AC.IN/](https://tinkeringlab.iitr.ac.in/)

July 2021- January 2022

- Actively participated in group meetings, conducted events.
- Developed chatbot for the main website of tinkering lab, IIT Roorkee