# Goutham Rajeev

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## PROFILE SUMMARY

A versatile software engineer skilled in backend development, DevOps, and cybersecurity. Experienced in building complex systems like SMTP servers, VoIP solutions, and database engines with a focus on scalability and performance. Proficient in vulnerability assessment, penetration testing, and multiple programming languages, including Go, Rust, Python, C/C++, JavaScript, and Java. Skilled in containerization, CI/CD pipelines, and CTF creation. Known for delivering secure, scalable, and high-performance solutions through innovative projects.

## EDUCATION

**Vellore Institute of Technology**                                   Chennai, Tamil Nadu
*Bachelor of Technology in Computer Science*                          *2023 – 2027*

## EXPERIENCE

**Cyber Security Lead**                                               September 2024 – Present
*Linux Club*                                                          *VIT Chennai*
- Lead a team of cyber security enthusiasts, overseeing the creation and development of Capture the Flag (CTF) challenges across multiple categories.
- Spearheaded the development of CTF challenges with a primary focus on web-based attacks and digital forensics, enhancing team learning and challenge diversity.
- Conducted hands-on workshops for more than 300 participants on web application vulnerabilities, educating members on common attack vectors and mitigation techniques.

**Open Source Developer**                                            September 2023 – Present
*Google Developers Group*                                            *VIT Chennai*
- Actively contributed to open-source projects, collaborating with developers to enhance functionality and code quality.
- Provided technical support during events, assisting in the seamless execution of workshops and presentations.

**Techincal Member**                                                 December 2023 – Present
*CloudOps VITC*                                                      *VIT Chennai*
- Contributed to the backend development of the club's website using Node.js and Express.js, ensuring a scalable and efficient server-side architecture.
- Collaborated with the development team to design and implement API endpoints, improving the website's functionality and user experience.

**Cyber Security Intern**                                            November 2024 – Present
*CyberTeam*                                                         *Online*
- Conducted Vulnerability Disclosure Program (VDP) assessments on more than 10 websites, identifying potential security flaws.
- Researched vulnerabilities and Common Vulnerability Exposures (CVEs), developing Proofs of Concept (PoCs) to demonstrate exploitability.

## PROJECTS

**Trust Issues** | *Rust, Docker, GitHub*                            December 2024 – Present
- Engineering a fully functional SMTP server from the ground up using SCTP and Rust as part of a Capture The Flag (CTF) challenge which will help more than 500 participants to understand about cryptographic vulnerabilities.
- Implemented the Post Office Protocol 3 (POP3) from scratch, ensuring secure and efficient email retrieval.
- Designing and developed custom cryptographic hashing and TLS protocols, enhancing system security and performance.
- Identified and documented a vulnerability within the custom hashing algorithm during testing.

**Toucan Calls** | *Golang, GitHub*                                                October 2024 – Present
- Built a VoIP server from scratch, utilizing SCTP for both server and client communication.
- Implemented ECIES for secure handshake and AES for end-to-end encryption of audio packets.
- Integrated Opus codec for efficient audio encoding and Reed-Solomon error correction for enhanced reliability.

**Foolish Admin** | *Python, FastAPI, SQLite, JWT*                           December 2023 – January 2024
- Developed a web challenge for the Password'24 Capture the Flag (CTF) event, focusing on security vulnerabilities and advanced exploitation techniques which helped more than 500 participants to understand about JWT vulnerabilities.
- Implemented JSON Web Token (JWT) exploitation using steganography and demonstrated RSA cryptographic weaknesses, particularly with small prime factors (weak p and q).
- Designed and integrated multiple layers of security for challenge participants to analyze, including encoding and decoding JWTs, manipulating hidden data, and exploiting cryptographic weaknesses.

**Metasploit RPC wrapper** | *Rust, Tokio*                              September 2021 – December 2021
- Developed an efficient and robust RPC (Remote Procedure Call) wrapper for interacting with the Metasploit Framework using Rust and the Tokio asynchronous runtime.
- Utilized Rust's memory safety and concurrency features to ensure the wrapper's performance, reliability, and security in high-throughput environments.

**Web servers for practise**
- Developed projects in Rust, Go, Python, JavaScript, and Java to explore web frameworks and gain experience with SQL and NoSQL databases like PostgreSQL, MySQL, and MongoDB.

## TECHNICAL SKILLS

**Languages**: Java, Python, C/C++, SQL (Postgres,MySQL), JavaScript, HTML/CSS, MongoDB, Rust, Golang, Redis, ElasticSearch, SQLite
**Frameworks**: Node.js, Flask, FastAPI, Actix, fasthttp(Golang), Tokio, Metasploit, Springboot, JWT
**Developer Tools**: Git, Docker, GitHub, Flakes
**Tools**: SQLMap, DirBuster, ffuf, Sleuthkit, Autopsy, hexedit