

Chaitanya Rahalkar

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EDUCATION

- **Georgia Institute of Technology** Atlanta, GA
Master of Science in Cybersecurity — GPA - 4/4 (Spring 2021) January. 2021 – December 2022 (Expected)
- **Savitribai Phule Pune University** Pune, India
Bachelor of Engineering in Computer Engineering — GPA - 9.6/10 July. 2016 – June. 2020

EXPERIENCE

PROFESSIONAL EXPERIENCE

- **Georgia Institute of Technology** Atlanta, GA, United States
Graduate Teaching Assistant August 2021 - Present
 - Grading projects and reports
 - Setting and evaluating exams
 - Assisting and advising students on relevant topics & research
- **BosLeo LLC** Pune, India
Security Engineer bosleo.com July 2020 - July 2021
 - Developed a Software-Defined Perimeter prototype backed by a Zero Trust Network architecture.
 - Developed Anti-Virus, Anti-Phishing, Software Isolation, Application Firewall etc. modules as a part of the company's Endpoint Security solution.
 - Worked on the design, development and deployment of a network-based intrusion detection system (NIDS) supplemented with an intrusion analytics and insights system.
 - Worked on the design and development of a digital inventory management system (DISM) that keeps track of software versions and corporate hardware devices.
- **Persistent Systems** Pune, India
Project Intern May 2019 - May 2020
 - Worked on End-to-End Lung Cancer Screening with Chest Computed Tomography Scans using Convolutional Neural Networks.
 - Worked on creating a unified interface for radiologists & researchers to analyze CT scans.
 - Supplemented the unified application using XAI (Explainable AI) to simplify the analysis of the scans.
- **Quick Heal Technologies** Pune, India
Project Intern June 2019 - November 2019
 - Developed a secure central authentication service (CAS).
 - Designed SDKs for Python and Golang to integrate the CAS with web applications.
 - Developed the PoC using open-source programs and frameworks - Django, OSQuery, MongoDB, and Redis (Caching System) and PyInstaller (Code packaging)
- **Rhythmflows Solutions** Pune, India
Software Development Intern rhythmflows.com Jaunary 2019 - June 2019
 - Bank Reconciliation Solution -
 1. Developed a backend system using Django framework for the administration panel

2. Worked on developing a software that reconciles transaction records of the bank and transaction history of its customers.
 3. Used data analytics to provide a statistical overview of the reconciled records.
 4. Audited the codebase for security vulnerabilities.
- OTT (over-the-top) Video Streaming Solution -
 1. Worked on a scalable architectural design of a video on-demand solution used by more than 500,000 users.
 2. Audited the backend Cordova (iOS + Android native app development framework) for security issues and vulnerabilities.

RESEARCH EXPERIENCE

• Pune Institute of Computer Technology

Pune, India

Research Intern

May 2019 - October 2019

- Worked on the study of side-channel attacks that target the virtualization level (the lowest level of the software stack) of an Operating System.
- Assisted in creating a meta classifier-based ensemble learning model for attack detection.
- Developed a granular performance monitoring script to generate system logs.
- Researched various techniques used by attackers to exploit private information from the set of target virtual machines running on cloud platforms.

• Indian Institute of Science (IISc)

Bangalore, India

Summer Fellow

July 2019

- Attended a research-based summer school organized by the Computer Science department at IISc Bangalore to learn cutting edge technologies and explore research areas in Computer Science.
- Presented my project - [WebTTY](#) during the summer school's project presentation session.

RELATED EXPERIENCE - PROJECTS

MAJOR - OPEN-SOURCE & DOCUMENTED

1. Frost Linux (Maintainer & Developer): ([GitHub Organization](#))
 - Frost Linux is a Linux distribution based on Arch Linux. Frost Linux is designed specifically for engineers and developers.
 - It comes pre-bundled with software tools and packages prominently used by developers. It has a huge list of rich software created by the FOSS community.
 - It has a custom compiled and security-hardened Linux kernel with support for running sandboxed applications. (Using [Firejail](#))
 - This project is inspired by the [Linux From Scratch](#) project.
2. Cedit: ([GitHub Repository](#))
 - Cedit is a zero-dependency text editor for the terminal. Cedit is similar to other popular editors like Vim, Emacs, Nano, etc. It is designed with the philosophy of minimalism and simplicity.
 - It requires no external libraries (Not even curses) or dependencies for installation. It is just a single-file C program that caters to all your editing needs.
 - Currently, it supports syntax highlighting for over 20 programming languages and provides fast incremental searching.
 - A statically compiled binary can allow it to run even on devices without the standard C library. This has facilitated the text editor to be used in embedded devices, routers, PoS terminals, which have very limited disk space. Cedit conforms to VT100 key and escape sequence bindings.

3. WebTTY: ([GitHub Repository](#))

- WebTTY is a Swiss Army knife tool that implements the following functionalities:
 - i Share your terminal as a web application.
 - ii Create secure introspectable tunnels to localhost useful to share web applications to remote developers.
 - iii Share services running on localhost, eliminating the hassle of setting up network port forwarding, DNS and static IP addresses.

4. Password Manager: ([GitHub Repository](#)) ([Research Paper](#))

- A CLI Password Manager written in NodeJS.
- It is a stateless, secure and highly reliable master-password-based password manager that ensures that the data doesn't leave your device.
- It uses extremely secure hashing and encryption algorithms with no known cryptanalysis attacks.

5. Cyberfort CTF Website: ([GitHub Repository](#))

- It is an online platform to test and advance skills in penetration testing and Cybersecurity.

TECHNICAL SKILLS

- Programming Languages - Python, Javascript. Golang
- Frameworks - Django, Flask, NodeJS, ExpressJS, FastAPI
- System Administration - AWS Cloud Services, Linux/UNIX System Administration, Network Management, Cloud Deployment

PUBLICATIONS

1. Rahalkar, Chaitanya & Virgaonkar, Anushka & Gujar, Dhaval & Patkar, Sumedh. (2020). End-to-End Lung Cancer Diagnosis on Computed Tomography Scans using 3D CNN and Explainable AI. International Journal of Computer Applications. 176. 1-6. 10.5120/ijca2020920111. ([Link](#))
2. Rahalkar, Chaitanya, and Dhaval Gujar. "Content Addressed Peer-to-Peer File System for the Web with Blockchain-based Metadata Integrity." IEEE International Conference on Advances in Computing, Communication and Control. IEEE, 2019 ([Link](#))
3. Oak, Rajvardhan, Chaitanya Rahalkar, and Dhaval Gujar. "Poster: Using Generative Adversarial Networks for Secure Pseudorandom Number Generation." Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security. ACM, 2019 ([Link](#))
4. Rahalkar, Chaitanya, and Dhaval Gujar. "A Secure Password Manager." International Journal of Computer Applications 975: 8887. ([Link](#))