

# Chaitanya Rahalkar

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Mobile : On request

## EDUCATION

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- **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

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### 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](http://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](http://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

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### 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

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- 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

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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](#))