

Karthik Ramakrishnan

SECURITY ENGINEER · FULL STACK DEVELOPER

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Education

Georgia Institute of Technology

INCOMING MASTERS IN CYBERSECURITY - CYBERSECURITY AND PRIVACY STUDENT

Atlanta, GA

Starting August 2022

Manipal Institute of Technology

BTECH ELECTRONICS AND COMMUNICATION ENGINEERING WITH A MINOR IN COMPUTING (CUM CGPA: 8.1, MINOR: 9.75)

Manipal, India

Expected July 2022

Relevant Coursework - Data Structures and Algorithms, Computer organisation and architecture, Object Oriented Programming using C++, Networking with TCP/IP, Communication Networks, Cybersecurity, Python Programming, Cipher Systems

Work/ Research Experience

IMDEA Software Institute

RESEARCH INTERN (BACHELOR THESIS)

Working on design, development, and evaluation of a framework for analyzing browser fingerprinting techniques and their countermeasures as part of my bachelor thesis under the supervision of [Dr. Juan Caballero](#) and [Dr. Srdjan Matic](#).

Madrid, Spain

February 2022 - Present

Global Cybersecurity Institute (Rochester Institute of Technology)

CYBERSECURITY VISITING RESEARCHER

Worked with [Prof. Justin Pelletier](#) and [Prof. Bill Stackpole](#) to develop a custom deployable production Honeypot with Visualisation Dashboard and was involved in developing an incident response training curriculum for executives and the tech team of companies. Presented the research output at the CyberVSR Symposium 2021.

Rochester, NY, U.S.A

May 2021 - August 2021

C3i Center, Indian Institute of Technology Kanpur

RESEARCH INTERN (VULNERABILITY ASSESSMENT AND PENETRATION TESTING)

Worked on developing a web application framework to automate the recon process by building a pipeline that makes use of a combination of open-source tools and scripts to gather information about the target Web Application created using the Python Django Framework, with HTML, CSS and Vanilla JS as the frontend, styled using Bootstrap 5 library and MongoDB as the database to store the results. The application is targeted at penetration testers who can save a massive amount of time by running scans and viewing the results on the go with complete customisation with just a couple of clicks and a user-friendly interface rather than the traditional CLI based approach.

Kanpur, India

May 2021 - July 2021

Information Sharing and Analysis Center (ISAC)

RESEARCH INTERN (BREACH POINT)

Contributed to finding vulnerabilities in the Government websites belonging to the finance sector. Discovered vulnerabilities ranging from low to high severity and created a detailed vulnerability assessment report for responsible disclosure.

Mumbai, India

March 2021 - May 2021

Crime Free Bharat, National Technical Research & Development Committee (NTRDC)

WEB DEVELOPMENT AND SECURITY ENGINEER INTERN

Worked on building websites using Django Framework and fixing existing security bugs. Developed security labs mimicking real world security events of binary exploitation, web exploitation, forensics and reverse engineering and actively involved in campaigns promoting cyber risk awareness among the public.

Bhopal, India

February 2021 - May 2021

i3indya Cyber Solutions

CYBER SECURITY INTERN

Performed penetration tests for various projects undertaken by the company. Port scanned servers using NMAP and closed all unnecessary ports to reduce the attack surface. Performed live packet data capture with Wireshark to examine security flaws. Submitted penetration test report to the client.

Noida, India

June 2019 - July 2019

LookAtHer Org.

CO-FOUNDER AND WEB DEVELOPER

LookAtHer is a non-profit merchandise startup headquartered in San Francisco. Developed a website with Shopify integration along with a dashboard to manage and analyse sales. Generated around \$2000 in sales within a span of two weeks.

San Francisco, CA, U.S.A

June 2018 - December 2018

Projects

ReconAID : Reconnaissance Automation Framework

May 2021 - August 2021

GITHUB

ReconAID is a web application for penetration testing which offers many tools which help you to get some useful information regarding your target. It also offers custom scans and shows a variety of results through which you can analyze your data more accurately. This tool integrates several open source information collecting tools and uses all or part of them depending on the parameters to gather the findings in a single location.

Pandora: An Intrusion Detection Honeypot with Real-time Monitoring

March 2021 - May 2021

GITHUB

Pandora is an Intrusion Detection Honeypot which when implemented, monitors and spoofs efforts by attackers to gain access to the system. Along with being a light weight honeypot which can run on minimal hardware, the users can also customise and deploy the honeypots.

Student Management System API

September 2020 - December 2020

GITHUB

An API and a Web Application were built using Flask to get the marks, attendance, and upcoming calendar activities with Captcha bypass from SLCM Website for Manipal Academy of Higher Education(MAHE) students. The application uses Python Selenium library to crawl the webpage via a headless browser and the HTML tags are scraped using the BeautifulSoup library. Discovered security vulnerability exposing sensitive data of current students and alumni of the university.

Zeoco: A smartphone app to manage carbon footprint index

May 2020 - August 2020

PREPRINT

Zeoco revolves around the idea of quantifying the implicit effect of consuming a product or utility with respect to the associated carbon footprint index - that serves as a metric - accumulated over the various processes a product/utility undergoes to finally come into being to the end customer. Zeoco tries to be as interactive as possible to help you un-trivialize decision makings in tasks like travel, shopping, electricity consumption and help you gain a different and rather numerical perspective over your daily choices.

MindSpace : Therapy services platform

September 2020 - October 2020

WEBSITE

Conceptualized PRD and developed a Flask based quiz app to process user responses & suggest Mood Music using Spotify API. Unified MAHE Student Support Centre with the Mindspace ecosystem to render in-app therapy services. Conceptualized monetization and business development strategy with 15+ private therapists on a demo + subscription basis.

Research Publications

Karthik Ramakrishnan, Gokul P, & Rohan Nigam. (2021). Pandora: An Intrusion Detection Honeypot with Real-time Monitoring accepted for presentation at International Conference on Forensics Analytics Big Data and Security (IEEE FABS 2021)

Karthik Ramakrishnan, Soumyadeep Basu, & Shivam Vaishampayan. (2021). ReconAID: A web reconnaissance framework to aid pentesters by automating the recon process [In Progress]

Karthik Ramakrishnan, Gokul P, Preet Batavia, and Shreesh Tripathi. "Zeoco: An Insight into Daily Carbon Footprint Consumption." ArXiv:2102.06185 [Cs], February 11, 2021.

Honors & Awards

- 2021 **Cybersecurity Visiting Student Research (CyberVSR) Scholar**, Rochester Institute of Technology
- 2020 **National Finalist(Top 150)**, InCTF 2020 Capture The Flag(CTF) Competition
- 2019 **Tea with Director Special Award**, Manipal Institute of Technology (for outstanding extracurricular achievements)
- 2018 **Linux Foundation Training Scholar**, Awarded by Linux Foundation for contributions towards open-source
- 2018 **Leangap Scholar**, Selected among 40 High school students from across the world to attend Entrepreneurship bootcamp in San Francisco, U.S.A
- 2017 **Finalist**, INSEF Regional Science Fair
- 2017 **Student of the Year**, Awarded by USA UnivQuest for outstanding extracurricular activities
- 2016 **Finalist(Top 500 Startups and Groups)**, Hello Tomorrow Entrepreneurship Challenge
- 2016 **Finalist**, Esya Entrepreneurship Pitch Competition, IIT Delhi
- 2016 **Winner**, InoVIT Science Fair (Project Showcase Category)
- 2015 **Finalist**, INSEF Regional Fair
- 2015 **National Finalist (Top 100)**, Intel IRIS Science Fair
- 2015 **Regional Finalist (Top 90 across the world)**, Google Science Fair
- 2015 **Finalist**, InoVIT Science Fair (Model Making Category)

Extracurricular Activities

MIT Chess Club

CORE COMMITTEE MEMBER

Manipal, India

August 2020 - December 2021

Active member of the MIT Chess Club involved in promoting chess among students by conducting events. Recently conducted a simultaneous chess competition for all students to take part in along with managing the finances for the prizes distributed among the winners.

Linux Users Group (LUG)

CORE COMMITTEE MEMBER

Manipal, India

April 2020 - December 2021

Core committee member of the MIT Linux Users Group which promotes the use and contribution to open source technologies. Actively involved in discussions on the official Discord channel helping newbies with doubts related to Linux and general discussions related to different distros along with acting as a moderator. Also involved in conducting workshops to spread awareness regarding open source and Linux.

Manipal University Technical Business Incubator (MUTBI) Entrepreneurship Cell

CORE COMMITTEE MEMBER

Manipal, India

August 2019 - October 2020

Involved in the conduction of Entrepreneurship Acceleration events and workshops and matching potential startups with incubators. I was involved in developing event ideas and organising them during Techatva, the technical festival of Manipal Institute of Technology. During my time here, I was also a part of the organiser committee for Manipal Entrepreneurship Summit, one of the biggest entrepreneurship event which takes place in the region annually bringing young innovators onto a single stage, attracting new talent via interesting events.

Manipal Information Security Team (MIST)

CORE COMMITTEE MEMBER

Manipal, India

September 2018 - October 2019

As a working committee member at MIST, the official Information Security Club of Manipal, I was involved in the conduction of workshops to spread awareness about Cybersecurity along with helping juniors polishing their skillset in the field. Actively participated in organising cryptic challenge hunts, capture the flag competitions and other technical events to encourage and introduce youngsters to the world of Cybersecurity.

Volunteering

Swachh Bharat Abhiyan

MEMBER

Manipal, India

September 2018 - February 2021

The Swachh Bharat Abhiyan is the most significant cleanliness campaign by the Government of India. I am an active member of the Swachh Bharat Abhiyan mission at Manipal Institute of Technology, Manipal. There are monthly cleanliness drives taking place at different places like parks, beaches, university etc. intended to remove the garbage lying around and maintain a clean environment.

Rotaract Club of Manipal

MEMBER

Manipal, India

September 2018 - February 2021

Part of Community Contact events organised by Rotaract Club of Manipal Drive. We visit orphanages and old age homes frequently to spend time spreading joy and celebrating festivals together. We also visit government schools to impart knowledge regarding technology to underprivileged children and helping them upskill via workshops.

Anti Cyber Crime Society

ANTI PHISHING INTERN

Pune, India

January 2021 - February 2021

Involved in the identifying and reporting phishing websites for them to be taken down by the required authorities and minimise damage caused to the public.

Skills

Languages: Python, JavaScript(ES6), HTML, CSS/Sass, C/C++, Dart, Bash, \LaTeX

Libraries and Frameworks: Flask, Django, React.js, Flutter

Tools and Platforms: Git, Netlify, Heroku, AWS, MongoDB, Firebase, Postman

Operating Systems: Windows, Kali Linux, Ubuntu

Network Security Tools: Nessus, Nmap

Proxies/Sniffers Tools: Burp Suite, MITM Proxy, Wireshark

Penetration: Metasploit Framework