KARTHIK RAMAKRISHNAN

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Github: https://github.com/L3thal14 | Portfolio: http://karthikr.codes

EDUCATION

- BTech Electronics and Communication Engineering, Manipal Institute of Technology, Manipal(Expected 2022). CGPA : 7.57
- Class 12, Physics, Chemistry, Maths, FIITJEE Junior College, Vijayawada. Percentage: 95.6
- Class 10, TRIPS International School, Rajahmundry. CGPA: 10

TECHNICAL SKILLS

- **Languages:** Python, JavaScript(ES6), HTML, CSS/Sass, Dart, Bash, Latex
- **Libraries and Frameworks:** Flask, Django, React.js, Express.js, Node.js, Flutter
- **Tools and Platforms:** Git, Netlify, Heroku, AWS, MongoDB Atlas, Firebase, Travis CI, Postman
- **Operating Systems:** Windows, Kali Linux, Ubuntu
- **Network Security Tools:** Nessus, Nmap
- **Proxies/Sniffers Tools:** Burp Suite, MITM Proxy, Wireshark
- **Penetration:** Metasploit Framework

WORK/ RESEARCH EXPERIENCE

- **Global Cybersecurity Institute (Rochester Institute of Technology)**
  Cybersecurity Visiting Student Researcher (June 2021 - August 2021)
  Working with Professor Justin Pelletier on developing a deployable Intrusion Detection and Prevention Honeypot and mapping it the to MITRE ATT&CK framework and integration with dashboards like Kibana, Grafana
- **Interdisciplinary Center for Cyber Security and Cyber Defense of Critical Infrastructures(C3i Center, IIT Kanpur)**
  Vulnerability Assessment and Penetration Testing(VAPT) Intern (May 2021 - July 2021)
  Working on developing a Reconnaissance Engine framework by building a pipeline which makes use of a combination of open-source tools and scripts to gather information about the target Web Application built 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.
- **Information Sharing and Analysis Center(ISAC)**
  Research Intern (March 2021 – May 2021)
  Contributed to finding vulnerabilities in the Indian 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.
- **Crime Free Bharat,National Technical Research & Development Committee, NTRDC, India**
  Web Development and Security Intern (February 2021 – May 2021)
  Worked on building websites using Django Framework and fixing existing security bugs.
- **i3indya Cyber Solutions**
  Cyber Security Intern (June 2019 – July 2019)
  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.
- **LookAtHer Org.**
  Co-Founder and Web Developer (June 2018 – December 2018)
  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.

MAJOR PROJECTS

- **Chess.com Stats Viewer**
  April 2021
  A Front-end application built using React.js and styled using Material UI to analyse and depict the performance of any user in games played on chess.com
  Project Link: https://l3thal14.github.io/chess-stats/
- **Student Management System API**
  September- December 2020
  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.
  Project Link: https://github.com/L3thal14/slcm-api-v1

- **Zeoco: A smartphone app to manage carbon footprint index**
  May 2020- August 2020
  Our app 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.
  Project Link: https://devpost.com/software/zeoco
- **Smart Soldier Strap**
  January 2020
  Part of the team who took part in the Smart India Hackathon. Designed a wearable strap for soldiers with the following features: 1) GPS location of the soldier. 2) Will monitor and record the maximum number of vital body parameters. 3) SoS facility. 4) Sufficient Battery Life. 5) Support location timeline. Transfer information by using a MANET-type communication system. It can also access the public network only when no node is available in the immediate vicinity and only in case of emergency.
- **Smartphone Control using Brain Signals(SCUBS): A new hope for the differently abled**
  May 2017- October 2017 August 2018 - November 2018
  Researched and developed a prototype to perform basic functions on a Smartphone such as swiping and opening apps using their brain's electrical activity which includes concentration, meditation, and eye blink intensity. To achieve this, an Electroencephalogram(EEG) device known as Mindflex was tweaked to extract raw data and hooked to a Bluetooth Low Energy(BLE) device in order to communicate with smartphones. I developed an app to capture these signals and use eye blink intensity to take pictures and videos on a phone.
  Awards won:
  INSEF Regional Fair 2017 Finalist(Top 100 across India)
  Vedant 8.0 Innovation Challenge 2018: Special Mention
- **CSAUS: Carbon Dioxide Suppression and Utilisation System**
  April 2016- July 2016
  Researched and developed a working prototype to not only reduce the carbon dioxide levels but also utilise it in various ways such as for the production of electricity along with an external monitor system to record the carbon levels to ensure equal distribution across various surfaces.
  Project Link: https://cutt.ly/SkgDo10
  Awards won:
  Hello Tomorrow Entrepreneurship Challenge: Top 500 Startups/Individual projects across the world and invited to attend Hello Tomorrow Entrepreneurship Summit 2016 held in Paris, France
- **Home Security System**
  September 2015- December 2015
  Built a Home Security System using microcontrollers, sensors, and dash camera providing features like motion sensing, intrusion detection including sending message alerts via GSM module and an alarm system, a secure OTP based entry system, and a 6-axis gyro-based spontaneous dash camera monitoring setup with video recordings of the intruder sent to the owner.
  Awards won:
  Intel IRIS National Fair 2015 Finalist(Top 100 across India)
  INSEF Regional Fair 2015 Finalist(Top 100 across India)
- **LFR: Linear Fresnel Reflection Energy System - Electrifying the Future**
  March 2015 - December 2015
  Built a prototype of an economic alternative to Solar Panels for small scale usage. The project utilises solar radiation to bring about a temperature difference across the plates of Thermoelectric Generators. A Fresnel Lens is used to concentrate the solar radiations on to one side of the plate. A solar tracker which consists of a 4 axis servo motor module along with an LDR circuit was built on top of which the setup is installed to ensure maximum utilisation of the solar radiations across various times of the day.
  Project Link: https://cutt.ly/skHhnft
  Awards won:
  Google Science Fair 2015 Regional Finalist(Top 90 across the world)
  Intel IRIS National Fair 2015 Finalist(Top 100 across India)
  INSEF Regional Fair 2015 Finalist(Top 100 across India)
  InoVIT Science Fair 2016 Winner
- **Salt Water Energy Module**
  January 2015
  Researched and developed a working prototype to generate electricity using Wet Cell and Electro-Chemistry. It includes a low-cost mini generator to power small scale electronic appliances with potential scaling methods for usage in industry.
  Awards won: InoVIT Science Fair 2015 - 4th Place

RESEARCH PUBLICATIONS

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

Karthik Ramakrishnan, Gokul P, & Rohan Nigam. (2021). Pandora: An Intrusion Detection Honeypot with Real-time Monitoring [Manuscript submitted for publication]. Manipal Institute of Technology, Manipal Academy of Higher Education, India

AWARDS AND HONOURS

- Secured a place among the top 150 across India in InCTF 2020 Capture The Flag(CTF) Competition
- Awarded the Tea with Director Special Award 2019 and was recognised by Manipal Institute of Technology for outstanding extracurricular achievements
- Awarded the Linux Foundation Training Scholarship 2018
- Selected among 40 High school students from across the world to attend Leangap, a High School Entrepreneurship Bootcamp in San Francisco,CA
- Recognised by International Scientific Online Project Olympiad for mentoring students from my High School in pursuing an Energy Enhancement project.
- INSEF Regional Fair 2017: Selected as a Finalist
- Hello Tomorrow Challenge 2016: Selected among the top 500 startups and groups across the world and invited to attend the Hello Tomorrow Entrepreneurship Summit which took place in Paris, France
- Won the USA UnivQuest Student of the Year Award 2017 for outstanding extracurricular activities
- Selected as a finalist to pitch in front of investors at Esya Fest 2016 at IIIT, Delhi
- InoVIT Science Fair 2016: Winner in Project Showcase Category
- Google Code-In 2015: Secured a place among the top 10 Sub-Finalists across the world for Ubuntu Organisation
- INSEF Regional Fair 2015: Selected as a Finalist
- Intel IRIS National Science Fair 2015: Selected among the top 100 finalists across India
- Google Science Fair 2015: Selected among the top 90 regional finalists in the world
- InoVIT Science Fair 2015: Secured 4th Place in Model Making Category

OTHER ACTIVITIES

- **MIT Chess Club**
  Active Member of the MIT Chess Club since August 2020.
- **Manipal Information Security Team (MIST)**
  Working Committee member at MIST, the official Information Security Club of Manipal.Contributions to the team include conducting various workshops within the college and contributing to the annual tech fest “Tech-Tatva”
- **MUTBI Entrepreneuship Cell**
  Involved in the conduction of Entrepreneurship Acceleration events and workshops during the annual tech fest - "Tech-Tatva"
- **Linux Users Group (LUG)**
  Core committee member of the MIT Linux Users Group which promotes the use and contribution to open source technologies.

VOLUNTEERING

- **Swachh Bharat Abhiyan**
  Part of the Swachh Bharat Abhiyan at Manipal Institute of Technology, Manipal.
- **Rotaract Club of Manipal**
  Part of Community Contact events organised by Rotaract Club of Manipal Drive.
- **Anti Cyber Crime Society**
  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.