Charith Jayarangana

0762006303 — charithjayarangana@hotmail.com — Website — LinkedIn — Github — Medium

Summary — Motivated and adaptable computer science undergraduate with a strong foundation in data structures, algorithms, problem-solving, and critical thinking. Passionate about staying updated with the latest technological advancements and industry trends. Experienced in diverse domains, including operating systems, web and mobile development, and networking. A collaborative team player with a results-driven mindset, self-confidence, and the ambition to excel in dynamic environments.

Technical Skills

Automation Bash
Cloud AWS, Cpanel
Languages C/C++, JS/TS, Java, Dart, Golang, PHP
OS Debian, Ubuntu, Windows
Database Mysql, MongoDb, Firebase

Web React, Node, SpringBoot
Mobile Flutter, Riverpod
CI/CD Git, Github actions & workflows, SonarQube
Other Figma, Canva, R, Octave, Flex, Bison, Latex

Other Skills

Teamwork & collaboration
Adaptability
Continuous Learning
Leadership
Critical Thinking

Volunteering
Blogs writing
Singing
Playing chess & cricket

Experience

SysRes Research Group **Nov 2023 – May 2024**
Research Intern

Dehati - Decentralized Encrypted Host-based Application-level Tunneling Infrastructure

- Conducted a detailed analysis of overlay Networks and IPv6 to facilitate seamless peer-to-peer communication.
- Developed a threaded Java-based peer-to-peer application to establish encrypted communication using RSA key pairs.
- Researched existing P2P messaging applications, including DApps implemented with IPFS, to gain valuable insights.
- Designed and implemented ”Dehati,” enabling efficient P2P communication over LAN with features like peer discovery, offline message handling, and error management using Golang and the LibP2P framework.
- Actively participated in weekly meetings with supervisors to refine the project scope and share progress updates.

Other Contributions

- Created a professional logo for the SysRes Research Group using Figma.
- Installed and configured a Debian-based OS on Raspberry Pi 4B and resolved TFT display compatibility issues.
- Set up and configured servers for research projects within the Network Operating Center (NOC) Server Room.

parisdisneyshuttle **Feb 2024 – Dec 2024**
Fullstack Developer (Part-Time)

- Ensured the stability of the legacy website built with Angular, PHP, and MySQL by performing regular maintenance.
- Upgraded the email module to be compatible with PHP 8.2, enhancing system reliability.
- Implemented a user-friendly feature to enable trip vehicle type selection, updating the frontend, backend, and database accordingly.
- Managed web hosting operations via CPanel on HostGator.

Phinexa **Nov 2024 - present**
Mobile Application Developer & Engineer (Part-Time)

- Building and maintaining scalable mobile applications using Flutter, Firebase, and Riverpod.
- Architecting mobile applications following the feature-first MVVM design pattern for improved scalability and modularity.
- Conducting comprehensive code reviews to ensure clean, efficient, and maintainable codebases.
- Collaborating with cross-disciplinary teams, including designers and product managers, to deliver robust solutions aligned with user needs.

Volunteering

- Member of ISACA at UCSC, contributing to knowledge-sharing initiatives.
- Organizing member of UCSC career-fair 2025
- Collaborated on the development of the UCSC Career Fair Portal 2025 to enhance user management and accessibility.

Education

University of Colombo School of Computing(UG) **2021 - present**
Bachelor of Science(hons) in Computer Science - ***CGPA: 3.79***

Taxila Central college - Horana
Advanced Level in Physical Science Stream (2019)
Combined Mathematics - A, Physics - B, Chemistry - B
Zscore: ***1.7910***

Royal College - Panadura
Ordinary Level (2016)
Results: ***9 A's***

Achivements
- Recognized on the Director's List in 2022 and 2023 for consistently maintaining a GPA above 3.7.
- Secured 2nd place at the prestigious MadHack 2.0 All-Island Hackathon (2023), showcasing innovative problem-solving skills.
- Gained valuable experience and insights by participating in the FreshHack 2023 Hackathon.
- Ranked among the top 200 in the Mora Kings BLITZ International Open Rating Chess Tournament (2024), demonstrating strategic thinking and focus.

Research Projects

Improving Low-Level Isolation of Containers using microkernel Architecture **Feb 2024 – Present**
- Investigating the architectural differences between microkernels and monolithic kernels to enhance container security.
- Conducting an in-depth analysis of containerization mechanisms in the Linux kernel.
- Proposed and designed a novel containerization architecture within the GNU/Hurd operating system, leveraging the GNU/mach microkernel to ensure enhanced security, reliability, and modularity.

Dehati **Feb 2024 – Present**
- Developing a Decentralized Encrypted Host-based Application-level Tunneling Infrastructure to enable secure and private peer-to-peer communication using IPv6.
- Leveraging Golang, the LibP2P-go framework, thread-safe data structures, and Go-channels for a robust and scalable implementation.
- Addressing challenges such as peer unavailability, offline message handling, multi-threaded processing, decentralization risks, potential message loss, and ensuring anonymity within the network.
- Achieved a 60%–80% success rate in ensuring offline message delivery, enhancing system reliability.

Projects

Postgraduate Program Review (PGPR) System **June 2023 – Sep 2023**
- Developed PGPR, a web application designed to streamline and automate postgraduate program review process in Sri Lankan universities.
- Originated as a proof of concept for the Quality Assurance Center (QAC) at the University Grants Commission (UGC), supervised by Prof. K.P. Hewagamage.
- Employed Laravel, React, Material-UI, and MySQL within a robust three-tier architecture.
- Enhanced functionality by integrating Google APIs for seamless Google Drive interaction, implementing dynamic forms, and efficiently managing hierarchical workflows for proofing and reviewing.
- Optimized overall process efficiency by doubling the review process speed than manual process.

Tea Subsidy System **April 2022 – April 2023**
- Automated the government process of disbursing subsidies to tea farmers and landowners in Sri Lanka through the Tea Subsidy System.
- Learnt how high-level web frameworks operate and abstract complex & repetitive things to easier and faster web development.
- Built a custom MVC architecture-based web framework using PHP and JavaScript to implement the system.
- Ensured clean and maintainable code by adhering to OOP principles and applying SOLID design principles.

Cee-Lightning Server **June 2024 – Dec 2024**
- Designed and developed Cee-Lightning Server, a lightweight web server akin to Apache, capable of serving both HTML pages and JSON responses as an API, implemented entirely in C.
- Initiated as an open-source project to gain a deeper understanding of web server operations and the complexity of socket handling, port binding, multithreading, and resource management across different protocols.

References

Dr. Chamath Keppitiyagama
- Head of the Department of Computation and Intelligent Systems, Senior Lecturer at UCSC
- cik@ucsc.cmb.ac.lk

Mr. Tharindu Wijethilake
- Lecturer at UCSC
- tnb@ucsc.cmb.ac.lk