Ramath Perera
Computer Science Undergraduate

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ABOUT ME

A dedicated Computer Science undergraduate building a strong foundation in software development. My technical experience includes full-stack web development. I gained valuable hands-on experience as a Software Engineer Intern, applying performance optimization techniques, and collaborating in an Agile environment. With a passion for continuous learning and a commitment to high-quality work, I am eager to contribute to impactful projects as a future Software Engineer.

EDUCATION

University of Colombo School of Computing   **May 2022 - Present**
B.Sc. (Hons) in Computer Science, (Undergraduate)   *(Will be completing by May 2026)*
    Current GPA - 3.5055

Piliyandala Central College   **Jan 2012 - Aug 2020**
    GCE Advanced Level - 2As 1B - Z Score 1.7006   *2020*
    GCE Ordinary Level - Pass with 9 As   *2017*

WORK EXPERIENCE

Talentfort (Pvt) Ltd
Software Engineer Intern   ***Nov 2024 – May 2025***

- Developed frontend modules for an enterprise Health Information System (HIS) to handle patient data and hospital records.
- Built a custom appointment calendar with daily, weekly, and monthly views from scratch without using any third-party UI libraries.
- Optimized frontend performance using lazy loading and React memoization techniques (useMemo, useCallback) to reduce load times for heavy views.
- Created reusable input components with built-in validation rules for handling different types of user data accurately.
- Improved the responsiveness of web layouts using TailwindCSS to ensure they work correctly on desktop, tablet, and mobile screens.

SKILLS

Programming Languages: JavaScript | Python | C | C++ | TypeScript | PHP | R | Scala

Web Development: React | Node.js (Express) | TailwindCSS | Next.js | NestJS

Databases & ORM: MySQL | MongoDB | PostgreSQL | Sequelize | Prisma

Other Technologies: GIT | Postman | Linux | Figma | Trello | AWS S3

PROJECTS

Detection and Classification of Fileless Malware 🔗   **June 2025 - Present**

Developing a two-stage ML framework to detect and classify fileless malware using Electromagnetic Side-Channel Analysis (EM-SCA). Utilizing a HackRF One SDR and Log-Periodic antenna to capture CPU EM emissions. Implementing signal preprocessing using STFT (Short-Time Fourier Transform) and dimensionality reduction via PCA.

Python | Software-Defined Radio (SDR) | GNU Radio Companion

Aqua - Smart Water Management System 🔗   December 2025 - Present

A full-stack IoT simulation platform designed to detect hidden water leaks in residential lines and provide real-time usage visibility and billing predictions. Developed a background engine using Worker Threads and **Node-cron** to handle complex simulation math and **scheduled tasks** without blocking the main API. Implemented automated data rollups to summarize minute-by-minute usage into daily records to ensure database efficiency.

NestJS | Next.js | PostgreSQL | Prisma ORM | Nodemailer

Concurrent Low-Level HTTP Web Server 🔗   June 2025 - July 2025

Built a functional, low-level HTTP web server in C using Sockets. The server handles multiple client connections simultaneously using a multi-process model with `fork()`. Integrated PHP execution through the Common Gateway Interface (CGI) using pipes and process redirection. Optimized performance using the `sendfile()` system call and implemented path sanitization to prevent directory traversal attacks.

C | Socket Programming | Unix Process Management | PHP-CGI

DreamWed - Wedding Planning System 🔗   June 2024 - December 2024

A robust marketplace platform that simplifies the wedding planning process by connecting clients with service providers. It offers personalized planning tools, budget management, and real-time chat between users.

Contribution: Developed the secure authentication system using **JWT** and implemented Role-Based Access Control (RBAC) to protect user data. Also worked on frontend modules for service provider packages and client budget planning.

React | TailwindCSS | Node.js (Express) | MySQL | MongoDB | Sequelize ORM

ReadSpot - Online Book Community 🔗   June 2023 - April 2024

A versatile, community-focused platform for buying, selling, exchanging, and donating books. It includes a vibrant literary hub with event hosting and book challenges.

Contribution: Worked on frontend and backend development for book handling, guest user access, and content handling. Developed logic for event saving and community interaction features.

HTML | CSS | JavaScript | PHP | MySQL

VOLUNTEERING

Rotaract Club - UCSC
Community Services Avenue Member | 2023 -2024
I have actively supported various impactful projects, including sea turtle conservation, blood donation, and community support initiatives. These experiences have enriched my skills in project management, teamwork, and community engagement.

Andromeda Astronomical Society - Piliyandala Central College
President | 2019/2020

Organized the 2019 annual night sky observation camp for all students of the school after a four year gap. Conducted a solar observation camp and facilitated public viewing of the 2019 annular solar eclipse in Jaffna. Participated in astronomical quiz competitions, where we won notable places.

ACHIEVEMENTS

○ Finalist | ReidXtreme 3.0 Hackathon (ACM UCSC) – 2024
○ Finalist | Codefest Algothon (SLIIT) – 2023
○ Finalist | Fresh Hack 3.0 Hackathon (ISACA UCSC) – 2022
○ Silver Medal | Sri Lanka Astronomy and Astrophysics Olympiad – 2019
○ Bronze Medal | Sri Lanka Junior Astronomy Olympiad – 2015

REFERENCES

Dr. Asanka P. Sayakkara
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University of Colombo School of Computing
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Mr. Janitha Ratnayake
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