Akassharjun Shanmugarajah

SOFTWARE ENGINEER

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Personal Profile

A software engineer with 2+ years of experience who is passionate about building software solutions and specialises in back-end technologies. He likes studying cutting-edge technology and designing user interfaces in his free time. Primarily seeking opportunities to advance his knowledge in this domain by pursuing a Masters.

Work Experience

Circles.Life
Colombo, Sri Lanka

Software Engineer
Jul 2022 - Present

Circles.Life is a mobile virtual network operator offering a SaaS-based 'Digital Telco as a Service' to telcos around the world. I primarily work as a Back-end Engineer in the Telco domain for the team managing the digital sub-brand "povo2.0" under KDDI.

- Responsible for the upkeep and implementation of new features of vital Telco functionalities such as port-in/port-out, product subscription, notifications, middlewares, customer management portal, and customer operations.
- Contributed to the delivery of various Telco-related product items with zero P1/P2 incidents.
- Streamlined the codebase for a core service by eliminating outdated code and upgrading the Node version from v8.11 to v18.14. This initiative not only enhanced overall performance but also led to a remarkable 10-minute reduction in the CI/CD pipeline.
- Worked on manual/automatic recovery capabilities for customer onboarding and product subscription journeys.
- Implemented idempotency in RESTful API services across the Telco domain for operational seamlessness.
- Contributed towards improving observability through the enablement of distributed tracing and the improvement of logging capabilities. Identified and addressed bottlenecks in the system to increase availability, proposing and implementing improvements as needed.
- Hands-on experience in on-call responsibilities such as real-time troubleshooting within the production environment to consistently meet SLA targets and conducting Postmortems and Root Cause Analyses (RCAs).
- **Technical Skills:** Javascript, NodeJS, Golang, Python, Mongo, MariaDB, RabbitMQ, Redis, RESTful APIs, gRPC, Git.
- **Soft Skills:** Adaptability, Communication, Logical thinking, Time management, Interpersonal, Presentation skills.

ThinkSmart Solutions
Colombo, Srilanka

Associate Software Engineer | Part Time
Jun 2021 - Jul 2022

ThinkSmart Solutions is a leading IT company, their flagship product TapOne (formerly Eat Meal First) is a trending multi-purpose app that assists users with travel needs, food delivery, and cargo delivery. I joined the company as an intern and continued working there after my internship as a part-time ASE.

- Maintained and developed new features for core services such as ordering, promotion, and payment for EatMealFirst V2.
- Engineered the solution for enabling users to order from multiple merchants with multiple delivery locations.
- Worked on a compensation scheme to reward riders during the difficult times of Sri Lanka's gasoline crisis.

Software Engineering Intern
Jun 2020 - Jun 2021

- Assisted in the migration from EMF V1, a NodeJS monolithic application, to EMF V2, consisting of Golang microservices
- Rewrote the core business logic with Golang, employing a microservices architecture, and substantially improved the performance of the backend services.
- Improved the generation and emailing of invoices to users in EatMealFirst V1
- **Technical Skills:** NodeJS, Golang, Hasura, GraphQL Git.
- **Soft Skills:** Leadership, Time management, Communication, Logical Thinking.

mBrain Technologies
Colombo, Sri Lanka

Freelancer
Aug 2018 - Dec 2018

- Developed an English dictionary application for the Dharmavahini Foundation
- Worked on building an inventory system comprising an Android application and a back-end service to scale the production capabilities of a Bought Leaf factory.
- **Technical Skills:** Java, JAX-RS, Android
- **Soft Skills:** Time management, Communication, Logical Thinking.

Education

Informatics Institute of Technology (affiliated with the University of Westminster)
Colombo, Sri Lanka

BSc (Hons) in Computer Science
Jan 2019 - Nov 2022

- Received the University of Westminster Prize for Outstanding Achievements & All-Round Performance award.
- Graduated with First Class Honours with Industrial Experience.
- Appointed as student batch representative for the 2nd year and assisted with conducting tutorials for the OOP module.
- **Optional Modules:** Object-Oriented Programming (OOP), Advanced Client Side Programming, Server Side Programming, Mobile UX, Mobile Native Development, Enterprise Application Development

University Projects

PeaceMaker: A Mediator for Organisations with Conflicting Interests in Cross-Silo Federated Learning | Final Year Research Project

Informatics Institute of Technology

Colombo, Sri Lanka

Sept 2021 - May 2022

This research investigates how to overcome the self-interested and competitive nature of organisations in a cross-silo Federated Learning which leads to low participation and in turn reduces the effectiveness of Federated Learning. PeaceMaker is an experimental Federated Learning setup that serves as the proof-of-concept for the proposal put forth by the author to address this problem.

- Proposed an enhancement to the existing cross-silo FL flow, which will aid in expanding the applications of cross-silo FL in industrial settings.
- Developed a proof-of-concept for proposed flow and presented it at the viva voce.
- Commended by academic experts for undertaking such a comprehensive theoretical research project at the Bachelors level.
- Contributed towards the Federated Learning domain by publishing an open source library for computing the Shapley Value on GitHub and PyPi.
- **Technical Skills:** Flutter, Python, FastAPI, RabbitMQ, Overleaf, LaTeX.
- **Soft Skills:** Time management, Working independently, Presentation skills, Report writing.

Speculo | Software Development Group Project

Informatics Institute of Technology

Colombo, Sri Lanka

Sept 2020 - April 2021

Speculo is an open source platform that utilises a Deep Convolution Inverse Graphics Network for indexing faces in video footage. Instead of just frames or timestamps, it enables the user to navigate through CCTV tape by using the faces detected as indexes. This technology is especially useful in situations such as crime investigations as it aids in speedier identification.

- Designed the architecture for the back-end microservices for the entire system.
- Developed the essential services for the back-end and ML pipeline such as the API gateway, image pre-processor, and video downscaler.
- **Technical Skills:** Python, NodeJS, Typescript
- **Soft Skills:** Presentation skills, Leadership, Teamwork, Logical Thinking.

Clubs, Societies & Volunteering

IEEE Computer Society of IIT

President

Colombo, Sri Lanka

Sept 2019 - Sept 2020

- Organised CodeRally, a free-for-all coding competition for undergraduates and keen programmers. The idea behind this was to encourage students to hone their programming skills, solve challenging problem sets, and get a chance to interact with their peers. The event was a success with over 60 participants from different universities.

Rotaract Club of IIT

IT Director

Colombo, Sri Lanka

Jun 2019 - Sept 2019

- Developed the main website for the IIT Game Festival, an annually organised gaming competition between different universities.
- Developed a counter application for Hotdog Showdown, a food eating challenge organised to raise funds for charitable donations.
- **Technical Skills:** WordPress, Android, and Git.

Google Developer Group of Sri Lanka

Technical Volunteer

Colombo, Sri Lanka

Oct 2019 - Nov 2019

- Developed the official application for DevFest Sri Lanka 2019 to track and view more information about the agenda of the event.
- **Technical Skills:** Flutter.

Hacktoberfest Sri Lanka

Speaker

Galle, Sri Lanka

Oct 2019

- Volunteered to give a talk on "How to get started with Flutter" for the school students at the Richmond College.

Overall Skills

Programming	Golang, JavaScript (NodeJS), Python, Typescript, C#, Java, Swift, Rust.
Frameworks	ExpressJS, FastAPI, jQuery, Flutter, Android
Database	MySQL, Mongo, Redis
Tools	Jenkins, Jira, Git, Bitbucket, Docker, NewRelic, OpsGenie
Technical Skills	RESTful API, gRPC, GraphQL, Linux, Shell (Bash/Zsh), LaTeX(Overleaf), Firebase.
Soft Skills	Time management, Teamwork, Problem-solving, Documentation, Presentation.

Publications

[1] I. Piyarisi, D. Piyadigama, V. Rajapakse, A. Shanmugarajah, N. Samaranayake, and K. Shamika. Speculo: Pattern Recognition with a Deep Convolutional Inverse Graphics Network for Face-Indexing. In *2020 IEEE International Conference for Innovation in Technology (INOCON)*, pages 1–4, 2020.