Adarsh Liju Abraham

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ACADEMIC QUALIFICATION

Bachelor of Technology in **Computer Science Engineering**, PES University (PESU); May'24

WORK EXPERIENCE

System Engineer, **Twospoon Technologies, Bengaluru**   *Oct'24 - Present*

Twospoon is a growing technology services company that focuses on building reliable, scalable, and modern solutions for businesses across different domains.

- Developed highly scalable Flask-based APIs handling 100K+ daily requests for a ReactJS frontend
- Architected and implemented microservices reducing deployment time by 40%
- Designed and implemented SNMP-based network monitoring systems integrated with Grafana/Prometheus and Checkmk, maintaining 99.9% uptime across critical services and infrastructure
- Implemented comprehensive automation solutions reducing manual operations by 80%.
- Built a lot of industry automations for deployment of high-performance codebases and scripts and reduced manual intervention.
- Built reusable deployment scripts and automation templates to standardize the rollout of high-performance codebases, improving deployment speed and consistency across projects
- Collaborated cross-functionally with frontend and product teams to align infrastructure improvements with business goals, improving overall system responsiveness by 30%
- Conducted regular performance tuning and profiling of backend APIs, reducing average API response times by over 200ms under peak load
- Documented infrastructure and workflows thoroughly, enabling faster onboarding of new engineers and better incident response
- Ensured production systems adhered to security best practices, including API authentication, log auditing, and patch management

Python Engineer, **Caliper Business Pvt. Ltd, Bengaluru**   *May'24 – Oct'24*

Supply chain startup giving tech services an products to FMCG companies

- Developed and maintained REST APIs using Django and Django REST Framework
- Built scalable Pandas-based APIs processing 1M+ records daily for data analytics
- Automated complex Excel workflows, reducing manual processing time by 70%
- Optimized backend performance, reducing API response time by 60%
- Scaled existing projects to support 5 new enterprise clients

INTERNSHIPS

Developer & Analytics Intern, **Caliper Business Pvt. Ltd, Bengaluru**   *Feb'24 - May'24*
- Developed backend infrastructure for a planner application using Django, reducing response time by 40%
- Designed an intuitive frontend interface with ReactJS, improving user engagement by 25%
- Integrated AI models for demand prediction, achieving 85% accuracy in forecasting and supply chain analytics
- Worked on Demand Forecasting and Warehouse Business Analytics

SME Lecturer, **PESUIO, Bengaluru**   *Jun'22 - Sep'23*
- Taught Linux fundamentals and command-line tools to 20+ students with 90% course completion rate
- Conducted hands-on sessions on basics of Linux and Shell scripts, Kernel modules and system programming
- Led discussions on FOSS principles and Linux system concepts, fostering a learning community

Research Intern, **CHIPS, Bengaluru**   *May'22 - Jul'22*

Research into deep tech and server related hardware optimizations

- Conducted research on Manycore RISC-V architecture, focusing on parallel computing optimization

- Evaluated various RISC-V architectures to identify optimal design features for high-performance computing
- Benchmarked OpenMP and MPI implementations to derive performance insights

ACADEMIC PROJECTS

Title: Project Turtle
Team size: 2
Summary: Developed a shell script for streamlined installation of essential tools on Linux systems. Implemented error handling and rigorous compatibility testing across multiple distributions. This project was part of hacktoberfest and more people contributed to the code. It was used to bootstrap a lot of tools on Linux servers and workstations.

Title: Yet Another Markdown Converter
Team size: 1
Description: Designed a Command Line Interface(CLI) tool to convert Markdown files to plain HTML. This versatile tool not only facilitates the conversion of Markdown-formatted documents into HTML but also offers additional theming and styling options. Users can customize the appearance of the HTML output generated according to their preferences, enhancing the visual presentation of the content. The CLI nature of the tool ensures ease of use in a terminal environment, providing users with a flexible and automated solution for Markdown to HTML conversion.

Title: DoctorPres
Team size: 1
Description: Developed a Doctor Prescription System to replace handwritten prescriptions with a digital solution. The dataset for medicines and diseases utilized in this research was sourced from an official Indian Government website. It utilizes Streamlit for a user-friendly interface and a MySQL database for robust data storage. The system allows doctors to electronically issue and manage patient prescriptions and bills. Key database tables include information on doctors, patients, medicines, and billing. It incorporates advanced database features like triggers for data validation and procedures for complex queries. The project aims to create a fast, responsive, and scalable digital prescription platform.

Title: Capstone Project (Final Year Project)
Team size: 4
Summary: Created a secure platform for Dapps by integrating a blockchain, establishing a decentralized, tamper resistant system enhancing network security. An ONOS controller cluster was created to eradicate the single point of failure. Rigorous evaluation will gauge performance, security, scalability, highlighting blockchain's potential in addressing security challenges.
SDN offers flexibility and programmability but lacks in providing robust application security

PUBLICATIONS
- **ONOS SDN Framework: Assessing the Impact of Single and Multi-Controller Architectures on Network Efficiency,** *Published at SmartCom 2024 (Springer)*
  - Assessed SDN-integrated alarm systems using Cooja simulations to improve disaster response efficiency.
  - Compared RPL and SDN protocols, proposing solutions for IoT network challenges.
- **Enhancing Disaster Response: A Study on SDN-Integrated Alarm and Alert Systems Using Cooja Simulations,** *Published at NKCON 2023 (IEEE)*
  - Analyzed ONOS and Mininet in SDN, comparing single-controller and multi-controller architectures.
  - Evaluated performance metrics like latency, throughput, scalability, and fault tolerance.

WORKSHOPS
- Conducted a workshop on 'Linux, Git and Open-Source Contribution' for Hackerspace Club, held at PES University, Jan 2023
- Conducted a Golang workshop for Hackerspace Club, held at PES University, Feb 2023

TECHNICAL SKILLS
- Languages: JavaScript, Python, C, C++, PHP, Shell (Bash), MySQL, Golang (Basics)
- Systems: Linux, SQL, Docker, Kernel Programming
- Computer Fundamentals: DBMS, Operating Systems, OOPS, Web Development
- Frameworks & Tools: Django, ReactJS, Git, AWS, Flask, Pandas, Unix/Linux Tools, OpenMP, MPI, SNMP

EXTRACURRICULAR ACTIVITIES & ACHIEVEMENTS
- Mentored aspiring students as a key figure in the HackerSpace Club, arranging numerous hackathons and providing guidance to foster innovative projects and skill development.
- Attended many FOSS club presentations and hackathons as part of my hobby
- Led a capstone project, managing timelines and fostering collaboration for successful implementation.