Waterloo, Canada
mail@tejasvi.dev
https://tejasvi.dev
pct
pct960
TejasviKashi

Tejasvi (Tej) Kashi

Summary of Qualifications

- 4 years of strong experience in architecting, developing and deploying high-performance, large-scale systems. Developed a scalable IoT middleware using Vert.x, RabbitMQ, Elasticsearch and PostgreSQL that was capable of handling over 140,000 HTTPS requests per second.
- Proven experience with SQL and NoSQL database systems like CockroachDB, PostgreSQL, Elasticsearch and MongoDB. Masters thesis work is in eventual durability of transactions in ACID database systems.
- Strong experience with reactive programming using Vert.x. Reduced a Java project's codebase size by $\approx 40\%$, and improved speed by $\approx 20\%$ by rewriting imperative code in reactive style.
- Worked under a cybersecurity expert, and contributed to developing the Authentication Authorisation and Accounting (AAA) module for a large, government-funded project.
- Familiarity with CI/CD tools like Travis, Jenkins and GitHub Actions.

Education

2021 – Now **MMath in Computer Science, Thesis-based**, *University of Waterloo*, Waterloo, Canada
4.0 GPA, Average – 93.25%

2014 – 2018 **B.Tech in Computer Science**, *Faculty of Engineering*, *Christ University*, Bangalore, India
3.93 GPA, Graduated first rank with a Gold Medal.

Work Experience

2020 – 2021 **Senior Software Engineer**, *ARTPARK*, *Indian Institute of Science*), Bangalore
Lead a small team in building a large-scale data collection and analytics platform using confidential computing. Key responsibilities included: End-to-end delivery of software products - development, testing, code reviews, deployment and monitoring.

2018 – 2020 **Technical Associate**, *Indian Institute of Science*, Bangalore
Extensively worked on backend systems, performance optimisation of APIs and security. Key responsibilities included: Development of high-performance IoT middlewares, containerisation and automation of microservices, and building extract-transform-load pipelines to ingest data from smart-city applications.

Internships

Winter 2017–18 **Intern, Middleware Security**, *Indian Institute of Science*, Bangalore
Developed an "Intrusion Detection and Prevention System" for an IoT middleware platform that was capable of preventing DoS attacks and some kinds of exploits. Built using Fail2ban, Python, Ansible, GoLang and Lua.

Summer 2017 **Intern, Database Systems**, *Indian Institute of Science*, Bangalore
Thoroughly evaluated various NoSQL databases for the persistence layer of an IoT middleware.

Notable Projects

- ***XRaySetu***: In the core team that developed XRaySetu - a free, WhatsApp based service that can identify Covid-19 and related maladies of lungs from chest X-Ray images. This work was featured in NDTV, CNBC-TV18, India Today and other major Indian news networks.
- ***COVID-19 Suspect Tracing***: Lead a team of 5 people, and collaborated with governments, start-ups, large companies and research institutes in developing an app developed for tracing high-risk COVID-19 suspects.
- ***Aarogya Setu Anonymisation***: Developed an anonymisation framework to mask personally identifiable information from the Aarogya Setu self-assessment chat dataset. Found a way to execute an $\mathcal{O}(n^2)$ problem in $\mathcal{O}(n)$ by using a novel representation technique. Brought down the execution time of the tool from several hours to under three minutes to process roughly ten million records per day.
- ***Indian Urban Data Exchange (IUDX)***: Was involved in the core team which was developing a common data exchange platform for smart cities in India. This project was funded by the Govt. of India. IUDX is deployed in-production in over ten Indian cities.
- ***Vermillion***: A scalable and highly-available IoT middleware for smart cities, built for speed and responsiveness. It was capable of handling around 140,000 HTTPS requests across 12 nodes. This was deployed as a part of the IUDX stack.

Skills

- Extensive experience with building large-scale, end-to-end message-queue-based middleware systems. Strong understanding of large scale architectural, deployment and security needs.
- **Databases**: Elasticsearch, PostgreSQL, CockroachDB, MongoDB. **Tools**: Docker, Docker Swarm, RabbitMQ, Redis, Ansible, Jenkins, Travis. **Languages**: Java, Python, SQL and Bash. **Platforms**: AWS and DigitalOcean.
- Strong knowledge of the git version control system.

Achievements

- Received the International Masters Award of Excellence scholarship along with full funding to pursue MMath CS at the University of Waterloo.
- Co-authored four published Bureau of Indian Standards documents on smart city reference architecture and APIs - Unified Digital Infrastructure - ICT Reference Architecture (UDI-ICTRA) IS 18000 : 2020, Unified Digital Infrastructure - Data Layer Part 1 Reference Architecture IS 18002 (Part 1) : 2021, Unified Data Exchange Part 1 Architecture IS 18003 (Part 1) : 2020, Unified Data Exchange Part 2 API specifications IS 18003 (Part 2) : 2021.
- Won a paid trip to RabbitMQ Summit 2019 in London - sponsored by CloudAMQP and the Indian Institute of Science. This was featured in the Cyber-Physical Systems website of IISc.
- "Outstanding Academic Performer" award conferred by Christ University for academic achievements during my undergraduate course
- Recipient of Merit Scholarship for two consecutive years 2016-18 conferred by Christ University