Manish Shambu

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Current Position

- **Walmart Labs** — Sunnyvale, CA USA
  Sr Software Engineer — *April 2021 - Present*
  - Millions of product creates and updates flow into the catalog and item setup system every hour. I work in the product grouping microservice.
  - Optimised code to generate both high quality and higher aggregated product grouping. This brought efficiency in search, pricing, offers, rollups, reviews and and many such downstream microservices. Better accuracy in grouping resulted in better search experience and increased GMV of the products.
  - Involved in a core architectural change and migration of catalog item setup, which increased the grouping performance by 50%. Evaluated multiple trade offs within these distributed asynchronous systems to significantly bring down the item setup SLAs.
  - Developed various spark scripts to crawl existing grouping data for analysis and fix/identify errors.
  - Configured and setup alerting dashboards on splunk and grafana for monitoring and benchmarking the performance.

Technical Strengths

- **Languages and Libraries**: Python, Java, JavaScript, C, Go, Linux, Shell, SQL, scikit-learn, numpy, NLTK
- **Other Tools and Frameworks**: Airflow, Redis, Docker, Kubernetes, REST, Hadoop, Spark, Apache Kafka, AWS, ELK stack, Lambda, Git, Unix, Raspberry Pi, Cassandra, Flask, Jenkins, JMeter, Maven, Gradle, Solr, Yugabyte DB

Professional Experience

- **Visa Inc** — Denver, CO USA
  Sr Software Engineer — *July 2019 - March 2021*
  - **BOLTMAP**: Built an anomaly detection pipeline to detect anomalies in payment transaction failures. Complete ownership in scaling up the pipeline from 8 to 256 merchants using apache-airflow.
  - **BOLT 2.0**: Developed a federated anomaly detection data pipeline from scratch. Multiple product teams can utilise this framework to plug their data to elastic cloud for their anomaly detection needs. Onboarded more than 36 customers. Architectured for exponential scaling.
  - **Auto Detection of change categories**: Developed a hybrid approach to automatically classify change incidents. Used unsupervised ML algorithms such as RAKE, YAKE for keyword extraction and NLTK extensively.
  - **Rules Engine Service**: Backend development for a self service application portal. Gives complete autonomy and control to an user to manage and control rules. Extensive usage of Drools framework.
- **Oracle** — Bengaluru, India
  Software Developer — *Jun 2015 - Jul 2017*
  - **Diameter Signaling Router (DSR)**: DSR is a signalling infrastructure used in 4G LTE networks that centralises routing, traffic management and load balancing.
  - I developed DSR's Network Function and Orchestration feature using OpenStack.
  - My primary role was to build the elastic scaling functionality, cloud deployment of DSR on OpenStack and proprietary PMAC clouds.
  - Developed north bound interfaces for DSR to ACME Packet's FCAPS capability for automated management and configuration.

Selected Project Work

- **Drone assisted car parking**: Simplified car parking using drones. A drone captures a snapshot of the parking space, identifies empty spaces and guides a car to the empty parking spot
- **Byzantine Chain Replication**: Architectured and built a Byzantine Fault Tolerant system with 2f + 1 replicas
- **Crash Tolerant system using RAFT**: Built a crash tolerant stack data structure using the open source RAFT based consensus
- **Big Data - Flight delay statistics**: Display flight delays while booking a flight. The delays are calculated using past data for more than 10,000 flight routes.

Education

- **University of Colorado at Boulder** — Boulder, CO
  Master of Science in Computer Science; GPA: 3.88/4.0 — *Aug. 2017 – May. 2019*
  - Coursework: Machine Learning, Data Center Scale Computing, Advanced Algorithms, Distributed Systems, High Performance Scientific Computing, Natural Language Processing, Internet of Things

- **PES University** — Bengaluru, India
  Bachelor of Engineering in Computer Science; GPA: 8.44/10.0 — *Aug. 2011 – July. 2015*
  - Coursework: Analysis and Design of Algorithms, Computer Networks, Operating Systems, Data Structures, Unix System Programming, Database systems