Kavya Shekar

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Master's Computer Science (Thesis) – Virginia Tech, Blacksburg | **GPA:** 4/4 Aug. 2024 – Present
Relevant Coursework: Advanced Operating Systems, Network Arch & Protocols
Bachelor's Computer Science – PES University, Bangalore | **GPA:** 9.48/10 Aug. 2018 – Jun. 2022
Relevant Coursework: Big Data, Computer Architecture, Data Structures & Algorithms

Technical Skills

Languages & Frameworks: C, C++, Scala, Java, Python, Golang, Springboot, Flask, Linux Shell Scripting
Tools: Git, Docker, Nginx, GCP, Kubernetes, Prometheus, Kafka, MySQL Debezium, Apache Spark, Airflow
Concepts: Linux kernel modules, eBPF, Memory and Network subsystem, Event-Driven Architecture
Databases: RocksDB, MySQL, Aerospike, MongoDB, Apache Iceberg

Experience

Groww | Software Development Engineer II Jul. 2023 - Jul. 2024
- Led the end-to-end architecture and development of a scalable Customer Engagement Platform, including an Apache Spark-based personalization engine and Springboot-based microservices, enabling personal notification (PNs) delivery to a **20M+ user base** and improving user engagement CTR by **26%**.
- Drove adoption and cross-functional collaboration with Product, Engineering, and Marketing teams, enabling data-driven personalized targeting for high-impact user journeys and reducing manual campaign efforts by **50%**.

Groww | Software Development Engineer Jun. 2022 – Jul. 2023
- Built high-throughput data ingestion pipelines using Spark engine and Kafka–Aerospike connector, capturing **millions** of CDC (*Change Data Capture*) events/sec from production databases.
- Deployed SpringBoot microservices with multithreaded execution and caching strategies to serve the real-time updates to user-facing services with **latency of less than 1ms**.
- Optimized RocksDB to serve over **300GB of data** with high-throughput and sub-millisecond latency by fine-tuning configuration parameters and implementing data sharding across Kubernetes pods.

Groww | Software Development Intern Jan. 2022 - Jun. 2022
- Built and open-sourced a custom Grafana RBAC controller to automate the updation of user roles to organizations - **completely eliminating the manual efforts of on-calls.** | Blog | GitHub
- Setup distributed monitoring and logging stack (Prometheus, Grafana and Loki) across all environments, allowing for ease of metrics usage in a single place. Setup istio-based canary deployment and traffic routing in production.

Academic Projects

SchedBPF: Scheduling eBPF Programs | *eBPF, Kernel modules* May. 2025
- Designed kernel thread scheduler framework for periodic eBPF program execution – aiming to improve kernel extensions use-cases with fine-grained CPU control, kernel safety, and minimal overhead.
- First author of a workshop paper accepted at **ACM SIGCOMM '25.** | DOI
- Future work includes exploring various kernel customization opportunities like custom network transport protocols (TCP/IP) and memory policies. Attempts to protect against CPU timings attacks in TEEs are also being explored.

Linux Page Table Walker | *Page tables, C++* Mar. 2024
- Implemented Linux page table walker as a Linux kernel module. Created visualization scripts for analyzing page layout and memory address translation latency for various allocation schemes, kernel configs & page temperatures.

Beekeeper: Avoiding Split Dataplanes with Persistent eBPF extensions | *eBPF, memcached* Dec. 2024
- Beekeeper is an implementation of persistent eBPF data structures to achieve stateful dataplane components.
- Worked as a second author for implementation and evaluation of persistent eBPF maps on BMC memcached & Electrode, which **increases memcached throughput by 111.46%**.

2 Phase Commit Protocol | *Distributed systems, C++* May. 2021
- A design pattern project that implements 2PC protocol - a consensus protocol which co-ordinates processes participating in distributed atomic transaction, using two design patterns — mediator and memento.

Certificates & Awards

- Associate Cloud Engineer : Google Cloud
- CNR Rao and MRD award PES University : ranked in top 2% of the CSE department
- Best Infra Award — GCS cost optimisation : Groww Hackraft 2023