

AKSHATA SANGWAI

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🐙 github.com/AKSHATA-22

EDUCATION

University of Massachusetts, Amherst
Master of Science in Computer Science

Sep. 2023 – May 2025
Amherst, MA

University of Mumbai
Bachelor of Science in Computer Science

Aug. 2019 – May 2023
Mumbai, India

TECHNICAL SKILLS

Programming Languages: Java, Python, C, C++, SQL, UNIX, Bash, JSON
Frameworks: RESTful APIs, Springboot, Apache Maven, Apache Ant, Hadoop, Django, gRPC, ROS2
CI/CD, Testing & Cloud: Git, JIRA, Confluence, Agile, Mockito, JUnit, Postman, AWS, Docker
Databases: MySQL, DynamoDB, MongoDB, PostgreSQL, SQLite, Cassandra, Hive
Tools: Linux, Kafka, Lambda, Cloudwatch, Bedrock SDK, Microservices

ACADEMIC COURSES

Distributed Systems, Advanced Algorithms, Advanced Machine Learning, Neural Networks: A Modern Introduction, Computer Networks and Security, Algorithms for Data Science, Software Engineering, Operating Systems

EXPERIENCE

CRYPTCUBE

SWE Intern

May 2024 - Current
Remote

- Developed a Caching Service using **Lambda** and **Titan embeddings** to store Bedrock responses, reducing Bedrock API calls and cutting costs by an estimated 40%. Implemented user registration with **JWT** and **OAuth2** for secure and scalable user authentication.
- Created Lambda-based monitoring and inference services on **Kafka** using the **AWS Bedrock SDK** to optimize backend performance.
- Built and deployed a web scraper with a **Cron job** to dynamically update metadata, streamlining new social media app support.
- Designed backend services and controllers using **SpringBoot** and **Maven**, ensuring scalability in a microservices-based architecture.

ADVANCED NETWORK SYSTEMS RESEARCH LAB

Research Assistant

Feb. 2024 – Aug. 2024
UMass, Amherst

- Implemented Eventual, Causal, and PRAM Consistency using a DAG-based asynchronous coordination protocol with vector clocks, utilizing NIO for packet transfer and **Apache Ant** for development.
- Created a Coordinator for client-centric consistency using read/write sets and vector clocks, expanding scope of the system.
- Validated communication protocols using **Bash scripts, logging, and JUnit testing**, ensuring correct packet handling and output.
- Added checkpoint and restore functionality, state transfer via sockets, and liveness tracking, increasing fault-tolerance by 70%.

UNBOX ROBOTICS

Backend Developer Intern

July 2022 – March. 2023
Remote

- Integrated a Configuration Management System that automated synchronization of client-side application changes with robot services, reducing operational costs by 35%, and deployed it using **Docker** ensuring it was spawned first in deployment scripts.
- Refactored and restructured the codebase from ROS1 to **ROS2** in existing modules, improving system performance by over 25%.
- Developed and integrated a prototype for the barricading system using **gRPC**, increasing customer ease of use by 40%.

CODEMISCHIEF SOLUTIONS

Backend Developer Intern

Dec. 2021 – Feb. 2022
Vashi, India

- Developed REST-based microservices and controllers using **SpringBoot** to automate the tracking of patient information for hospitals.
- Designed and optimized database architecture in **MongoDB** for healthcare data, improving query response times by 40% through indexing strategies and reducing storage overhead by 20% via schema optimization.
- Created notification services to automate appointment reminders and follow-up messages, integrating SMS, email APIs, and Google Calendar for seamless scheduling, which improved patient engagement and reduced no-show rates by 30%.
- Participated in **design and code reviews**, contributing to the improvement of code quality, troubleshooting complex issues.

PROJECTS

DistStore: A Distributed Storage System | *Java, Maven, Zookeeper, Cassandra*

Aug 2023 - Dec 2023

- Built a fault-tolerant replicated datastore application using Java and Apache Zookeeper for coordination.
- Ensured consistent read-write operations for over 1000 requests in a distributed server-side setup with multiple multithreaded clients.

Real-Time Log Analysis System | *Hadoop, Spark, Kafka, AWS CloudWatch*

Jan 2024 - May 2024

- Developed a system that fetches server logs from AWS CloudWatch and processes them using Apache Hadoop and Spark, ensuring real-time insights and anomaly detection. Created a dashboard to visualize key metrics and anomalies.
- Ingested logs via Apache Kafka and stored them in HDFS, utilizing Spark Streaming for analyzing log data and generating reports.

Efficient Knowledge Distillation | *Python, PyTorch, DNN, Knowledge Distillation*

Sept 2024 - Dec 2024

- Designed and trained a student model that approximates the performance of a larger teacher model while significantly reducing computational and memory requirements. The evaluation metric used is compression ratio vs performance gap.

Publication: Eye(l) still know! [link](#)

IJMER, 2021

Publication: Barricading System - System communication using gRPC and Protocol Buffers [link](#)

ICNTE, 2023