Dhanush Ravuri

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EDUCATION

The University of Massachusetts, Amherst Aug 2025 - May 2027
Master of Science in Computer Science

Indian Institute of Technology, Roorkee Jul 2018 - May 2022
Bachelor of Technology in Mechanical Engineering

EXPERIENCE

Flipkart Internet Private Limited | Walmart Inc Subsidiary Jun 2022 - Aug 2025
Software Development Engineer - II *Bengaluru, India*

Tools and Frameworks : Java, Spring Boot, Spring Reactive, Hibernate, Kafka, Spark, Hadoop Ecosystem, HBase, MySQL, Redis, ElasticSearch, Qdrant, Milvus

○ Implemented a real-time, multi-tenant Spring Reactive application for retrieving top-K similar images through nearest-neighbor search using cosine distance on image embeddings generated by ML models; Leveraged Redis to support retrieval of 500k+ embeddings per request and Kafka for fault-tolerant auditing.

○ Benchmarked Qdrant, Milvus, and ElasticSearch to evaluate vector search performance; Integrated Qdrant for its efficient k-nearest neighbor search, reducing p99 from 2000ms to 25ms under 5 QPS load and improving accuracy from 88% to 96%.

○ Upgraded a microservice from Java 8 to 17, refactoring with streams, optionals, lambdas, and records, and migrated the GC configuration from G1GC to ZGC after extensive GC tuning and analysis of JFR dumps, GC logs, and runtime metrics under varying traffic conditions, ultimately resulting in an 13% reduction in latency at BAU QPS.

○ Developed a Spring Boot-based config management service with RESTful APIs, utilising MySQL to store ruleset, feature, and model configs, and implementing config promotions and rollbacks, with role-based access control for user actions.

○ Built a scalable Spark application that enabled analysts to validate updates to business rules, features, and ML models using historical data from HBase, achieving a validation time of 10 minutes for 1 day's data containing approximately 10 million rows, while also supporting concurrent evaluations.

○ Managed the end-to-end datacenter migration of a 480TB Hadoop cluster across 50+ nodes, covering Hadoop, HBase, Hive, Yarn and Zookeeper components. Migrated team-managed HBase to central offering without any downtime, involving 60+ tables, 10+ applications, and over 300 TB of data.

Spur.fit Jun 2021 - Aug 2021
Deep Learning Intern *Remote, India*

Tools and Frameworks : Python, TensorFlow, PyTorch, Keras, OpenCv

○ Improved the accuracy of exercise pose classification models by 10% by building a custom CNN model on top of body keypoints extracted from PoseNet and MoveNet, enhancing the distinction between starting and ending exercise positions, and enabling more accurate repetition counting.

○ Integrated real-time human background segmentation in live workout videos using OpenCV, employing GrabCut and background subtraction to enhance user privacy.

ACADEMIC PROJECTS

Distributed Parallel File System *C++, Distributed Systems, gRPC*

• Developed a parallel file system leveraging gRPC and Protobuf, enabling access across 8+ nodes with file striping for efficient data distribution and supporting file sizes upto 2^{28} bytes under high-concurrency conditions.

• Optimized system performance to support up to 2^{10} concurrent clients and manage up to 2^{16} concurrently open files, by applying token-based synchronization, client-side LRU caching, and multithreaded processing with pthreads.

Pollit.Online Website *Javascript, Node.js, Express.js, MongoDB, Redis, JWT, AWS S3, Firebase*

• Engineered a full-stack polling platform using React, Node.js, Express.js, MongoDB and Redis, allowing users to create, vote on, and explore polls with real-time updates via WebSockets.

• Implemented secure user authentication using JWT, bcrypt, and Firebase Admin SDK; Integrated AWS S3 for file storage and automated deployments via GitHub Actions, deploying services on AWS using Docker containers.

• Created a multi-strategy recommendation system using Collaborative Filtering, Content-Based Filtering, Deep Learning, and Semantic Search (OpenAI), with results ranked via a priority-weighted scoring mechanism.

TECHNICAL SKILLS

Programming Languages: C, C++, Java, Javascript, Python
Tools and Frameworks: Spring, Spring Boot, Spring Reactive, Hibernate, Dropwizard, Node.js, Express.js, Firebase, JUnit, MySQL, MongoDB, Redis, ElasticSearch, Qdrant, Milvus, Spark, Hadoop, YARN, Hive, HBase, AWS S3, Kafka, Zookeeper, Docker, Kubernetes, TensorFlow, PyTorch, OpenCV, Keras, Linux, Maven, Gradle, Git, GitHub

OTHERS

• Secured a grant of $15000 for Pollit.online at 2025 Summer Founders Program conducted at Pennsylvania State University.

• Recognized with the Team Spotlight Award for impactful contributions and milestone achievements at Flipkart.

• Mentored 200+ students in conceptual understanding of Data Structures and Algorithms through regular lectures and one-on-one interactive sessions at during my tenure at 10xAcademy.