Utkarsh Sharma

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Experience

Visa Bangalore, India

Software Engineer *Aug 2025 – May 2026*

- Led the migration of a Java/Spring Boot batch processing service from V1 to V2 APIs, re-architecting the core application to support the new API contract across 25+ integration points while processing 2M+ transaction records per batch cycle.
- Refactored the core application codebase, cutting duplicated logic by 40% and reducing end-to-end batch runtime by 30%.
- Validated the migrated service across dev environments and automated deployment through a Jenkins CI/CD pipeline, reducing release time from 45 minutes to 12 minutes.
- Engineered a Sqoop-to-Apache SeaTunnel migration for a Hive-based Hadoop pipeline, building a custom SeaTunnel source, SQL connector, and sink that replaced the legacy ingestion path for 35+ jobs and improved ingestion throughput by 45%.

Samsung Research and Development Institute Bangalore, India

Software Engineer – Language AI Framework & MDE *July 2024 – July 2025*

- Key contributor to a multi-agent POC for Bixby enhancement in Python, integrating external capabilities over the Model Context Protocol (MCP) via a WhatsApp MCP server.
- Managed and optimized Bixby capsules using JavaScript; added training data that improved command recognition accuracy by 35%.
- Designed Bixby agents using established software design patterns (e.g. Factory, Observer), reducing code redundancy by 40%.

Projects

ProjectThor | *Java, Apache ZooKeeper, Aerospike, MQTT, RabbitMQ*

- Designed and implemented a distributed pub-sub messaging system using Apache ZooKeeper for automated leader election and topic synchronization, ensuring high availability and consistent state management.
- Integrated Aerospike for rate limiting (500+ requests/sec) and RabbitMQ with the Akka actor model for concurrent message processing, improving throughput by 40% while maintaining fault tolerance.
- Built lightweight real-time messaging via MQTT, reducing latency to 5ms for IoT devices across heterogeneous systems.

Aperture — Governed MCP Gateway | *Java, Spring Boot, Kubernetes, Terraform, AWS, OAuth 2.1, OPA*

- Built a governed gateway for the Model Context Protocol that aggregates multiple upstream MCP servers behind a single OAuth 2.1-authenticated endpoint, implementing Streamable HTTP transport with session resumption and protocol version negotiation.
- Implemented capability-level authorization with OPA/Rego policies and a KMS-backed credential broker, so upstream credentials are never exposed to AI clients — mitigating confused-deputy and token-passthrough attacks.
- Added rug-pull detection via cryptographic pinning of tool definitions, plus bidirectional scanning that redacts PII and instruction-injection patterns from tool outputs.
- Provisioned the full AWS footprint (EKS, RDS, KMS, IRSA, Route53) as modular Terraform, with a Java Kubernetes operator exposing MCPServer CRDs for GitOps-managed server registration.

Technical Skills

Languages: Java, Python, C++
Backend & Frameworks: Spring Boot, Akka
Data & Messaging: Hadoop, Hive, Sqoop, Apache SeaTunnel, Apache ZooKeeper, RabbitMQ, MQTT, Aerospike
AI/ML: Model Context Protocol (MCP), LangChain, ChromaDB, Ollama, RAG pipelines
DevOps & Tools: Docker, Jenkins, Git/GitHub, SQL
Core CS: Data Structures & Algorithms, OOP, Operating Systems, System Design
Cloud Infra: AWS (EKS, RDS, KMS, IAM/IRSA, S3, Secrets Manager), Terraform, Kubernetes, CRDs/Operators, Helm, ArgoCD, OPA, Prometheus, Grafana, OpenTelemetry, GitHub Actions

Education

Indian Institute of Technology (ISM) Dhanbad India

B.Tech in Electronics and Communication Engineering *Dec. 2020 – May 2024*