

Atul Singh

Senior Technical Lead

+91-9818078239 | atulsingh.harsh@gmail.com | linkedin.com/in/aquatul | github.com/expedite-atul
atulsingh.io (Portfolio) | Noida, India

Summary

Senior Technical Lead with 7+ years of experience architecting high-scale SaaS platforms. Specialist in Node.js, Microservices, Event-Driven Architecture, and Database Performance Tuning, with a track record of optimizing query latency by up to 300x. Proven leadership of 10+ engineer teams delivering enterprise-grade solutions using Agile/Scrum methodologies on Azure and AWS. Expert in end-to-end product ownership, RESTful API design, and integrating AI-driven efficiencies into production workflows.

Technical Skills

Languages & Frameworks: Node.js, TypeScript, Python, NestJS, Express.js, GraphQL, JavaScript
Databases: PostgreSQL (Materialized Views, GIN Indexes), MongoDB, MySQL, Redis, Elasticsearch
Testing: Jest, Mocha, Chai, TDD, Unit Testing, Integration Testing, E2E Testing, Supertest
Cloud & DevOps: Azure (Event Hub, Blob Storage, Entra ID), AWS (S3, SQS, Lambda, EC2), Kubernetes (HPA), Docker
CI/CD & Tools: GitHub Actions, GitLab CI, JIRA, Commercetools, Algolia, Contentful CMS, Firebase, Keycloak
Security & Auth: OAuth2.0, JWT, RBAC, Entra ID (Azure AD), Keycloak
Architecture: Distributed Systems, System Design (HLD & LLD), Microservices, Event-Driven Architecture, RESTful APIs, SOLID Principles, Design Patterns
AI & LLM Engineering: LLMs, RAG, Model Context Protocol (MCP), LangChain, Google Gemini, pgvector, Semantic Caching, FastAPI

Professional Experience

Senior Technical Lead
Appinventiv

March 2022 to Present
Noida, Uttar Pradesh, India

Project: Quivio (CRM & Core Platform)

- Led a team of 10+ backend engineers using Agile/Scrum methodologies, conducting Sprint Planning, Code Reviews, and System Design sessions via JIRA
- Owned end-to-end product lifecycle for a multi-tenant SaaS platform processing 1M+ events per 5 minutes, enabling real-time marketing automation at scale
- Orchestrated complex marketing campaign workflows using Apache Airflow (Python), ensuring reliable execution and scheduling of targeted user engagement strategies at scale
- Transformed customer segmentation RESTful API performance from 30s to 100ms (300x faster) by designing PostgreSQL Materialized Views with GIN-indexed arrays and migration-aware refresh logic
- Engineered high-throughput Event-Driven Architecture pipeline using Azure Event Hub (32 partitions) with BlobCheckpointStore, achieving 10x capacity headroom and zero-downtime partition rebalancing
- Drove 65% memory reduction and 94.7% cache hit rate by implementing LRU-based tenant connection pooling with reference counting, enabling horizontal scaling to 20 pods
- Implemented OAuth2.0 authentication and RBAC access control using Entra ID (Azure AD) and Keycloak, with JWT token management for enterprise security

Project: Amex Sadad (Payment Gateway)

- Architected and integrated a high-security Payment SDK using Microservices architecture, Node.js, and Oracle DB to provide seamless payment processing for Amex

Project: ECCO (E-commerce Platform)

- Led a team of 2 developers delivering scalable RESTful APIs and GraphQL endpoints for e-commerce features using Commercetools
- Designed and implemented Backend-for-Frontend (BFF) architecture to serve web, Android, and iOS clients with optimized data payloads

Senior Software Engineer
Appinventiv

March 2020 to March 2022
Noida, Uttar Pradesh, India

- Led team of 2 developers delivering Event-Driven Architecture communication systems using Redis Pub/Sub
- Project Toki: Developed backend RESTful APIs for a Super App using Microservices (PostgreSQL, Redis), following SOLID Principles

- Project DeskNow: Built a cloud-based SaaS for office workplace optimization using Node.js, TypeScript, and CI/CD pipelines (GitHub Actions)

Featured Engineering Projects

- AI-Powered Business Intelligence Bot (Query Sense)
- Stack: FastAPI, LangChain, PostgreSQL (pgvector), Google Gemini, Redis
- Architecture: Engineered a 3-Layer Search Engine (Semantic Cache -> RAG -> LLM), reducing recurring text-to-SQL query latency from 1.5s to under 20ms
- RAG Optimization: Implemented query refinement using pgvector and local HuggingFace embeddings to learn domain-specific logic without fine-tuning
- Visualization: Built an intelligent engine that dynamically renders SQL results into KPI cards or charts based on data shape analysis

Education

Bachelor of Technology (IT)
AKTU Technical University

2015 – 2019
Greater Noida, India

Certifications

- MongoDB Certified Developer, Associate (C100DEV) – Issued 2021
- M220JS / M001 – MongoDB Certified Developer & Basics – Issued 2021