

Bhavya Bhatt

Street, City, Country

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PROFILE

A motivated Computer Science student with 2+ years of experience in development, specializing in Java, Spring Boot, and microservices. Skilled in building scalable systems, REST APIs, and optimizing database performance using Kafka, and Elasticsearch. Proficient in cloud-native solutions, with hands-on experience in AWS, and distributed systems. Contributed to core applications at Amazon, Accolite Digital, and Birdeye, writing efficient solutions. Currently pursuing a Master's in Advanced Computer Science at the University of Leicester, further enhancing expertise in cloud computing, cybersecurity, and software quality. Passionate for competitive programming, often engaging in contests to refine DSA and problem-solving skills.

EDUCATION

MASTER OF SCIENCE (MSc)

UNIVERSITY OF LEICESTER, UNITED KINGDOM

Advanced Computer Science

January 2024 – May 2025

Subjects: Cloud Computing, C++, Cybersecurity, Software Management & Quality Assurance

Expected: 76% (Distinction)

BACHELOR OF TECHNOLOGY (B.TECH.)

DHIRUBHAI AMBANI INSTITUTE (DA-IICT), INDIA

Honours: Information and Communication Technology (ICT) | **Minor:** Computational Science

August 2017 – May 2021

Subjects: High Performance Computing, Computer Networks, Databases, ML, Comp. Finance

Aggregated/CPI: 8.12/10 \equiv 81.2%

SKILLS

Programming: Java (Experienced), C/C++ (Proficient), Python, Groovy, SQL, Bash, Git, Data Structures & Algorithms (DSA)

Backend & Development: Spring Boot, Microservices, REST APIs, Kafka, Apache NiFi, Quality Assurance, Scalability, Agile (Scrum & Kanban), TDD

Cloud & Platforms: AWS (Lambda, SQS, SNS, VPC), OpenStack, Docker, Kubernetes (HPA, StatefulSets)

Databases: MySQL, PostgreSQL, MongoDB, Elasticsearch, Aerospike, JPA, Query Optimization, Caching, Indexing

Soft skills: Problem-Solving, Analytical, Collaboration & Teamwork, Leadership, Communication, Adaptability & Learning

EXPERIENCE

BIRDEYE | SOFTWARE BACKEND ENGINEER

September 2022 – December 2023 | Gurugram, India

- Developed a trackable appointment form system using Java, Spring Boot, Kafka, and Apache NiFi, allowing businesses to monitor customer interactions effectively and increasing appointment conversions by 20% through real-time engagement tracking.
- Built a real-time visualization dashboard with Elasticsearch, enabling peers to analyze system performance, failure metrics, and service up-time trends, leading to a 15% reduction in downtime and improved operational insights.
- Optimized a high-traffic microservices architecture by integrating Kafka and Apache NiFi, processing over 100K+ daily data events, improving system scalability, and reducing end-to-end request latency by 30%.
- Enhanced backend performance and efficiency by leveraging Aerospike caching, fine-tuning database queries, and optimizing API processing, enabling the system to handle 10,000+ concurrent API requests with a 99.9% success rate.

ACCOLITE DIGITAL | SOFTWARE ENGINEER

July 2021 – September 2022 | Bengaluru, India

- Developed and deployed an internal seat-booking web application using Spring Boot (backend) and Angular (frontend), ensuring seamless office space allocation for 500+ employees during COVID-19, improving office capacity planning.
- Automated data extraction and processing workflows from Gmail APIs using Java, Apache POI, and cron jobs, transforming unstructured CSV email data into detailed leadership reports, reducing manual effort by 80%.
- Collaborated on full-stack development of internal tools, integrating TypeScript, RESTful APIs, and Spring Boot, reducing API response time by 30% and increasing system reliability through enhanced backend optimizations.
- Enhanced internal website functionality by adding CSV export features, email distribution capabilities, and interactive UI elements, improving user productivity by 25% and streamlining data sharing across teams.

AMAZON | SOFTWARE DEVELOPMENT ENGINEER INTERN

January 2021 – July 2021 | Bengaluru, India

- Designed and implemented a mobile push notification system for Amazon Pay using Java, Spring Boot, AWS Lambda, and Amazon SNS, increasing customer engagement by 15% through timely transactional alerts.
- Automated AWS infrastructure setup by provisioning VPCs, hosted zones, and API gateways via backend code, eliminating 90% of manual documentation efforts and enabling smoother cloud deployment.

- Integrated Amazon SQS for queuing notifications and utilized AWS Lambda for serverless computation, achieving 99.8% message delivery reliability and ensuring seamless scalability for high-traffic workloads.
- Adopted Agile methodologies and Git workflows, collaborating with cross-functional teams to streamline development cycles, ensuring 100% adherence to deadlines and delivering zero critical defects in production.

PROJECTS

NATURAL LANGUAGE TO EMFATIC USING TRANSFORMER MODELS | PYTHON, TRANSFORMERS, CODET5, EMF, BLEU

February 2025 – May 2025

- Built a 4,000+ sample dataset by extracting Ecore models from the ModelSet corpus, converting to EMFatic using custom XML parsers, and generating natural language descriptions using both synthetic rule-based templates and LLMs.
- Integrated quantized versions of CodeLLaMA, Mistral, and CodeGemma to locally generate EMFatic descriptions, enabling comparison of LLM quality and reducing hallucinations by over 30% versus template-only generation strategies.
- Fine-tuned CodeT5-small and CodeT5-base models for generating EMFatic syntax code from natural language, with base model achieving 56.7 BLEU, 0.71 METEOR, and 0.80 ROUGE-1 on 500 test samples, significantly outperforming the small variant.
- Developed a modular Python framework to orchestrate model training, inference, and evaluation with BLEU, METEOR, and ROUGE metrics, including web-based inference via Flask to demonstrate NL-to-EMFatic generation on unseen examples.

DISTRIBUTED WHITEBOARD APPLICATION | PYTHON, FLASK-SOCKETIO, DOCKER, KUBERNETES, PAXOS, OPENSTACK

January 2025

- Engineered a fault-tolerant, cloud-native whiteboard system deployed on 3 OpenStack VMs using the Paxos consensus algorithm, enabling consistent multi-user (1 to 10) collaboration with real-time synchronization and deterministic conflict resolution across distributed nodes.
- Containerized backend services using Docker and orchestrated the deployment via Kubernetes StatefulSets with Horizontal Pod Autoscaler (HPA), scaling from 1 to 4+ pods while preserving whiteboard state and handling dynamic IP changes, node failures, and user growth with 100% uptime.
- Automated OpenStack networking, port forwarding, and security group setup to support high-throughput UDP/TCP traffic for inter-node messaging and Flask-SocketIO events, achieving sub-150ms latency and stable CP-Compliant performance during real-time collaboration.

FLIGHT JOURNEYS SYSTEM | JAVA, AGILE, SOFTWARE ENGINEERING PRINCIPLES

January 2025

- Developed a robust console-based flight booking system with secure user authentication, booking management, and admin controls, ensuring 100% data integrity and seamless transaction processing.
- Led an Agile-driven development cycle, executing two successful sprints using GitHub issue tracking, Planning Poker for story point estimation, PERT analysis for critical path optimization, and COCOMO-based cost estimation, achieving 90% sprint efficiency.
- Designed and executed comprehensive software quality assurance tests, implementing both black-box and white-box methodologies, achieving 97% test coverage and ensuring zero critical defects for maximum system stability.

SPRING BOOT APPLICATION GENERATION USING GROOVY AND XTEXT | GROOVY, XTEXT, DSL, EMF

December 2024

- Designed a domain-specific language (DSL) in Xtext to model Spring Boot applications, supporting annotated entities, relationships, cardinalities, and constraints; enabled automated generation of JPA repositories, DTOs, and REST APIs from concise schema definitions.
- Developed a Groovy-based generator that parses the DSL and constructs full Spring Boot project skeletons including pom.xml, configurations, controllers, services, and entities; resolved grammar ambiguities and ensured scalable, domain-driven structure using EMF and code templating.

NOSQL VS SQL QUERY PERFORMANCE ANALYSIS | GROOVY, MONGODB

November 2024

- Developed a data pipeline to process and analyze 100,000+ tweets data into structured JSON datasets using MongoDB Atlas, applying indexing and optimized aggregation on fields like location and sentiment to cut response time by 40% (down to 7ms).
- Conducted a MongoDB vs SQL performance benchmark, enhancing query execution efficiency on 10,000+ tweets, achieving a 15% speed improvement, and demonstrated the scalability of NoSQL cloud solutions through query optimization and Agile-driven system analysis.

CLIENT-SERVER APPLICATION | SPRING BOOT + JAVA

March 2024

- Designed a secure client-server messaging system using Java sockets and RSA (2048-bit) public-private key cryptography, enabling real-time delivery of digitally signed and encrypted messages with timestamp integrity checks using SHA256-based digital signatures and MD5 hashing.
- Developed bidirectional authentication, key-based encryption, and signature verification pipelines, storing and relaying Base64-encoded messages across distributed nodes while ensuring tamper resistance, identity protection, and efficient message parsing via byte-level framing.

HIGHLIGHTS

Huawei Hackathon 2024 (Ireland): Finalist (8th Place) – Optimized server costs using dynamic programming

CodeChef: 2180 (5-star)

Codeforces: 1642 (Expert)

HackerRank: Gold Badges in C++ and problem-solving