

Gagan Bihari Mishra

Resumé

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Summary

Senior Software Engineer with extensive experience in design, architecture and development of backend services in large e-commerce as well as nascent startups. I have lead multiple business and infrastructure projects from the ground-up. Notable works include leading novel supplier selection algorithms and architecture in Amazon SCOT; architecture of all business components and complete infrastructure setup for GaragePlug, setting up the development team from the ground-up; leading MySQL database sharding architecture and design at Flipkart.

I have worked with a wide range of technologies at various points, from low-level hardware programming to e-commerce backends handling real-time traffic. I like to own end-to-end product lifecycle: development, testing, deployment and operations.

Specialities: Distributed systems, Microservices, Large scale systems, E-commerce

Experience

May '23 – **Software Engineer,**

Present *AWS Software Development, Bellevue.*

Development of Resiliency Infrastructure Solutions

- Design, architecture and development of components of Application Recovery Controller: ZonalShift.
- Automating infrastructure setup and customer onboarding processes.
- Ensuring operational health through automated healthcheck, monitors and alarms.
- Used: **AWS, Java, Ruby, Kotlin, CDK**

Jun '19 – **Software Engineer,**

Apr '23 *Amazon.com, Bellevue.*

Leading new initiatives for Vendor Selection

- Conceptualized and lead new initiatives on Supply Chain - Vendor Selection space. Introduced the concept stable supplier to benefit the business in terms of product quality/predictable availability/reliable on-time supply, while minimizing optimization and computation costs.
- Lead operational and engineering excellence best practices within the immediate org. Setup standards and guidelines. Introduced Kotlin to the team's tech stack. Modernized legacy systems to Java 17. Advocated and implemented CI/CD in bunch of legacy services. Automated operational tasks.
- Achieved 60% infrastructure cost reduction with code optimizations, caching strategy optimizations and development of re-usable computation artefacts.
- Rearchitected legacy services on Native AWS. Coordinated with multiple teams on deprecation of legacy services and simplifying the architecture and the flows.
- Architected and developed service agnostic framework to audit APIs. Developed prototypes for a shadow test framework for testing complex microservice setups.
- Mentored interns and new members on vendor selection systems and in general software development.
- Used: **AWS, Java, Python, SQL, Kotlin**

Feb '17 – **Software Development Engineer,**

May '19 *Amazon.com, Berlin.*

Developing Amazon's review solicitation framework

- Contributed to the design and implementation of review solicitation platform from scratch
- Migrated selection of customers from Oracle datawarehouse to Amazon's internal data platform
- Developed filtering service for selection of customers for reviews
- Enabled review solicitation through mobile push notification and email
- Used: **Java, Python, SQL**

Mar '17 – **Consulting Architect**,

May '19 *GaragePlug.com*.

Architecture and end-to-end development of GaragePlug backend

- Designed, implemented and setup complete backend system for GaragePlug - OMS, authentication, Warehouse management, CRM, accounting, reporting etc.
- Setup services and infrastructure using AWS, ELB, RDS, SNS, SQS, nginx
- Lead a team of engineers on detailed implementation
- Working closely with the founders to implement business ideas as tech products
- Used: **Java, Spring Boot, Lucene, Postgres, Python, AWS, nginx**

Mar '16 – **Consulting Architect**,

Dec '16 *Motorzo.in*, Bangalore.

Architecture and setup backend from scratch for MotorZo

- Designed microservices, APIs, entities and systems
- Developed of modules including accounting, order management, authentication
- Setup services on AWS
- Guided a team of engineers on low level design and implementation of various components
- Used: **Java, Dropwizard, MySQL, Python, AWS**

Sep '14 – Sep **Software Development Engineer**,

'16 *Flipkart.com*, Bangalore.

Developing components of the Back-end for Flipkart's Seller platform

- Developed invoicing application for Flipkart's online marketplace
- Developed external seller APIs for large seller integration
- Contributed to the sharded MySQL storage design for scalability
- Contributed to dev-ops and maintenance tasks involving sandbox integration, alerting, archiving and purging of data etc.
- Used: **Java, Ruby, Dropwizard, Python, MySQL**

Jan '14 – **Senior Software Engineer**,

Aug '14 *The Kratos (thekratos.com)*, Bangalore.

Design and development of a Mobile-Ad Server

- Developed data stream aggregation application using Apache Spark Streaming
- Developed user management application on top of LDAP using JNDI.
- Developed Vert.x modules for request processing and ad selection.
- Developed SQL based aggregation and reporting engine.
- Used: **Java, Spring, Vert.x, SQL, Scala, Kafka, Spark**

Apr '12 – **Graduate Intern - ASIP Development**, *Intel Mobile Communications*, Munich.

Enhancement of the software simulation model for the multicore ASIP

- Extended the software simulation framework and integrated new memory interface.
- Added new instructions to the MASIP. Wrote test assembly programs and did regression test of the complete system.
- Implemented enhancements to a software tool for distribution of firmware tasks over the cores of ASIP.
- Used: **C++, LISA, VHDL**

Jul '08 – **Software Engineer**, *SAP Labs*, Bangalore.

Development of a Message Oriented Middleware for Distributed Applications

– *SAP Data Orchestration Engine*

- Authored software requirements, design specifications and test cases
- Implemented –
Data specific code-generation, data storage and distribution, UI components for device monitoring and administration
Windows installer for client front-end
- Collaborated with customers during product ramp-up
- Used: **Java, SQL, ABAP, InstallShield Scripting**

Nov '07 – **Software Engineer**, *H3C Technologies*, Bangalore.

Development of security modules for H3C's routers' embedded OS

- Developed modules for defense mechanisms against various Denial-of-Service attacks
- Simulated and tested implementation under complex topologies and configurations
- Used: **C, Python**

Education

- Oct '10 – **Master of Science in Information Technology**,
Jul '13 *University Of Stuttgart*, Germany,
GPA: 1.5/4.0 (\approx 88%) (German grading system - Best: 1.0, Worst: 5.0).
Master Thesis - Providing In-Network Content-based Routing Using OpenFlow
- Aug '03 – **Bachelor of Technology in Electronics & Communication Engineering**,
May '07 *National Institute of Technology Hamirpur*, India.
GPA: 7.72/10 (\approx 77%)

Academic Projects

- Summer '12 .
Hardware code-generation: Wrote a C++ tool to generate VHDL code for Wallace Tree multiplier, for any given operand length.
- Winter '11 .
Processor Design: Designed a basic RISC Processor in VHDL, with classic five stage pipeline, with modern features such as bypass and forwarding, cache and memory arbiter units.
- Summer '11 .
GPU Computing: Parallelized a sequential algorithm to compute the convex envelope over 2D using CUDA and analyzed the performance speed up.
- Spring '07 .
Hardware Cache implementation: Co-authored and benchmarked a CPU cache with LRU and FIFO replacement policy.
- Spring '06 .
Embedded Systems: Designed a simplistic solar tracker using 8051 microcontroller interfaced with a servo motor.

Personal Information

- Nationality Indian
Languages English, Hindi, Deutsch (Level - A1), Odia