

Aleksandar Jakovljević

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in /alex-jakovljevic

Profile

Senior Software Engineer with 6+ years of experience designing and operating production systems using **Java, Spring Boot, PostgreSQL and AWS**. Experienced in distributed systems, system design and production **SaaS**, with hands-on ownership from architecture and R&D through implementation, production support and knowledge transfer.

Experience

Ezderm, LLC

Belgrade, Serbia

Senior Software Engineer · Backend, Distributed Systems & AI

2019 – present

Career progression: Junior Software Engineer (2019–2020) → Software Engineer (2020–2024) → Senior Software Engineer (2024–present)

- **Design and own production backend systems** using Java, Spring Boot and PostgreSQL, making technical decisions across system architecture, service boundaries, data modelling, API design, asynchronous processing, security, scalability and production reliability.
- **Designed hundreds of internal and external REST APIs**, defining contracts, versioning, authentication and authorization, error models, pagination, idempotency and backward-compatibility strategies, with OpenAPI specifications for internal and partner integrations.
- **Designed and developed an electronic prescribing system from scratch**, integrating Surescripts and FDB while owning technical design, vendor collaboration, certification, implementation and production support.
- **Designed and developed a payment processing system from scratch** using Square, including API integration, authentication, webhooks, failure handling and production rollout.
- **Designed a centralized platform for production AI features**, providing prompt and model configuration, model routing and fallback, request logging and token, cost and latency tracking; delivered production LLM features using Amazon Bedrock, Anthropic LLMs and Amazon Nova for summarization, structured extraction and classification.
- **Built an agentic natural-language data workflow** using Python, FastAPI, Vanna, combining NL2SQL, intent routing, tool execution and a controlled action catalog with permissions, guardrails, conversation history.
- **Evolved backend architecture from synchronous and monolithic patterns toward distributed, asynchronous systems**, extracting microservices and designing workflows using Spring framework, SQS, SNS, circuit breakers and graceful degradation (Resilience4j).
- **Designed and optimized data-intensive PostgreSQL systems**, working with complex SQL, indexes, partitioning, materialized views, JSONB, query-plan analysis and connection-pool tuning; also built reusable ETL tooling for online migration of millions of patient records.
- **Own production reliability and troubleshooting** as an on-call engineer, resolving JVM memory leaks, HTTP connection exhaustion, database performance problems, queue backlogs and third-party outages, and contributing to root-cause analyses and operational runbooks.
- **Contribute to engineering standards and team development** through architecture reviews, technical specifications, PoCs and knowledge sharing; review 5–10 pull requests daily, mentor junior and mid-level engineers, and have conducted approximately 30–40 technical interviews across junior, mid-level and senior roles.

Education

Faculty of Mathematics, University of Belgrade

Belgrade, Serbia

Master's Degree in Computer Science · GPA: 9.14/10

2024 – present

Master's Thesis: *Development of Scalable AI-Based Applications Using Kubernetes* – Thesis submitted.

Designed and implemented an experimental distributed system using Kubernetes, HPA, KEDA, RabbitMQ, Spring Boot, FastAPI, Prometheus and Grafana to compare autoscaling strategies for AI workloads using latency, p95/p99 latency, throughput and scaling metrics.

Faculty of Mathematics, University of Belgrade

Belgrade, Serbia

Bachelor's Degree in Computer Science, 240 ECTS · GPA: 8.80/10

2015 – 2019

Technical Skills

Languages: Java, SQL, Python

Backend: Spring Boot, Spring MVC, Spring Security, Spring Data, Spring Cloud, Hibernate / JPA, REST, SOAP, WebSockets

Databases: PostgreSQL, Redis, MongoDB

AWS: Bedrock, Lambda, S3, SQS, SNS, IAM, Step Functions, EventBridge, EC2, Aurora / RDS, CloudFront

Infrastructure: Docker, Kubernetes, Helm, HPA, KEDA, Jenkins

AI Engineering: Amazon Bedrock, Anthropic Claude, Amazon Nova, Agentic Systems, NL2SQL, Tool Calling, Structured Outputs, Prompt Management, Model Routing, Embeddings, Vector Search, Reranking, LLM Evaluation, Guardrails

Architecture: Microservices, Distributed Systems, Event-Driven Architecture, Asynchronous Processing, API Design, Circuit Breakers, Idempotency, Rate Limiting, Backpressure

Testing & Tooling: JUnit, Mockito, AssertJ, Testcontainers, WireMock, Git, OpenAPI / Swagger, Maven, Gradle, Prometheus, Grafana

Healthcare: EHR, e-Prescribing, Surescripts, FDB, HL7, FHIR, NCPDP, Billing, Claims, Payments, HIPAA / PHI

Languages

Serbian: Native · **English:** Professional working proficiency · **French:** Basic conversational proficiency