Taleh Ibrahimli

Lead Software Engineer (Rust/Go/Java) · Ultra-Low Latency (1.2μs) · High-Load (58M+ MEPS) · Cloud Platform (AWS)

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Professional Summary

Lead Software Engineer and Technical Lead with 10+ years of experience specializing in ultra-low latency (1.2μs) and high-load distributed systems (58M+ MEPS). Expert in migrating legacy monoliths to resilient, cost-optimized microservices while leading cross-functional development teams as a high-impact hands-on contributor (Player-Coach).

Skills

- **Core Expertise: High Load & Ultra-Low Latency:** Architecture & design of ultra-low latency systems (1.2μs median), High-load distribution (58M+ MEPS), CPU profiling (perf), low-level systems programming (Rust/C++), Memory/Cache optimization (L1/L2 saturating), zero-copy/lock-free designs.
- **Backend Engineering & Languages:** Expert: Rust, Java (8+ yrs), Go (5+ yrs). Proficient: Kotlin, C/C++, WASM, TypeScript/JavaScript, Python; Spring Boot, Spring WebFlux/Reactive (Netty, RxJava), gRPC, REST, Caching (Redis).
- **Cloud Architecture & Platform (AWS):** VPC, EC2, ALB/NLB, Lambda, API Gateway, S3/CloudFront, RDS/Aurora, DynamoDB, ECR/ECS/EKS, EventBridge, SQS/SNS, Kinesis, Step Functions, OpenSearch; IaC: Terraform/CDK; Well-Architected, cost optimization (30%+ savings), resiliency.
- **DevOps, SRE & Observability:** Kubernetes, Docker, Argo CD (GitOps), Helm, Jenkins (CI/CD pipelines), Observability (CloudWatch, Prometheus, Grafana, X-Ray, OpenTelemetry), Blue/Green & Canary deployments, Incident Response.
- **Data & Security:** PostgreSQL, MySQL, DynamoDB, Redis, OpenSearch/Elasticsearch, Redshift; HSM, CloudHSM, KMS, PKI infrastructure, Cryptography, OAuth2/OIDC, Secrets Manager; encryption at rest/in transit; GDPR/PCI compliance.
- **Technical Leadership & Practices:** Leading organizational technical roadmaps, Mentoring Senior Engineers, Architecture Decision Records (ADR), Domain-Driven Design (DDD), Microservices Patterns, TDD, Agile/Scrum Strategy.
- **AI/LLM Architecture (R&D):** Architecting RAG pipelines & agentic workflows (LangGraph/LangChain), Vector search optimization, Cost-latency trade-off models, Prompt engineering & guardrails.

Experience

Lead Software Engineer & Technical Lead — **2K Group** — 07/2022 - Current

- Lead Software Engineer and Technical Lead for the EvenPlay project. Spearheaded technical vision and backend roadmap, managing a team of 8 engineers while maintaining a high-impact hands-on presence.
- **Key Contributions:**
  - **Architectural Leadership:** Defined the microservices roadmap and organizational technical standards. Mentored senior engineers on Go/AWS best practices and distributed systems design.
  - **Backend Engineering (Hands-on):** Developed core high-load backend infrastructure using Golang, ensuring low-latency gameplay mechanics and saturating available system throughput.
  - **Cloud Infrastructure:** Orchestrated large-scale EKS deployments using Terraform/CDK. Optimized AWS costs by 35% through rightsizing and Spot instance strategies.
  - **Engineering Excellence:** Reduced deployment lead time by 40% and improved code coverage from 40% to 85% by implementing CI/CD strategies and ADR processes.
  - **AI & Vision:** Architected Python-based computer vision services for real-time body/face detection integrated into gameplay.
- **Impact:** Delivered critical high-load components while scaling the engineering organization and improving delivery predictability.

Senior Software Engineer (Security & Platform) — **BillingPlatform** — 04/2021 - 07/2022

- Architected enterprise-grade security protocols and platform features. Leveraged AWS CloudHSM, KMS, and PKI infrastructure to implement high-assurance data protection for global enterprise clients.
- **Key Contributions:**
  - **Security Architecture:** Architected and implemented application-level encryption using AWS CloudHSM and KMS, ensuring high-assurance security for sensitive billing data.
  - **Platform Scalability:** Optimized Java/Spring Boot microservices to handle enterprise-scale billing cycles, reducing processing time for large-batch jobs.
  - **Identity & Access:** Orchestrated a centralized OAuth2/OIDC implementation across the microservices ecosystem, streamlining secure service-to-service communication.
- **Impact:** Strengthened data protection posture and enabled secure onboarding of Fortune 500 clients requiring strict compliance.

Lead Software Engineer	**GoldenPay**	**05/2020 - 05/2021**

- Technical Lead for the architectural migration of Azerbaijan's largest payment gateway. Led the transition from a legacy monolith to a resilient, event-driven microservices architecture.
- **Key Contributions:**
  - **Architectural Migration:** Orchestrated the migration from monolith to microservices, improving system throughput by 7x and handling 2k+ RPS at peak for 1M+ active users.
  - **Event-Driven Design:** Implemented a high-performance event-driven architecture using Kafka, significantly improving system decoupling and fault tolerance.
  - **Strategic Leadership:** Managed the engineering team, establishing ADR processes and mentoring the transition from traditional Java to modern Kotlin/Microservices patterns.
  - **Zero-Downtime Deployment:** Designed split-traffic rollout strategies and comprehensive testing suites to ensure 100% availability during core system migrations.
- **Impact:** Modernized the national payment infrastructure, delivering 7x scaling capabilities with zero reported downtime during migration.

Senior Software Engineer	**Crossover**	**04/2017 - 12/2019**

- **Aurora Portfolio (CxProcess & M1 AlertFind):** Drove the modernization of mission-critical alerting and process orchestration systems.
- **Key Contributions:**
  - **API Modernization:** Modernized legacy Java applications by architecting a high-level API layer, enabling UI decoupling and faster feature iteration.
  - **Refactoring & Domain Alignment:** Led the refactoring of backend services to align with new domain boundaries and RESTful API contracts.
  - **Full-Stack Integration:** Developed enterprise Angular/TypeScript applications integrated with modernized backend services, improving UX and system maintainability.
- **Impact:** Successfully migrated legacy systems to modern architectures while maintaining 99.99% availability for mission-critical alerting.

Java Backend Developer	**Apexx**	**11/2015 - 04/2017**

- **Impact:** Improved backend service stability and delivery reliability through rigorous TDD and code quality standards.

Java Backend Developer	**Baku State University**	**01/2014 - 11/2015**

- **E-University:** Developed the main university platform covering the full academic lifecycle.
- **Tech stack:** Monolithic Java backend, PostgreSQL, Sencha/GWT.
- **Impact:** Gained significant knowledge in higher-education processes.

Freelancer		**03/2011 - 01/2014**

- **Impact:** Delivered end-to-end solutions for small clients; accelerated go-lives.

AI R&D Highlights

The following represent prototypes/experiments and architectural research (not shipped production systems).

- Architected cost-latency trade-off models for RAG pipelines, achieving a 30% reduction in token usage through optimized prompt design and guardrails.
- Designed agentic workflows with LangGraph and custom-built workflow systems; optimized hybrid retrieval (MongoDB/pgvector) and re-ranking layers.
- Established evaluation frameworks for LLM safety: scenario-based A/B testing, hallucination mitigation patterns, and OpenTelemetry-based observability.

Open Source

- **https://github.com/tislib/roda-ledger:** A high-performance, durable, and crash-consistent financial ledger and transaction executor built in Rust, optimized for microsecond-level latency and millions of transactions per second.
  - Engineered a pipelined execution model (Core-Per-Stage) using lock-free ArrayQueues to eliminate thread contention and maximize mechanical sympathy.
  - Achieved a peak throughput of 2.79 Million tx/s for deposits and 1.70 Million tx/s for transfers with sub-microsecond average latency.
  - Implemented strict durability via Write-Ahead Logging (WAL) and automatic state recovery through snapshot loading and WAL replay.
- **https://github.com/tislib/roda-state:** Zero-copy, lock-free multithreaded pipeline in Rust designed for ultra-low latency environments. By heavily profiling the CPU architecture, it bypasses standard multi-threading performance traps to strictly saturate the L1 cache bandwidth.
  - Engineered a zero-copy, lock-free multithreaded pipeline in Rust, achieving a peak algorithmic throughput of 58.7 million elements per second (MEPS) in CPU-bound stateful workloads.
  - Processed 24 million real-world MBO market data events with an unloaded median latency of $1.2\mu s$, completely decoupling disk I/O bottlenecks from the algorithmic hot path.
  - Defeated cross-core MESI protocol overhead by implementing dynamic block processing (read_window), reducing L1 cache misses to 0.73% and boosting IPC to 1.93.
- **https://github.com/apibrew/apibrew:** An open-source low-code backend-as-a-service that automatically generates REST/gRPC APIs, management UIs, and real-time event streams from data models.
- **https://github.com/tislib/logi:** A framework for defining and parsing custom Domain Specific Languages (DSLs) with efficient AST generation and semantic validation.
- **https://github.com/tislib/download-delegator:** A tool for parallel web page downloading, compatible with EC2 and AWS Lambda, enabling efficient bulk downloads.

Certifications

- AWS Certified Solutions Architect – Professional (Scheduled, Expected March 2026)
- Certificate: Semi-Finalist of ACM Programming Contest in Georgia, 2013
- Certificate: High Achievement certificate of ACM Programming Contest, 2013

Education

- Bachelor's degree in Computer Science and Applied Math — Baku State University (2010 - 2014)