

MOHAMMAD YAHIA

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PROFESSIONAL SUMMARY

Senior Software Engineer and **Acting Architect** with a **decade of expertise** designing, scaling, and optimizing **high-throughput distributed systems** across enterprise telecom, e-commerce, and industrial tech sectors. Specializes in **robust backend architectures** using **Java/Spring Boot**, **microservices**, cloud ecosystems (**AWS**), and real-time streaming topologies. Known for translating architectural intent into delivery backlogs, **improving API reliability**, and stabilizing high-volume analytical and entitlement workflows while translating business scale requirements into **highly reliable, scalable & maintainable infrastructure**.

CORE EXPERTISE

- **Architecture & Patterns:** **Microservices**, Distributed Monolith, Distributed Systems, **Event-Driven Architecture**, REST APIs, Design Patterns (Code & Architectural).
 - **Backend Frameworks:** **Java**, **Spring Boot**, Spring Framework.
 - **Frontend & Mobile:** **Angular**, React, Android SDK (Java), **Client-Side State Management**, Responsive UI Architecture.
 - **Streaming & Messaging Ecosystem:** **Apache Kafka**, TIBCO EMS, **AWS Kinesis**.
 - **Data Tier:** **PostgreSQL**, **AWS Aurora**, AWS Athena, MongoDB, Oracle DB, MySQL, SQLite, **DynamoDB**, Data Deduplication, Database Partitioning.
 - **Cloud & DevOps:** **AWS**, Python, **Docker**, **Terraform**, **GitLab CI/CD**, Git, Linux, Bash.
 - **AI-Assisted Engineering:** **GitHub Copilot**, **Claude (Anthropic)**, ChatGPT (OpenAI), Gemini (Google), Prompt Engineering for Code Refactoring, Automated Unit Test Generation, Architectural Scaffolding.
 - **Advanced Computing:** High-Performance Computing, **CUDA**, Parallel Processing, Genetic Algorithms.
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PROFESSIONAL EXPERIENCE

SIEMENS

New Cairo, Egypt

Senior Software Engineer / Acting Software Architect

Feb 2025 – Present

- **Distributed Architecture & Monolith Decoupling:** Deconstructed a legacy mono-repo into a **modular, decoupled architecture**. Stratified the backend into microservices, **reducing CI/CD build and deployment pipeline execution times from 4 hours down to minutes**.
- **Next-Gen License Management (LMS):** Designed and implemented core services for the next-generation **License Management System (LMS)**, delivering optimized microservices built to **scale securely across global environments**.
- **Asynchronous Contract & Notification Standardization:** Established a unified, organization-wide standard for **asynchronous enterprise system communication** and notification architecture. Engineered **deterministic error-handling**, messaging retention boundaries, and structured **Dead Letter Queue (DLQ) workflows** to guarantee **end-to-end data traceability**, predictable retry mechanics, and clear isolation of system failures.
- **API Security Architecture & Access Control:** Defined and implemented strict **enterprise authorization and access-control patterns** for core License Management and business system APIs. Maintained tight **security architectural governance** by validating production publication gates and exploring **zero-trust infrastructure security models** utilizing **Service Mesh frameworks (Cilium)**.
- **Infrastructure-as-Code Migration & Modularization:** Led the migration of legacy cloud infrastructure blueprints from **AWS CloudFormation to Terraform**. Designed and enhanced **reusable, modular Terraform patterns** to smoothly provision isolated cloud environments and resource stacks as backend microservices were decoupled and distributed across independent repositories.
- **Product Onboarding & API Design:** Participated in the design and execution of a **standardized onboarding framework** for new project teams, product lines, and feature groups. Designed compliant, **high-reliability REST APIs** to streamline complex feature configurations, adhering strictly to global corporate standards to ensure **seamless platform integration** and timely feature delivery.
- **CI/CD Pipeline Automation & Quality Governance:** Re-engineered and optimized **GitLab CI/CD pipelines** to automate the end-to-end build, containerization, and deployment lifecycle. Implemented multi-stage pipelines encompassing **automated Docker image compilation**, secure publishing, real-time build and deployment notification hooks, and **strict automated**

compliance gates using SonarQube for continuous code quality and vulnerability scanning.

- **Tech Stack:** Java, Spring Boot, React, AWS (EC2, ECS, ECR, S3, CloudFront, CloudFormation, Secrets Manager, Auto Scaling Groups), Cilium Service Mesh, PostgreSQL, Docker, Git, GitLab, Terraform.

SIEMENS

New Cairo, Egypt

Senior Software Engineer (Analytics)

Feb 2023 – Jan 2025

- **Enterprise Frontend Modernization & Performance Tuning:** Participated as a core team member in migrating a large-scale analytics platform from legacy **Google Web Toolkit (GWT)** to modern **Angular**. Contributed directly to the architecture of the frontend client by designing shared data services, implementing **global client-side state management**, and developing a **dynamic dashboard configuration engine** to configure, arrange, and render complex analytics charts while actively auditing and **optimizing client bundle sizes to significantly reduce build footprints** and improve runtime performance.
- **Real-Time Geographic Data Tracking:** Optimized the platform's **real-time analytics engine** responsible for capturing fast-moving system events and mapping them to regional geographic locations. Maintained and enhanced existing backend data ingestion pipelines leveraging **AWS Kinesis to handle high-throughput streaming data**, ensuring **low-latency aggregations** and accurate real-time metrics across global user dashboards.
- **Production Stabilization & Incident Diagnosis:** Owned the **root-cause diagnosis, tactical resolution, and stabilization** of high-priority production incidents across critical analytics geomaps and licensing workflows. Hardened distributed services against runtime regressions, null-pointer failures, and edge-case data anomalies to **preserve continuous platform availability** and maintain core system metrics.
- **Tech Stack:** Java, Spring Boot, Angular, AWS (EC2, ECS, Athena, S3, Kinesis), PostgreSQL, Docker, Git.

JUMIA GROUP

New Cairo, Egypt

Senior Java Software Engineer (JumiaPay)

Aug 2021 – Jan 2023

- **High-Volume Payment Integrations:** Developed and maintained highly secure payment gateway adapters using the **Adapter architectural pattern** to integrate JumiaPay core services with major international payment processors (including **Mastercard MPGS** and regional financial gateways) across Egypt and multiple African countries. Managed complex payment payloads while ensuring strict adherence to **PCI-DSS data security standards**.

- **Distributed Event Processing:** Built and maintained modular backend microservices to orchestrate asynchronous financial events between external payment processors and Jumia's core ecosystem. Leveraged **Apache Kafka to manage distributed message streaming**, ensuring **strict transactional atomicity**, thread safety, and **event-driven data consistency** across cloud environments.
- *Tech Stack:* **Java, Spring Boot**, Spring Framework, **Apache Kafka**, PostgreSQL, **Microservices**, REST APIs, Geometry Mapping, Gradle, Linux, PHP, Laravel, Jakarta Persistence.

ETISALAT MISR (Outsourced via ASSET)

Cairo, Egypt

Java Software Engineer (Risk Management & CRM)

Jul 2018 – Jul 2021

- **Legacy System Modernization & Re-Architecture:** Modernized a mission-critical, unmanaged legacy **Java 6 EE billing collection application** by migrating it to a structured, well-architected **Spring Boot framework**. Introduced **standardized dependency management (Maven)** and decoupled core business components, transforming the legacy backend into a **highly maintainable enterprise service**.
- **High-Scale Billing Collection Processing:** Optimized core batch processing data infrastructure and complex **Oracle Database queries** to evaluate payment compliance for **millions of post-paid subscribers** during peak billing cycles. Engineered precise, **automated multi-step suspension workflows** (notifications, SMS alerts, and gradual network service restriction gates) ensuring **strict data accuracy** to eliminate false service cut-offs.
- *Tech Stack:* **Java EE, Spring Boot**, Spring Framework, TIBCO EMS, SOAP, **Oracle Database, Maven**, Linux.

FEKRA COMPUTERS

Cairo, Egypt

Software Engineer

Aug 2016 – May 2018

- **Full-Stack Product Ownership:** Served as an early-stage full-stack engineer across the entire product lifecycle, independently designing, building, and deploying multiple client-facing applications from **architectural inception to production launch**.
- **Mobile & Backend Engineering:** Engineered and published **3 native mobile applications** to the Android store using the **Android SDK**, while expanding platform capabilities by building supporting backend data layers and REST endpoints using **PHP and relational databases**.
- **Cross-Functional Communication:** Acted as a technical point of contact for customer communication, translating non-technical client business requirements into **concrete database schemas**, backend logic, and responsive user interfaces.

- *Tech Stack:* **Android SDK, Java, PHP, MySQL, JDBC, SQLite, Gradle.**

SOFTLOCK

Cairo, Egypt

Trainee

Jul 2015 – Aug 2015

- Completed an intensive, hands-on **Android development course** focusing on mobile application architecture and core mobile platform components.
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EDUCATION & CREDENTIALS

- **Bachelor's Degree in Computer and Systems Engineering** – *Faculty of Engineering, Ain Shams University* | **Graduation Class of 2016** Grade: **Very Good (81.5%)** | **Rank: 30th in Cohort** Graduation Project: **GPU-Accelerated Timetabling System using Parallel Genetic Algorithms** (Grade: **Excellent**).
- Academic Publication: [*"A GPU Based Genetic Algorithm Solution for the Timetabling Problem"* - **IEEE 11th International Conference on Computer Engineering and Systems (ICCES)** (Dec 2016)].
- *Core Focus: Leveraging mass parallel computing architectures (CUDA) to solve complex combinatorial optimization algorithms.*
- **AWS Certified Cloud Practitioner** – Amazon Web Services (Issued: **Sep 2025**)
- **AWS Partner: Cloud Economics Essentials** – Amazon Web Services (Issued: **Jul 2025**)
- **General Secondary Certificate** – *OLA Language School* | Completed Jul 2011, Grade: **100%**