

# Mohammed Nasser Ibrahim

Cairo, Egypt

wwwmohamednasser620@gmail.com | (+20) 01285575364

Mohammed Nasser's linkedIn Profile

## Professional Summary

Professional Backend Engineer with strong expertise in Java and Python, specializing in high-performance backend systems, distributed architectures, and production-grade APIs. Proven experience in AI/LLM research engineering at Turing Enterprise Inc and Scale AI. Solid background in applied mathematics, statistics, and formal reasoning. Adept at building reliable, scalable systems and research-grade evaluation pipelines.

## Technical Skills

- **Programming Languages:** Java, Python, C Sharp.
- **Java & Backend Engineering:** Core Java, JavaSE, OOP, Collections, Streams, Concurrency, Multi-threading, JVM Internals, Virtual Threads, Algorithm Design, Software Design.
- **Spring & Jakarta Ecosystem:** Spring Boot, Spring MVC, Spring Security, Spring Batch, Spring Data, Spring Cloud, Spring Integration, Hibernate, Jakarta EE, JSP, JSF, JDBC, EJB, Jakarta Servlets.
- **Architecture:** Microservices, REST APIs, Clean Architecture, Research and Development (R&D).
- **Databases & Messaging:** PostgreSQL, MySQL, Oracle, SQL Server, ClickHouse, DBMS, Kafka, WebSockets, ETL, SQL Report Writing.
- **DevOps & Tools:** Docker, CI/CD, Git, Maven, Gradle, Jira, Slack, JUnit, Mockito, SpringBootTest.
- **AI / LLM Engineering:** LLM Evaluation, Dataset Design & Curation, Benchmark Construction, Performance Benchmarking, Model Reasoning Analysis, Mathematical & Quantitative Reasoning Evaluation, Error Taxonomy & Analysis, Failure Mode Analysis, Error Analysis & Diagnostics, Alignment & Task Fit Evaluation, Robustness & Adversarial Testing, Machine-Verifiable Evaluation Design, End-to-End Pipeline Design, QA for ML Data, Human-in-the-Loop, Scalable Workflows.
- **Mathematics & Data:** Probability Theory, Statistics, Bayesian Reasoning, Numerical Linear Algebra, Numerical Analysis, Monte Carlo Simulation, PhD-Level Mathematical Assessment, Formal Proof Verification, Scientific Computing, Pandas, NumPy.
- **Domain & Leadership:** Anti-Money Laundering (AML), Financial Reporting & Modeling, Financial Planning, Team Leadership, Management, Lean Thinking, Scrum, Agile & Waterfall, Project Delivery.

## Experience

### Java Software Development Engineer — Data Gear

Sep 2023 – Present | Cairo, Egypt

- Backend Engineer on large-scale Anti-Money Laundering (AML) and compliance platforms within regulated financial environments.

- Designed and maintained backend services and RESTful APIs; implemented background processing for long-running tasks.
- Integrated multiple enterprise databases (Oracle, SQL Server, MySQL) and developed real-time features using WebSockets.
- Built automated reporting engines for regulatory compliance reports in PDF and CSV formats.
- Contributed to core AML modules (KYC, FATCA, fraud analytics) to deliver production-ready features.

**Team Lead** — Turing Enterprise Inc

Jan 2025 – Mar 2025 | Palo Alto, California, USA

- Served as Pod Lead for a team of 14 engineers within Axiom Lean, evaluating AI/LLM outputs with a focus on formal reasoning and proof validation using Lean.
- Owned end-to-end task planning, quality standards, and delivery, ensuring mathematical rigor and machine-verifiable correctness.
- Mentored researchers on formal proof construction and verification, acting as the primary technical point of contact.

**Java LLM Software Engineer** — Turing Enterprise Inc

Sep 2024 – Jun 2025 | Palo Alto, California, USA

- Core member of a seven-engineer team responsible for design and maintenance of Turing's primary data labeling platform.
- Key maintainer of Turing's internal RLHF platform, contributing to architectural improvements and feature enhancements.
- Supported initiatives to improve platform scalability for high concurrent user activity.
- Collaborated with globally distributed teams from leading technology companies to design robust, production-grade systems.

**Senior Research Engineer** — Turing Enterprise Inc

Jun 2024 – Nov 2025 | Palo Alto, California, USA

- Specializing in advanced mathematics (Undergrad to PhD) supporting AI/ML research and alignment initiatives (SFT, RLHF, DBO, HLE).
- Worked on AI Quality/Safety projects for Anthropic, OpenAI, Google, and Amazon, focusing on alignment and robustness.
- Performed deep mathematical analysis in measure-theoretic probability, stochastic processes, and optimization.
- Translated abstract mathematical concepts into machine-verifiable representations for scalable AI pipelines.

**Freelance Software Engineer** — Systematic Trading Platform

Oct 2025 | Remote

- Built a real-time market analytics and trading platform with high-frequency data ingestion.
- Designed ClickHouse schemas and concurrent streaming pipelines.
- Implemented Monte Carlo simulations, Value at Risk (VaR), drawdown, and portfolio risk metrics.

#### **LLM Engineer — Scale AI**

Sep 2023 – Dec 2023 | San Francisco, California, USA

- Evaluated LLMs across technical and advanced mathematical domains, including applied mathematics and theoretical reasoning.
- Analyzed reasoning quality, robustness, and task alignment, focusing on logical coherence and consistency.
- Designed evaluation frameworks defining objective metrics for correctness and reasoning depth.
- Identified systematic model failure patterns (hallucinations, reasoning shortcuts) to support model iteration and benchmarking.

## Projects

- **E-Commerce Backend System:** Spring Boot backend with JWT/OAuth2, PostgreSQL, and CI/CD pipelines.
- **Real-Time Data Processing System:** Microservices architecture using Spring Boot, Kafka, and ClickHouse.
- **AI-Powered Traffic Control System:** Real-time congestion prediction and adaptive traffic signal optimization.
- **Cambridge Dataset Analysis (Kaggle):** Clustering, exploratory data analysis, and model optimization using Python.

## Education

### **Bachelor's in Pure Mathematics and Computer Science**

Al-Azhar University, Cairo, Egypt

Final Grade: Very Good (Ranked 3rd)