

Mohammed Nasser Ibrahim

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Professional Summary

Backend Engineer with strong experience in Java and Python, specializing in high-performance backend systems, distributed architectures, and production-grade REST APIs. Proven experience in AI/LLM research engineering, focusing on model reasoning quality, mathematical correctness, and robustness. Strong foundation in applied mathematics, statistics, and formal reasoning, with hands-on experience in Lean theorem proving and research-grade evaluation pipelines.

Technical Skills

Programming Languages: Java, Python

Backend & Frameworks: Core Java, OOP, Collections, Streams, Concurrency, Multithreading, JVM Internals, Virtual Threads, Spring Boot, Spring MVC, Spring Security, JWT, OAuth2, Spring Data JPA, Hibernate, Microservices, REST APIs, Clean Architecture

Databases & Streaming: PostgreSQL, MySQL, Oracle, SQL Server, ClickHouse, Kafka, WebSockets

Testing & DevOps: JUnit, Mockito, SpringBootTest, Docker, CI/CD, Git, Maven, Gradle

Python & Data: Flask, Django, Pandas, NumPy, Scientific Computing, Reporting Systems

AI & Research: LLM Evaluation, Model Reasoning Analysis, Dataset Curation, Benchmark Design, Formal Reasoning, Lean (Theorem Prover)

Mathematics: Probability, Statistics, Regression, Hypothesis Testing, Time Series Analysis, Formal Proof Verification

Professional Experience

DataGear

Backend Engineer (AML Systems) Oct 2023 – Present

- Developed backend modules for large-scale Anti-Money Laundering (AML) and regulatory compliance platforms.
- Built RESTful APIs supporting filtering, sorting, pagination, and multi-database integrations.
- Implemented AML components including KYC, FATCA, GOAML, DGAML, and fraud analytics.
- Delivered automated PDF/CSV reporting engines and real-time WebSocket services.

Turing Enterprise Inc	
Java Software Engineer — RLHF System	Sep 2024 – Jun 2025
• Core engineer on Turing's primary data labeling and RLHF (Reinforcement Learning from Human Feedback) platform.	
• Maintained and enhanced backend services to improve scalability, reliability, and throughput.	
• Delivered architectural improvements supporting high concurrency and large-scale data pipelines.	
Senior Software Research Analyst	Jun 2024 – Nov 2025
• Conducted AI/ML research and evaluation focused on advanced mathematics and quantitative reasoning.	
• Performed statistical analysis including regression, hypothesis testing, and time-series analysis.	
• Evaluated AI-generated outputs for correctness, depth, and reasoning quality.	
• Reviewed academic research and curated high-quality datasets to improve LLM performance.	
Pod Lead — Research Engineering	Jan 2025 – Mar 2025
• Led a research pod evaluating advanced mathematical and AI/LLM outputs across undergraduate, master's, and PhD levels.	
• Owned task planning, quality standards, and final delivery of research evaluations with strict mathematical rigor.	
• Performed formal reasoning and proof verification using the Lean theorem prover.	
• Mentored researchers on formal proof construction and validation.	
Scale AI — San Francisco, CA	
LLM Engineer	Sep 2023 – Dec 2023
• Evaluated large language models across technical and mathematical domains.	
• Analyzed reasoning quality, robustness, and task alignment.	
• Designed evaluation criteria and identified systematic model failure patterns.	
Independent	
Freelance — Systematic Trading Platform	Oct 2025
• Built a real-time market analytics and systematic trading platform.	
• Designed ClickHouse schemas and high-throughput streaming pipelines.	
• Implemented Monte Carlo simulations, Value at Risk (VaR), drawdown, and portfolio risk metrics.	

Selected Projects

- **E-Commerce Backend System:** Spring Boot backend with JWT/OAuth2 authentication, 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 signal optimization.
- **Cambridge Dataset Analysis (Kaggle):** Exploratory data analysis, clustering, and model optimization using Python.

Education

Bachelor's in Pure Mathematics and Computer Science
Al-Azhar University, Cairo, Egypt
Final Grade: Very Good