

Mohamed Hafez

Software Engineer | Software Developer | Backend Developer

Java · Python · Spring Boot & Microservices · REST & SOAP APIs · Enterprise Systems · Agile

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Legally authorized to work in Canada for any employer — no sponsorship required. Open PGWP valid to June 2029.

Summary

Software Engineer with an **M.A. in Information Systems & Technology** and **5+ years** building production backend and mobile systems in **Java** and **Python**. Developed **Spring Boot microservices** exposing **REST and SOAP APIs** for regulated enterprise content platforms, alongside **9** Android applications with **4** published to Google Play. Experienced across the full SDLC — design, implementation, testing, debugging, root-cause analysis, and production support — delivering in **Agile** weekly sprints with Trello and Azure DevOps.

Technical Skills

Languages: Java, Python, SQL, Kotlin, C, C++, C#, JavaScript, PHP, HTML/CSS, Bash

Backend: Spring Boot, microservices, REST and SOAP APIs, Tomcat, Maven, FastAPI, Flask, API design, JSON schema design, authentication flows, JDBC, structured logging, error handling

Databases: MS SQL Server, SQLite, Room, relational modelling, query optimization, SQL and DQL, batch data pipelines

Enterprise Systems: OpenText Documentum, Content Server, Composer, workflows and lifecycles, metadata validation, retention and archival, iText, PDF processing, log4j

Mobile: Android SDK, Kotlin, Java, MVVM/MVP, Retrofit/OkHttp, Room/SQLite, Firebase, Google Play Console

Testing & DevOps: JUnit, Mockito, Espresso, pytest, Gradle, Docker, CI/CD, GitHub Actions, regression testing, code review, debugging and root-cause analysis

Cloud & Tools: AWS, Google Cloud Platform, Microsoft Azure, Linux, Git, GitHub, IntelliJ, Eclipse, VS Code, Visual Studio

Ways of Working: Agile, Scrum, weekly sprints, daily standups, Trello, Azure DevOps, SDLC, technical documentation, runbooks, mentoring

Professional Experience

Graduate Researcher — Machine Learning & NLP

Sep 2024 – Apr 2026

York University, CERAS Lab

Toronto, ON

- Built **Python** ML/NLP pipelines and a reproducible evaluation framework benchmarking transformer architectures; developed data-validation and label-quality tooling over a unified 19-entity schema.

Software Engineer — ECM Consultant

Aug 2023 – Sep 2024

BASS, an enterprise content management consultancy

Cairo, Egypt

- Developed **microservices** in **Java** and **Spring Boot** exposing **REST** and **SOAP** APIs on an embedded **Tomcat** server, with standardized **JSON** schemas, authentication flows, and documented interface contracts.
- Implemented and supported enterprise content workflows and lifecycles in **OpenText Documentum** for document intake, review, routing, archival, and retention within regulated, **PII-aware** environments.
- Built **DQL** validation scripts and metadata-quality controls supporting production content operations, retrieval, and policy compliance.
- Built PDF generation, assembly, and transformation utilities using **Java**, **iText**, **Maven**, and **log4j**; added structured logging and failure diagnostics to improve supportability.
- Performed debugging, root-cause analysis, performance tuning, and log-based investigation across content queries, workflows, and scheduled jobs.
- Delivered in **Agile** weekly sprints with daily standups, tracking work in **Trello** and **Azure DevOps**; maintained Git workflows, release notes, and runbooks, and mentored junior contributors.

Freelance Android Developer

Jul 2019 – Jun 2024

Self-Employed / Client Projects

Remote — Cairo, Egypt

- Delivered **9** Android applications end-to-end using **Kotlin** and **Java** with **MVVM/MVP** and Clean Architecture, **Retrofit/OkHttp**, **Room/SQLite**, **WorkManager**, and **Firebase**.
- Published **4** applications to **Google Play**, owning AAB signing, store listings, staged rollouts, production updates, and crash/ANR triage.
- Implemented **REST** integration, authentication, offline-first caching, background sync, push notifications, and **Maps/Location**; built **Material Design** UI with performance and threading work.
- Integrated **OCR**, computer vision, and API-based **ML inference**, including near-real-time assistive workflows with text-to-speech.

AI & ML Specialist

Jun 2021 – Aug 2023

DotPy

Cairo, Egypt

- Built and supported **Python** services, utilities, and API prototypes for forecasting, recommendation, classification, sentiment analysis, and computer vision use cases, delivered as **Dockerized** prototypes with handover documentation.
- Collaborated with developers to define **REST/JSON** contracts, endpoint behaviour, authentication expectations, rate limits, and error handling.
- Applied **CI/CD** workflows, code review, versioning, and packaging practice; worked in **Agile** weekly sprints with daily standups coordinated through **Trello**.
- Translated client requirements into technical plans and mentored junior developers on debugging, Git workflows, API integration, and clean code practice.

Freelance Java Developer

Sep 2019 – Jun 2023

Self-Employed / Client Projects

Remote — Cairo, Egypt

- Participated across the full **SDLC** — performance analysis, design, development, and testing — for client **Java** applications.
- Developed a Java restaurant management application and an online Tic-Tac-Toe game built on **network sockets** with client/server communication; troubleshooted defects through structured debugging and maintained technical documentation.

Teaching Assistant & Technical Instructor

Jun 2019 – Apr 2026

York University; CIC, DotPy Academy, and private instruction

Toronto, ON | Cairo, Egypt

- Taught **200+ hours** across six institutions in Data Structures, Java/OOP, and AI/ML, and served as Teaching Assistant in Data Visualization and Systems Architecture at York University — demonstrated ability to explain complex technical material to non-expert audiences.

Projects

Northstar RAG System | Python, FastAPI, LangChain, Chroma, sentence-transformers, RAGAS, Docker

2026 | GitHub

- Built a **retrieval-augmented generation** service with **PyMuPDF** extraction, recursive chunking, local **sentence-transformer** embeddings, and a persistent **Chroma** vector store; enforced grounded generation by filtering retrieved chunks on cosine distance and refusing rather than answering unsupported questions.
- Returned full provenance (document, page, chunk, distance) on every answer; built a **RAGAS** harness comparing retrieval configurations on faithfulness, answer relevancy, context precision, and context recall.

Published Android Applications | Google Play

2019 – 2024

- **Dostava Delivery** (Java, MVVM, Retrofit, Room, Firebase, Maps) — on-demand courier app: order creation and assignment, live status tracking, push notifications, offline-first caching, background sync, and map routing.
- **Your Life Is My Life** (Kotlin, MVVM, Retrofit, Firebase Auth/Analytics) — private wellbeing companion with accessible UI, secure authentication, and safe local storage.
- **Healthy Habit / Food Planner** (Java, MVP/MVVM, Room/SQLite, WorkManager) — recipe CRUD, meal scheduling, shopping lists, offline storage, and reminders.
- **The Death Ninja** (Java, Unity, Play Console) — action game with rendering and input-latency optimization, crash/ANR triage, AAB signing, and staged rollout.

Mind's Eye — Assistive Smart-Glasses System | Android (Java), Arduino, OpenCV, Tesseract OCR

Capstone — Grade A+

- Delivered **80%+** of a wearable assistive system integrating mobile, embedded, and cloud components for face, object, and currency detection with OCR-driven text-to-speech; built Egyptian currency recognition entirely from scratch.

Education

York University — M.A. Information Systems & Technology

Sep 2024 – Apr 2026

Thesis: ASC-PIE — An Evaluation Framework for PII-Aware Named-Entity Recognition

Toronto, ON

- Focus areas: Machine Learning, NLP and Named-Entity Recognition, Large Language Models, and privacy-aware AI systems. Supervised by Prof. Marin Litoiu, CERAS Lab.

Helwan University — B.Sc. Computer Science & Artificial Intelligence

Sep 2018 – Jun 2022

Excellent with Honors | Ranked 2nd in class | GPA 3.72/4.0

Cairo, Egypt

- Major: Computer Science. Minor: Information Systems. Capstone graded A+.

Information Technology Institute (ITI) — Mobile Application Development (Android)

Mar 2023 – Jul 2023

Professional certificate: Android engineering, REST integration, MVP/MVVM, Git workflows

Cairo, Egypt

Certifications & Awards

AWS Machine Learning Foundations — Udacity, 2022

Excellent with Honors — 2nd in class, GPA 3.72/4.0

Mobile Application Development (Android) — ITI, 2023

Capstone Grade A+ — Mind's Eye

Certified Ethical Hacker (CEH) — Training Programme — Inspire Academy, 2022

ICPC Contestant — 2019, 2020, 2021

Languages: English (Professional proficiency), Arabic (Native)