Abdelrahman Amgad

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Education

Faculty of Engineering, Alexandria University Expected Graduation: June 2027
Bachelor of Computer and Systems Engineering

Experience

Incorta August 2026 – Present
Software Engineering Intern

- Customer-facing team owning Incorta's highest-impact problems end to end, from requirements to delivery.
- Built a standalone rename service for Incorta entities, a capability missing since launch.
- Mapped references across storage layers and thousands of dependent queries, views, and dashboards.
- Designed a dependency-detection module reused by other teams.
- Owned an RFP platform from requirement gathering to delivery; became the system of record from partner requests to win/loss.

Alexandria University July 2025 – September 2025
Machine Learning Intern — Research Lab

- Engineered a real-time fire detection model by integrating a ConvNeXt-Tiny backbone with a YOLOv8 head.
- Improved detection performance from **86.7%** to **92.8% mAP@0.5** on the Home Fire Dataset, reducing computational cost by **90%** (**59.5** → **5.6** GFLOPs) enabling edge deployment.

Projects

Cinemate | *Source Code* Spring Boot | PostgreSQL | Kafka | Redis | Docker

- Built a movie social platform (forums, reviews, WebSocket watch parties) behind a Spring Cloud Gateway with JWT verification and distributed token-bucket rate limiting shared across replicas.
- Re-architected content moderation from a synchronous HTTP call blocking every write (**200–2000 ms**) into an asynchronous pipeline: transactional outbox → Kafka → micro-batched ONNX workers, reducing write-path latency to ∼**10 ms (p50)** while applying moderation verdicts asynchronously in ∼**0.7 s**.
- Ensured **zero lost moderation requests** via atomic content+outbox commits, at-least-once delivery with manual offset commits, a dead-letter queue, and idempotent verdict handling.

Weather Observability Platform | *Source Code* Java | Kafka | Elasticsearch | Parquet

- Implemented a **BitCask storage engine** from scratch with log compaction, hint files, and in-memory key directories for constant-time reads and crash recovery.
- Built a high-throughput Kafka pipeline from distributed IoT nodes; used Kafka Streams for real-time anomaly detection and alert routing.

PintOS | *Source Code* C | CMake

- Implemented priority scheduling with multi-level priority donation to resolve priority inversion across nested locks.
- Replaced busy-wait with an interrupt-driven sleep queue; built an MLFQS scheduler with priority decay.

Leadership

Mind Cloud August 2023 – August 2025
Software Engineer → Team Lead & AI Mentor *Technical Team*

- Led an 8-person team building software systems that integrated deep learning models for computer vision and speech recognition on robotic platforms; ran technical sessions and mentored members.
- Team results: **2nd globally** in the Unmanned Ground Vehicle Competition (UGVC) 2024, and **Top 8 of 150+ teams** in the AIC-2 AI competition.

Technical Skills

Languages: Java, Python, C++, C, SQL, JavaScript
Backend & Data: Spring Boot, PostgreSQL, Kafka, Redis, Elasticsearch
Infrastructure & Tools: Docker, Linux, Git