AMR HEGAZY

Computer Science and Engineering Student

@ amr.hegazy128@gmail.com +4915140329843 Munich, Germany Date of Birth: 29th of Sept 2003 Amr Hegazy Amr-Hegazy1

EDUCATION

Masters of Informatics
Technical University of Munich

Oct 2026 – Jul 2028 Munich, Germany

Bachelor's Thesis Exchange
Technical University of Munich

Feb 2025 – Aug 2025 Heilbronn, Germany

- Thesis: Safety-guaranteed utilization of foundation models in robotics via reachability analysis.
- Grade: A+

Bachelor's of Computer Science and Engineering
German University in Cairo

Oct 2021 - July 2026 Cairo, Egypt

- Accumulative Grade: Excellent with highest honors ≅ Accumulative GPA: 0.80 (German Scale (**A+**))
- Consistently ranked in the top 5% of my class.

PROFESSIONAL EXPERIENCE

AI & Automations Engineer
ResearchPreneurs

April 2025 – May 2026 Heilbronn, Germany

- Built AI-driven recommendation system matching researchers with companies, reducing manual matching time by 85%.
- Led migration planning from monolithic to microservices architecture.
- Automated key team workflows, increasing overall productivity by 6x.

Machine Learning Researcher
Siemens DISW

Nov 2023 – Nov 2025 Cairo, Egypt

- **Calibre QA Team (2023–2024):** Applied LLMs for regression test keyword extraction and automatic test case generation. Built a phenomenological ML model for parasitic capacitance extraction based on shadow phenomena, achieving an adjusted R^2 of 99.6%.
- **DVT QA Team (2024–2025):** Developed ML models to predict FPGA synthesis features (RAMs, DSPs, FSMs) directly from RTL designs, bypassing the traditional synthesis flow. Work resulted in a published IEEE paper at ICM 2025.

E-commerce Intern
FRONERI

July 2023 – Sept 2023 Cairo, Egypt

- Conducted sell-in/sell-out data analysis, identifying market gaps that influenced regional sales strategy.
- Conducted Customer Reviews for Talabat, Breadfast & Rabbit.
- Researched and prototyped customer-facing e-commerce platform, contributing to digital expansion roadmap.Certificate

Software Engineering Intern
Shatablee

Aug 2022 – Oct 2022 Cairo, Egypt

- Development of floorplanning self-identification ML-platform that reduces manual drafting effort by 90%:
  - Image processing to identify key features in floorplans and generate a simplified yet standardized version of it.
  - Trained Machine Learning models to identify door, windows, zones, etc.
  - Generate labeled AutoCAD format for 3D modeling stage.
  - Constructed floorplan 3D models. Certificate

TECHNICAL VOLUNTARY ACTIVITIES

Machine Learning Head
QuBit GUC

Nov 2023 - Sept 2024 Cairo, Egypt

- Explained concepts of classical machine learning, neural networks & reinforcement learning to club members
- Explored quantum machine learning techniques with classical models and reinforcement learning

ICPC GUC Trainee
ICPC GUC Community

July 2022 – Aug 2026 Cairo, Egypt

- Trained in advanced data structures and algorithms (segment trees, heaps, graph theory, string algorithms) and competed in weekly Codeforces contests.

TRAINING

AWS Solutions Architect Associate
Coursera

July 2024

- Covered cloud architecture design, compute/storage/networking services, data lakes, and security best practices on AWS.

PUBLICATIONS

Gated Recurrent Transformers: Expressive Depth through Recurrent Modulation

Preprint · arXiv:2608.15062

Guiding Giants: Lightweight Controllers for Weighted Activation Steering in LLMs

Accepted at ACL TrustNLP 2026 · arXiv:2505.20309

AI/ML Based Prediction of FPGA Synthesis Features From RTLs

Published at ICM 2025, IEEE

Safe LLM-Controlled Robots with Formal Guarantees via Reachability Analysis

Preprint · arXiv:2503.03911

Keyphrase Trees: Enhancing LLM Prompts with Hierarchical Topic Extraction

Published at AICCONF 2025

TECHNICAL SKILLS

Languages: Python, Java, C/C++, JavaScript, SQL, CUDA
Frameworks & Tools: PyTorch, HuggingFace, scikit-learn, vLLM, Docker, Kafka, Spark, Airflow, AWS, Git

ACADEMIC SERVICE

Reviewer
ICML 2026

AI4GOOD & CompLearn Workshops

Reviewer
IROS 2026

Reviewer
AAAI 2025

Main Conference

PROJECTS

Rahhal Travel Platform

2025

- Built a full-stack role-based travel platform with React frontend and Node.js/TypeScript microservices (auth, booking, payments, notifications, etc.), each containerized with Docker and backed by MongoDB.
- Designed event-driven communication using RabbitMQ for asynchronous workflows like booking confirmations and payment updates.
- Integrated Stripe for secure payments, Google Maps & Amadeus APIs for travel data, and Firebase for file uploads.
- Ensured reliability with JWT authentication, schema validation, API documentation, and automated testing/CI.

Pint OS

2024

- Extended the PintOS kernel with user-level programs, system calls, and a virtual memory subsystem (page tables, address translation, swapping).
- Enhanced the file system by implementing inodes, directories, and file handling for efficient storage and access.
- Optimized memory and storage management to support larger workloads and improve OS reliability.

ML Circuit Solver

2023

- Using Computer Vision to construct a graph from a circuit picture to simulate it.
- Made using YoloV8, OpenCV, Networkx.

AmrNet

2023

- Released a PyPI deep learning library for building, training, and evaluating neural networks.
- Packaged framework with modular API; published on PyPI.

LANGUAGES SKILLS

Arabic: Native, **English**: Fluent, **French**: B1, **German**: A2.