

Osama A.M. Sarhan

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SUMMARY

Machine Learning Engineer and Applied AI Specialist with a strong portfolio of real-world implementations and open-source contributions (125+ repositories on GitHub).

Kaggle Silver Medalist (Top 4% globally) with proven expertise in building scalable machine learning models for complex, high-dimensional problems.

Associate Member of Sigma Xi and active contributor to the global AI ecosystem (Black in AI, KaggleX Mentor), with research focus on robust AI systems in healthcare and misinformation detection.

Recognized across leading platforms (Google Developer Profile, Credly) for continuous learning and applied expertise in AI, cloud computing, and data-driven systems.

Experienced in designing end-to-end ML pipelines using Python, TensorFlow, and AWS, from experimentation to production deployment.

EXPERIENCE

Software Engineer and Data scientist

Freelancer

September 2020 - Present, Egypt

- Built state-of-the-art ML models using AutoML, increasing prediction accuracy by 30% and reducing development costs by 66%.
- Completed over 50 end-to-end ML projects, including experimentation, deployment, and ongoing monitoring to ensure optimal model performance and reliability.
- Leveraged a Jupyter-based fully managed, scalable, enterprise-ready compute infrastructure to accelerate ML experimentation and deployment workflows, reducing setup time by 30%.
- Implemented a unified data and AI platform with tooling for pre-trained and custom models, reducing ML workflow time by 30% across teams.
- Integrated pre-trained APIs for vision, video, and natural language processing to accelerate application development and improve functionality.
- Conducted data analysis, reporting, and visualization using Excel, Tableau, and Power BI to support strategic business decisions.
- Coordinated cross-functional collaboration with all company departments to align ML initiatives with business objectives.
- Developed a company A/B testing framework to evaluate and improve model quality and performance metrics.
- Engineered mobile application using Kotlin to expand platform capabilities and user engagement.
- Implemented sentiment analysis solutions for customer feedback, extracting actionable insights to improve service quality.

Chemist scientist

Petrotrade

May 2006 - present, Egypt

- Supported company strategy by conducting environmental studies, analysis, and reports to inform policy decisions and compliance requirements.
- Prepared comprehensive supporting documents for hazardous material transactions, ensuring regulatory compliance and safety standards.
- Developed and implemented prevention plans for health and environmental damage, reducing incidents and improving workplace safety.
- Managed waste disposal, recovery, and recycling programs, optimizing resource utilization and environmental impact.
- Conducted waste inventories and audits, identifying improvement opportunities and ensuring compliance with environmental regulations.
- Coordinated with petroleum companies to ensure timely waste oil collections and health regulation enforcement across facilities.
- Prepared and delivered daily, weekly, and monthly safety reports to leadership, tracking key metrics and compliance status.
- Monitored plant waste management systems and reviewed reports to identify trends and implement corrective actions.

Military Service | Completed mandatory military service.

Egyptian Navy

October 2004 - December 2005

PROJECT

Computing hydrocarbon chemical reactions based on graphs in 2021

community.wolfram.com/groups/-/m/t/2312085

- During the highly selective Wolfram Summer School, I developed an advanced computational model using Graph Theory. The project's technical merit was recognized with a 'Staff Pick' award—ranking in the top 5% with over 7,400 views—and its commercial viability resulted in Wolfram Research executing a formal Intellectual Property agreement to secure the rights to my work and granting me access to unreleased, proprietary versions of Mathematica
- The goal of this project is to simulate one-pot synthesis starting from simple graphs representing chained hydrocarbon molecules.

Generate Synthetic Images with DCGANs in Keras

www.coursera.org/account/accomplishments/certificate/ASJKW7DHRS2X

Image Denoising Using AutoEncoders in Keras and Python

www.coursera.org/account/accomplishments/certificate/UL2C5PKFM6XM

Image Classification with CNNs using Keras

www.coursera.org/account/accomplishments/certificate/RSFLMVUQ67PL

EDUCATION

Master of information technology

Alexandria university · Alexandria (Egypt)

Diploma in Software Engineering

Cairo University · Cairo (Egypt)

· Information and Communication Technologies: Software and applications development and analysis, Database and network design and administration, Computer use.

Bachelor of Science

Alexandria University · Alexandria (Egypt)

· Physics | Chemistry. nuclear physics

CERTIFICATIONS

AI Certifications

- AWS Certified Cloud Practitioner – 2023
- Google Data Analytics Certificate – 2022
- Huawei HCIA-AI – 2021
- Udacity Advanced Data Analysis Nanodegree – 2021

Wolfram Language: Introduction to Machine Learning

· Link: https://drive.google.com/file/d/1sHSKErSR5Lh_A7zdymo9VpRI3FoAlt7z/view?usp=sharing.

Kaggle Computer Vision Certification

· Link: <https://www.kaggle.com/learn/certification/osamasarhan/computer-vision>.

INVOLVEMENT

Graduate Researcher | Information Technology - Alexandria University

· Currently conducting advanced academic research on Artificial Intelligence resilience within the healthcare sector. My thesis, *Mitigating Feature Drift in Healthcare Fake News Detection Systems*, focuses on engineering robust machine learning architectures that can withstand adversarial data inputs and shifting misinformation trends, ensuring the security of critical medical data infrastructure.

Data scientist (Volunteering)

KaggleX BIPOC Mentorship Program · 22/23/24 three times

- The goal of this program is to increase representation, create career opportunities, and develop individual growth for BIPOC (Black, Indigenous, People of Color) people in the data science industry.
- This will be achieved through pairing early-career Kagglers with advanced and senior-level mentors, curating a space for career-related discussion and learning opportunities.
- Link: <https://www.kaggle.com/kagglex-bipoc-mentorship-program>.

AWARDS & HONORS

Associate Member of Sigma Xi

The Scientific Research Honor Society · 2026

- Inducted into Sigma Xi, a prestigious international scientific research honor society recognizing excellence in Artificial Intelligence, Machine Learning, and Data Science.
- Selected based on research achievements and demonstrated contributions to computational and data-driven scientific fields.

Silver Medal: Stanford RNA 3D Folding

Kaggle (in partnership with Stanford University) · 2026

- **Achieved Silver Medal** – Kaggle Competition (Stanford RNA 3D Folding Part 2) | 2026 Ranked 81st out of 1,867 teams worldwide (Top 4%). Demonstrated advanced machine learning and computational modeling skills in structural biology.
 - **Engineered advanced predictive AI models** capable of accurately determining 3D RNA folding structures, successfully processing complex, high-dimensional biological datasets.
 - **Demonstrated critical expertise in biomedical computing**—a strategic area of U.S. national interest—by developing robust, resilient algorithms that directly advance medical research and healthcare AI infrastructure.
 - **Validated advanced machine learning methodologies** against thousands of global competitors, proving an exceptional ability to deploy secure, high-performance AI solutions in critical healthcare contexts.
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SKILLS

Databases & Web Development: Oracle, SQL, Django, OWL.

Programming Languages: Java, Python, Matlab, Wolfram,

Languages: Arabic (Native), English (B2), German (B1), French (A1)
