

Education

- **M.Sc. in Artificial Intelligence and Data Science**, School of Computing, Queen’s University, Canada. **2023 – 2025**
- **B.Sc. in Software Engineering**, Faculty of Computers and Information Science, Mansoura University, Egypt. **2016 – 2020**

Work Experience

**Data Engineer** **eyouth** **May 2025 – Present**  
Cairo, Egypt

- Designed and delivered Data Engineering diploma programs, covering modern data architectures, ETL/ELT pipelines, big data frameworks, and cloud-based solutions.
- Developed a comprehensive, industry-aligned curriculum incorporating tools such as Apache Spark, Airflow, Kafka, and cloud platforms (AWS, IBM Cloud).
- Mentored participants through hands-on projects simulating real-world data engineering challenges, ensuring both technical depth and best practices in production environments.

**Data & AI Engineer - MEA Expert Labs** **IBM** **Aug 2024 – May 2025**  
Giza, Egypt

- Contributed to client-facing AI projects utilizing IBM Watsonx AI technologies, focusing on the implementation and fine-tuning of large language models (LLMs) for industry-specific applications.
- Assisted in designing data ingestion pipelines and ensuring data quality standards were met to improve model accuracy and reliability within NLP and LLM-based solutions.
- Collaborated with senior engineers to integrate LLM-driven solutions into existing workflows, optimizing data processing and model efficiency for scalable deployment.
- Documented best practices and initial findings on LLM applications, supporting future project scalability and knowledge sharing within the team.

**LLMs, NLP, RAGs, AI Assistants, VectorDBs, Elasticsearch**

**Machine Learning Operations Engineer** **Tribal** **Feb 2023 – March 2024**  
United States (Remote)

- Set up and maintained the data science infrastructure in various development, staging, and production environments.
- Built a CI/CD pipeline for the different data and machine learning use cases.
- Designed different data and machine learning pipelines using the data orchestrator, Dagster.
- Maintained code quality, version control, packaging, and containerization.
- Developed new PoCs for a better MLOps setup.
- Worked on the data quality by enriching and transforming it for analytical purposes.
- Built APIs and web interfaces to better utilize and automate Machine Learning models and data solutions for internal use.
- Worked on a centralized monitoring system for our deployed applications and infrastructure.

**MLOps, Kubernetes, KubeFlow, Docker, AWS EKS, SageMaker, ECS, Lambda functions, Terraform, Dagster**

**Data Scientist** **Paymob** **Jan 2022 – Feb 2023**  
Cairo, Egypt

- Developed and deployed a merchant churn prediction system to predict whether merchants will churn or not using a boosting classifier and deployed it using Apache Airflow, which increased customer satisfaction and decreased costs.
- Developed and deployed a fraud detection machine learning model using the ensemble method on AWS that integrates with a rule-based system that defines financial risk transactions, increasing the accuracy of identifying fraud, decreasing financial loss, and increasing reputation.
- Worked on customer segmentation problems to segment customers based on their behavior using cohort analysis, RFM, and K-means.
- Developed a parser of Arabic Egyptian street addresses using deep learning.
- Worked on ML research and data analysis of creditworthiness and credit default data.

**Supervised machine learning, Clustering, RFM Segmentation, Forecasting, SQL, Python, Pandas, Matplotlib, NumPy, Docker, Apache Airflow, PySpark**

**Data Engineer**

**Paymob**  
Cairo, Egypt

**Nov 2020 – Jan 2022**

- Worked on developing the data warehouse using Apache Hive that served the entire company.
- Deployed and worked with metadata discovery tools that document data, which helped develop data-driven systems.
- Developed a PII system to identify/extract sensitive personal data.
- Developed ETL batch and streaming jobs.

**Docker, Kubernetes, Apache Hive, Apache Flink, CDC, Apache Kafka, Spark, Data Catalogs**

**Summer Academy Intern**

**Dell Technologies**  
Cairo, Egypt

**Aug 2019 – Sep 2019**

- Got training and certification in Information Storage Management, and hands-on workshops on AI, VMware, IoT, and V/AR.

**Virtualization, VMware, Cloud Computing**

**Business Intelligence Trainee**

**IBM**  
Giza, Egypt

**July 2018 - Aug 2018**

- Got Business Intelligence training and worked with IBM Cognos Analytics.

**Descriptive Analytics, Cognos**

**Odoo developer Intern**

**Select for technology solutions**  
Mansoura, Egypt

**Sep 2018 - Oct 2018**

- Got Python training, worked on collecting ERP application requirements, and built an Odoo application.

**Python, Git**

## Technologies and Languages

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- Languages: Python, SQL
- Machine Learning: Supervised, Unsupervised, Deep, and Reinforcement Learning | Scikit-learn, TensorFlow
- Data Science: Collection, Cleaning, Preprocessing, Visualisations, Hypothesis Testing, Descriptive and Predictive analytics | Pandas, NumPy, Matplotlib, Plotly
- MLOps: TensorFlow Extended, KubeFlow, MLFlow, DVC
- Big Data Engineering: Apache Spark, Dagster, Apache Airflow, Apache Kafka, Apache Flink
- Web scraping: Scrapy
- Cloud: IBM Cloud, AWS: SageMaker, EC2, ECS, EKS, Lambda, CloudWatch
- Infrastructure as Code: Terraform
- Deployments: Docker, Kubernetes
- OS: Linux
- Continuous Integration/Development: GitLab CI/CD
- Version control: Git
- Web Frameworks: Flask, FastAPI

## HONORS & ACHIEVEMENTS

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- Participant at OpenAI Whisper Hackathon
- Open source contributor at Omdena
- Winner at Kaggle COVID-19 Open Research Dataset Challenge (CORD-19) organized by STP
- 4th place winner at Dell Envision the Future graduation project competition
- 1st place winner at IoT-based projects competition at FCIS MU
- Top finalist at the Green Hackathon organized by RiseUp
- Participated in Dubai CommerCity Hackathon organized by RiseUp
- Participated in NASA's Space Apps Cairo Hackathon
- Participated in Huawei ICT Competition – Cloud Track
- Participated in 1 million Arab coders – Data Analyst Track