

# Mahmoud Mostafa Helmy

## Software Engineer - Machine Learning

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📍 Cairo, Egypt

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🛡 Exempted

### Professional Experience

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2022/09 – present  
Cairo, Egypt

#### Software Engineer - Machine Learning

Giza Systems

- Applied object-oriented programming (OOP) principles to develop modular and maintainable **Python** code.
- Working On **Microservice** Architecture
- Building APIs using **Django** and **DjangoRestFramework**
- Building **GraphQL** endpoints using **Graphene-Django**
- Orchestrated data workflows efficiently with **Apache Airflow**, ensuring timely data processing.
- Creating **ETL Pipelines** for Intelligent Traffic Management using **Apache NIFI**
- Containerized Microservices using **Docker**, enabling consistent deployment across **Linux**-based environments.
- Created and managed **CI/CD pipelines** using **Azure DevOps** Pipelines for automated deployments.
- Created and deployed interactive dashboards using **Kibana** for data visualization and real-time insights.
- Implemented **Redis** as a caching mechanism for microservices, improving data retrieval speed and system performance.
- Designed, developed, and maintained machine learning pipelines using **PySpark**, enabling efficient data processing and modeling.
- Administration and installation of **Hadoop** to store data processed parallelly using **Spark**
- Utilized **MLflow** for managing and tracking machine learning experiments, facilitating reproducibility, model management, and version control.
- Integrated **Kafka** for real-time data streaming between Microservices and event-driven architecture, ensuring timely data ingestion and processing.
- Developed simulators using **Node-RED** to mimic real-world scenarios for testing and validation.
- Designed and implemented comprehensive **unit tests** for codebase, ensuring code quality, reliability, and maintainability.
- Utilized **Git** for version control, ensuring effective collaboration, code tracking, and version management.
- Collaborated closely with cross-functional **Agile** teams, including product owners, Scrum Masters, and other developers, to deliver high-quality software solutions in iterative sprints, ensuring alignment with customer requirements and adapting to changing priorities.

2021/11 – 2022/01  
Cairo, Egypt

#### Desktop Developer Intern

NileCom

- Working on .NET framework Application to communicate with the government E-Billing System APIs
- Enhancing Application Security and Performance

2021/08 – 2021/09 Cairo, Egypt	<b>ASP.NET Developer Intern</b> <i>FlairsTech</i> <ul style="list-style-type: none"> <li>• Creating A Logging Microservice using ASP.net MVC Using .NET core 6</li> </ul>
2018/01	<b>Desktop Developer Freelancer</b> <i>Upwork</i>

## Education

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2018 – 2022 Cairo, Egypt	<b>Bachelor of Computer and Information Science</b> <i>Ain Shams University</i>
2003 – 2018 Cairo, Egypt	<b>Thanawya Amma</b> <i>Nokrashy Language School</i>

## Certificates

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- Altryx Micro-Credential Certified [↗](#)
- Machine Learning - Coursera [↗](#)
- Time Series Forecasting - Kaggle [↗](#)

## Awards

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2022/07	<b>Natural Language Processing Project First Rank (Sentence To Sentence Semantic Similarity)</b> <a href="#">↗</a> <i>Dr. Sally Saad</i> Achieved first rank in the Natural Language Processing Project Course Sentence To Sentence Semantic Similarity
2020/07	<b>Data Structures Course Excellence</b> <a href="#">↗</a> <i>Dr. Wedad Huessein</i> Certificate for the great efforts in the data structure course.
2021/02	<b>Machine Learning Project First Rank (Amazon Product Rating Prediction)</b> <a href="#">↗</a> <i>Dr. Dina Khattab</i> Achieved first rank in the Machine Learning course project Amazon Product Rating Prediction

## Languages

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**English** (Fluent) • **Arabic** (Native)

## Projects

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2022/11 – present	<b>Inelegant Transportation System</b> <i>Giza Systems</i> <ul style="list-style-type: none"> <li>• Designed and constructed a robust integration layer connecting various radar and traffic camera vendors such as Tattile, Flair, Avidbeam, and Yunex.</li> <li>• Facilitated secure data transfer to our proprietary platform, "IDP," and the "Yunex Traffic Management System."</li> <li>• Developed custom connectors and interfaces tailored to each camera vendor's data format and APIs, ensuring seamless data extraction.</li> <li>• Designed the system for scalability, accommodating new camera vendors and increased data volumes.</li> <li>• Maintained reliability to ensure data consistency and availability.</li> </ul> <b>Technologies Used:</b> <ul style="list-style-type: none"> <li>• Apache NIFI</li> <li>• Redis</li> <li>• NTCIP</li> </ul>
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- Jython
- Groovy

2022/09 – present

### **KPIs Service**

#### *Giza Systems*

- KPIs Service is a microservice application inside the IDP (Industrial Digitalization Platform) for executing custom equations and displaying real-time results.
- Users can input their own equations for calculation.
- The microservice employs Kafka for data ingestion and communication.
- Equations are implemented.
- The service is highly scalable to accommodate varying user demands.
- Results are displayed in a user-friendly format.
- Security measures ensure data confidentiality.

#### **Technologies Used:**

- Microservices Architecture
- Kafka
- Docker
- Python
- Django
- PostgreSQL
- Monitoring and Logging (ELK Stack)

2022/05 – 2022/06

### **Real-Time Video Fire Detection**

#### *Graduation Project*

- Developed a real-time video fire detection system, enabling the identification of fires in live CCTV camera feeds.
- Achieved an Excellent grade for the project.

#### **Technologies Used:**

- Python
- YOLOv5
- PyTorch
- Machine Learning
- Flask

2020/07 – present

### **Trademe.co.nz Auto Deliver**

#### *Freelancing Project*

- Created an automated system for monitoring seller accounts on Trademe.co.nz.
- Verified user payments and delivered product keys promptly.
- Utilized C# .NET Framework, SQLite Database, Trademe.co.nz API, and SMTP for seamless operation.

#### **Technologies Used:**

- C# .NET Framework
- SQLite Database
- Trademe.co.nz API
- SMTP

2018/03 – present

### **eBay Arbitrage**

#### *Freelancing Project*

- Conducted product listing and pricing optimization on eBay UK by scraping Amazon.com.au products.
- Employed C# .NET Framework, Windows Forms, SQLite Database, NHibernate Database, and web scraping techniques.
- Managed eBay interactions using eBay Trading API and eBay Large Merchant API.

#### **Technologies Used:**

- C# .NET Framework
- Windows Forms
- SQLite Database

- NHibernate Database
- Web Scraping
- HTML Parsing

2021/12 – 2022/01

### **Music Recognition**

*Image Processing Course Project*

- Developed a music recognition system using image processing techniques.
- Implemented in MATLAB.

#### **Technologies Used:**

- MATLAB
- Image Processing

2019/03 – 2022/11

### **Transfermarkt.co.uk Scraper**

*Freelancing Project*

- Scraped player data and statistics from English leagues, saving the information in Excel files.
- Used the data for player attribute prediction and mobile soccer game development.
- Technologies included C# .NET Framework, Windows Forms, SQLite Database, web scraping, HTML parsing, and machine learning.

#### **Technologies Used:**

- C# .NET Framework
- Windows Forms
- SQLite Database
- Web Scraping
- HTML Parsing
- Machine Learning

2020/04 – 2020/06

### **Plants VS Zombies**

*OOP Course Project*

- Designed and developed a tower-defense game featuring zombies and plant-based defenses.
- Created using Java and the LIBGDX framework.

#### **Technologies Used:**

- Java
- LIBGDX Framework

2022/05 – 2022/06

### **Weather Analysis Using Deep Learning**

*Neural Network Course Project*

- Implemented weather analysis using image recognition with neural networks.
- Utilized Python and TensorFlow for the project.

#### **Technologies Used:**

- Python
- TensorFlow

2020/02 – 2020/03

### **Ikea Scraper**

*Freelancing Project*

- Conducted web scraping to gather product data from [www.ikea.com](http://www.ikea.com), organizing it into Excel files.
- Developed using C# .NET Framework, Windows Forms, Excel, HTML parsing, and web scraping techniques.

#### **Technologies Used:**

- C# .NET Framework
- Windows Forms
- Excel
- HTML Parsing
- Web Scraping

2022/05 – 2022/06

### **Amazon Product Rating**

*Machine Learning Course Project*

- Developed a machine learning model for predicting Amazon product ratings based on Kaggle dataset [↗](#).
- Utilized Python and the Scikit-learn library for machine learning.

#### **Technologies Used:**

- Python
- Scikit-learn

## **Open Source Contributions**

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2023/08

### **Graphene-Django**

Contributed in the GraphQL library that runs on top of Django Framework.

v3.1.6

Added optional\_field in SerializerMutation [↗](#)