Abdelrahman Arafa

Machine Learning | Nuclear Engineer

✉ a.a.fathi@live.com 📞 +201025437552 🐙 A.Aladdin 🟦 A.Aladdin 🔗 A.Aladdin

📍 Alexandria, Egypt

PROFILE

Machine Learning Engineer with a strong foundation in developing data-driven applications across diverse domains such as physics modeling, financial simulations, and data visualization.

PROFESSIONAL EXPERIENCE

Machine Learning Engineer | Data Scientist　　　　　　　　　01/2022 – present
Upwork ↗
- **Immersion Analytics** ↗
  - Developed End-to-End Visualizations (18 dimensions) involving Data Extraction-Scraping, Preprocessing, and Visualization using (Python, Pandas, and Visualizer).
  - Developed a High-level Python API (With Documentation) for end users to facilitate scripting their visualizations.
- **Other projects include**
  - Natural Language Processing
    - Developed a sentiment analysis model to evaluate user feedback. (Python, Pytorch)
  - Retrieval Augmented Generation (RAG)
    - Developed a pipeline to store data and query a large language model for answers based on the stored information. (Python, Pytorch)
  - Financial Modeling and Simulation
    - Developed Deep learning Models to forecast stock prices. (Python, Pytorch)
    - Developed backtesting applications to evaluate and benchmark various trading strategies. (C#, Python)
  - Algorithmic trading
    - Developed automated financial trading platforms that execute trades based on data-driven strategies. (C#, Java)

Machine Learning Engineer Internship　　　　　　　　　　　10/2021 – 01/2022
Brightskies ↗　　　　　　　　　　　　　　　　　　　　　　　Alexandria, Egypt
Physics Modeling of 2D Acoustic Waves for Seismic Applications
Contributed to:
- Physics Simulation: Developed simulations in Python to generate training data for acoustic wave modeling.
- Model Training and Evaluation: Used PyTorch to train and evaluate models for wave propagation.
- Performance Optimization: Achieved faster high-resolution results in simulating wave propagation across a 2D surface, using various velocity profiles.

Scada Operation Engineer　　　　　　　　　　　　　　　　　05/2019 – 04/2021
VA-Tech Wabag ↗　　　　　　　　　　　　　　　　　　　　　　Cairo, Egypt
Water Treatment Plant Operation & Scada Engineer.
Contributed to:
- Developing basic data analysis & statistics software for easier exploration of plant data and report gathering (Using C#-WFA).

Embedded System Developer　　　　　　　　　　　　　　　　03/2018 – 05/2019
TechMaker　　　　　　　　　　　　　　　　　　　　　　　　Alexandria, Egypt
Programming Embedded system devices.

Contributed to:
- Temperature & Humidity Controller (Using MikroC, pic16f877a controller).
- Azan Clock (Using MikroC , pic16f877a controller).

EDUCATION

Artificial Intelligence Professional Program   04/2021 – 01/2022
Information Technology Institution ITI - Powered by EPITA ⊡
Graduation Project
Physics Modeling (Supervised by BrightSkies)
- Developing a Physics Informed Neural Network (PINN) for seismic applications.

Bachelor of Nuclear and Radiation Engineering   2011 – 2016
Alexandria University
Graduation Project
Nuclear Reactor 3D Visualization
- Python Scripting the 3D simulation environment (using Vizard 3D), and 3D Models Design (Blender3D).

COURSES

Udacity   2022
- Advanced Data Analysis Nanodegree.

Coursera   2022
- Mathematics for ML: Linear Algebra.
- Deep Learning Specialization.

DataCamp   2021
- Python Fundamentals Track.
- Data Scientist Track.

SKILLS

Technical Skills: Strong Experience in Data Preparation Exploration and Analysis, Building Machine Learning Models either Supervised or Unsupervised. Familiar with Cuda for Parallel Programming.

Confident Using Libraries: Numpy - Pandas - Scipy - Sklearn - Matplotlib - Seaborn - Plotly - Dash - TensorFlow - PyTorch - Django.

Programming Languages: Python, Java, C/C++, C#.

EXTRACURRICULAR ACTIVITIES

Kaggle In-Class Competitions   2021
Data Analysis | Machine Learning
Seoul Bike Rental Prediction (3rd Place ⊡).
- Data Analysis, ⊡ Feature Engineering and Model Training.
Dry-Beans-Classification (1st Place ⊡).
- Data Analysis ⊡ , Feature Engineering, Model Training.

Game Development
- Jack The Giant (2D Arcade Game, Unity Engine C# scripting, for Android devices).
- Memorize (2D Puzzle Game, Unity Engine C# scripting, for Android devices).
- Interactive 3D graphic scenes (Directx and C++).