Hussein Ali Mohamed Ameen

ML & Petroleum Engineer

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[LinkedIn] [Portfolio Website] [Github]

Petroleum Engineering graduate from Al-Azhar University with a strong academic background. Received an excellent grade for the graduation project. Seeking to apply knowledge in the Drilling, Refining, and Gas industry professionally. Committed to contributing effectively to the field.

EDUCATION

Bachelor of Petroleum Engineering, Al-Azhar University, Qena (2018 - 2023)

- I graduated with a general grade of excellence with honors, with a percentage of 85.6%.
- Graduation project about a comprehensive study in the field of Bahja, with a general grade of excellence of 91.2%.

EXPERIENCE

Intern, Pharaonic Petroleum Company (PhPC), Port Said site (Oct - 2022)

- Practical training in production and processing operations.

Intern, Egyptian Natural Gas Holding Company (EGAS), Nasr City (Sep - 2022)

- Internship program in planning Gas project & business Department.

Intern, Egyptian Petroleum Research Institute (EPRI), Nasr City (Dec - 2021)

- Office-based training program.

SKILLS

- Aspen HYSYS
- PROSPER
- Drilling Operations
- Reservoir Engineering
- Team collaboration
- Microsoft Excel
- Word
- PowerPoint
- Python Coding
- Time management
- Machine Learning
- Computer Vision
- Data Visualization
- Regulatory compliance
- Emergency response

COURSES AND CERTIFICATIONS

- **Aspen Expert User** and Certified User, Aspentech, 09/2023.
- **IWCF level 1** and Well Operations Crew Resource Management (WOCRM), 10/2023**.**
- **Advanced Diploma in Engineering Thermodynamics**, Alison, 11/2023.
- **9 Certifications from Schneider Electric Includes**: (Pumping Systems, Boiler Types and Opportunities for Energy Efficiency, Waste Heat Recovery, Compressed Air Systems, Steam Systems, Fan Systems).
- **English for Career Development MOOC**, U.S. Department of State OPEN, 10/2023.

- **Machine Learning Specialization**, Stanford University (DeepLearning.AI), 04/2024.
- **4 Certifications from IBM Includes**: (Machine Learning with Python, Python for Data Science, Deep Learning with TensorFlow, Data Visualization with Python), 11/2024.
- **Diploma in Deep Learning for Computer Vision,** WorldQuant University, 4/2025

MACHINE LEARNING PROJECTS

1. Converting Hydrate Formation Temperature Chart into a Prediction Model: Github Link

- **Description:** Developed a high-accuracy model to predict hydrate formation in oil/gas pipelines using Dataset extracted from HFT Charts.
- **Key Skills:** Regression Analysis, Model Selection, Hyperparameter Tuning, Feature Engineering, Data Preprocessing, Python (Pandas, NumPy, Scikit-learn, Matplotlib), Oil & Gas Flow Assurance, Hydrate Prevention.
- **Quantifiable Result:** Achieved near-perfect prediction (R^2=0.999, RMSE=0.125), demonstrating the model's ability to virtually eliminate prediction error and significantly reduce operational risks associated with hydrate formation, far surpassing traditional methods.

2. Seismic Data-Driven Reservoir Property Prediction: Github Link

- **Description:** Predicted porosity and Vshale in the F3 Block reservoir using seismic attributes and a Neural Network, achieving a testing R^2 of 0.93 for Vshale. Prepared SEG-Y files for 3D property prediction and integration with OpendTect.
- **Key Skills:** Seismic Data Analysis, Feature Extraction, Machine Learning (Regression, Neural Networks), Data Preprocessing (Standardization), OpendTect, Python (Scikit-learn, Pandas, NumPy, Segyio, *Lasio*), Reservoir Characterization, 3D Modeling.

3. Oil Pipeline Leakage Prediction and Analysis: Github Link

- **Description:** Analyzed PHMSA pipeline leak data (2010-Present) to predict leak size, cause, and costs using ensemble methods.
- **Key Skills:** Data Analysis, Exploratory Data Analysis (EDA), Feature Engineering, Data Preprocessing (Missing Value Imputation, Encoding, Outlier Handling, Standardization), Regression Analysis, Classification, Model Evaluation (RMSE, R-squared, Accuracy, Confusion Matrix, Classification Report), Python (Pandas, Scikit-learn, Matplotlib, Folium, Plotly), Oil & Gas Pipeline Safety, Risk Assessment.
- **Quantifiable Results:** Demonstrated superior predictive power with ensemble methods: Leak Size (R^2=0.90, GBR), Leak Cause (Accuracy=1.00, GBC), and Leak Costs (R^2=0.97, CatBoost), enabling proactive risk mitigation and cost-effective resource allocation.

4. Well Performance Prediction and Optimization: Github Link

- **Description**: Built separate Random Forest models for oil and water production from wells, then developed a grid-search optimization function. Identified optimal operating parameters (ON_STREAM_HRS, AVG_CHOKE_SIZE_P) to maximize oil production and minimize water cut for each well.
- **Key Skills:** Machine Learning (Regression), Optimization, Feature Importance Analysis, Data Analysis, EDA, Python (Pandas, Scikit-learn, NumPy), Oil & Gas Production Optimization, Well Performance Analysis.