Abdullah Alzahrani

AI Engineer | Data Scientist | Electrical Engineer | Based: Riyadh, SA

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EDUCATION

Rensselaer Polytechnic Institute (RPI), Troy, NY Sep 2020 - Dec 2024
Bachelor of Science in Electrical Engineering (Focus Area: Machine Learning)

Relevant Coursework:

- Introduction to Machine Learning
- Introduction to Deep Learning
- Distributed Optimization & Learning
- Microprocessor Systems
- Linear Algebra
- Intro to Quantum Computing

Tuwaiq Academy, Riyadh, Saudi Arabia Feb 2025 – Present
Bootcamp: *Building and Deploying AI Models*

The bootcamp focuses on industry-required skills for deploying AI models across domains including general machine learning applications, computer vision, natural language processing, and more. Training started on February 3, 2025, and is conducted in-person at Tuwaiq academy in Riyadh.

CERTIFICATIONS

Machine Learning Specialization [May 2024] — Stanford University & DeepLearning.AI (Coursera)
Databases and SQL for Data Science with Python [Sep 2024] — IBM (Coursera)

SKILLS

- Programming: Python, MATLAB, C++
- Database Management & SQL
- Data Analysis and Visualization
- ML Frameworks: TensorFlow, PyTorch
- Debugging and Fine-Tuning ML Models
- Proficient with Qiskit
- Fluent in Arabic and English

PROJECTS

Predictive Refrigerant Leak Modeling in VRF Systems [Capstone Project]

- Worked with my team to assist the client in complying with EPA regulations using ML models.
- Developed charge level classification models achieving 91.15% accuracy on unseen data.
- Applied anomaly detection with 73.30% accuracy, identifying leaks exceeding 20% undercharge.
- Established baseline VRF performance for non-invasive monitoring.

Quantum-Inspired Machine Learning Using Tensor Networks [CSCI-4961 Final Project]

- Applied tensor networks for low-rank approximation in ML, achieving 98% accuracy on MNIST.
- Explored parameter optimization for quantum circuits, achieving 74% accuracy on two digits.
- Utilized RPI's IBM Quantum System One to run the tests on a real quantum computer
- Demonstrated TNs' potential for bridging quantum and classical ML with NISQ hardware.

A Bi-Objective Optimization Approach for Enhancing FedUL [ECSE-4964 Final Project]

- Reduced MNIST error rate in non-IID settings from 2.98 to:
  - 0.79 by fine-tuning the global model via client feedback loop.
  - 0.77 by combining global and local parameters using a tuned hyperparameter.
- Demonstrated improved model performance in privacy-preserving federated learning.