Machine Learning Engineer & Data Scientist
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Mohammad Hadi Rouhani

HIGHLIGHTS

- Machine Learning Engineer (MLops) with 2+ years of professional experience in design, development, and deployment of machine learning pipelines.
- Worked with teams of bussiness owners, project managers, and product owners to deliver high functional ML products to stakeholders
- Expert in developing modular and reproducible software product with more than 3 years of working with Python and other programming languages
- Skilled power system expert with over 7 years of research experience in the area of renewable energy resoureces and electric vehicles

EDUCATION

- **M.Sc. in Computer Science** — Sep 2020 — May 2022
  University of Alberta — *Edmonton-Canada*
- **M.Sc. in Electrical Engineering** — Sep 2016 — Sep 2019
  University of Alberta — *Edmonton-Canada*
- **B.Sc. (with Honors - 2nd top) in Electrical Engineering** — Sep 2009 — Sep 2013
  Shiraz University — *Shiraz-Iran*

WORK EXPERIENCE

- *AltaML* — Sep 2022 - present
  Associate Machine Learning Developer [Full-time]
  development and deployment of machine learning algorithms:
  - Computer Vision
    - Government Document Pre-screening & Authentication
      - A project leading to delivering an AI product that verifies the authenticity of documents
    - Azure Computer Vision and Cognitive Services Object detection
    - Continious integration continous development (CICD)
- *Alberta Machine Intelligence Institute* — Jul 2022 - present
  Machine Learning Facillitator [Contract Part-time]
  - Support and supervise Amii's Education team on delivering workshop on AI ethics and governance.
    - Work seamlessly with the team to deliver high quality workshops for Amii's clients and partners
- *AI4Good Lab* — Apr 2022 - Aug 2022
  Machine Learning Curriculum Manager [Full-time]
  - Helped organize a 7-week intensive workshop with more than 100 participants, teaching assistants, lecturers, guest speakers, industry mentors, etc.
  - Managed the ML curriculum materials from classical (supervised, unsupervised) machine learning to convolutional neural networks and reinforcement learning.
  - Delivered real world problems to exhibit ML model applications in finding solutions.
  - Trained talented students/participants to become the future ML startup founders.
- *Freelance Data Scientist* — Jan 2022 - present
  - Consulted with companies in oil & gass industry, climate change, healthcare on their machine learning

projects

- Invited speaker at PyYYC, PyData Calgary, and EdmontonPy meetup [**YouTube**] May 2022

Selected projects

- **Emotion Mining: A Mental-Health Project — AltaML internal Hackathon** Oct 2022
  - Led a team of five ML developers to work on the project over a 48 hour
  - Integrated Azure Cognitive Service speech-to-text and emotion mining from text using BERT model
  - The team collaborated in a CICD fashion
  - Our team scored the highest technical points in the competition
- **Continuous Integration ML Deployment (ML-Ops)** [**Python Code**] Feb 2022
  - Image recognition analysis with classification models.
  - Optimized the number of estimators for the ensemble learning algorithm with 98 % accuracy.
  - Reduced the input feature dimension and successfully achieved a 97 % accuracy.
  - Developed a pipeline to run ML model in production on Github workflow using docker.
- **Pharmaceutical Drug review** - [**Python Code**] Jan 2022
  - Deployed an NLP model and sentiment analysis.
  - The trained machine learning model provided an accuracy of more than 90%.
- **Sizing of Charging Stations Co-located with Solar Panel and Battery Storage** Oct 2021
  - Worked on addressing the future EV transportation system.
  - Analyzed various strategies/possibilities to provide incentives for EV owners.
  - Solved a problem to present a fully green charging stations powered by renewables.
  - Delivered a prototype model that is 95 % carbon emission free.
- **Rooftop solar panel sizing detection using deep learning - (APIC) 2021 Hackathon** Jun 2021
  - Took the leadership of a team of programmers for APIC Hackathon competition.
  - Developed an API to detect feasible rooftop area from Google Maps using computer vision tools and recommend the best sizing requirement.
- **Simulator for queueing systems** [**Python Code**] Mar 2021
  - Developed an algorithm using advanced data structures to model a queueing system.

Skills

Coding / MLOps	C, Python (scikit-learn, pytorch, tensorflow, pandas, spark, etc.), Git, Linux, Cloud computing platforms (Google Cloud, AWS, Azure)
Power System Simulation	PSCAD, PLECS, Sim Power, Cyme, DigSilent, ...
Quantitative	Algorithms and Optimization, Markov chain, Data structures, Machine Learning
Communication	English (fluent), Persian (fluent-native), German (intermediate)

Relevant Publications

- **M. H. Rouhani**, Omid Ardakanian, and Petr Musilek, "Robust Optimal Sizing of Solar Powered Electric Charging Stations Co-located with Energy Storage," *IEEE Power & Energy Society General Meeting (PES-GM)*, 2022 [**Link**].
- **M. H. Rouhani**, M. Mohammadi, and M. Aiello, "A Fuzzy-based Soft Clustering Probabilistic Power Flow Considering Inter-Event Time Correlation", *Electric Power Systems Research Elsevier*, 107677, 2021. [**Link**]
- **M. H. Rouhani**, M. Mohammadi, A. Kargarian "Parzen Window Density Estima-tor Based Probabilistic Power Flow Considering Correlated Uncertainties," *IEEE Transactions on Sustainable Energy*, vol. 7, no. 3, pp. 1170-1181, 2016. [**Link**]