Mohammad Hadi Rouhani

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Highlights

- Skilled machine learning professional with more than three years of demonstrated works in developing ML models.
- Proficient in addressing complex business problems into meaningful ML solutions.
- Excelled at conducting cutting edge research in ML and AI.
- Proven history of successful collaboration with teams of professionals to educate and develop end-to-end ML projects.

Education

M.Sc. in Computer Science, *University of Alberta, Edmonton, Canada* 2020 — present
M.Sc. in Electrical & Computer Engineering, *University of Alberta, Edmonton, Canada* 2016 — 2019
B.Sc. (with distinction) in Electrical & Computer Engineering, *Shiraz University, Shiraz, Iran* 2009 — 2013

Skills

Tools & Languages	Python (scikit-learn, pytorch, tensorflow, pandas, spark, etc.), C, Git, Linux, Coud computing platforms (Google Cloud, AWS, Docker)
Web dev. tools	Typescript, Node.js, Angular, StreamLit
Quantitative topics	Statistics and advanced probability, Algorithms and Optimization, Markov chain, data structures, machine Learning, deep learning
Communication	English (fluent), Persian (fluent-native), German (intermediate)

Work Experience

Machine Learning Facilitator — Alberta Machine Intelligence Institute (Amii), Edmonton, AB **Jul 2022 — Present**

- Develop ML curriculum materials for stakeholders
- Present workshops around AI and ML for businesses and clients
- Coordinate with the Talent teams to navigate talented individuals to their success in AI
- Explain end-to-end machine learning projects for general public

AI/ML Program Manager — AI4Good Lab, Montreal, QC **Apr 2022 — Present**

- 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 from underrepresented society.

Freelance Data Scientist **Jan 2022 — Present**

- **ML speaker** at PyYYC, PyData Calgary, and EdmontonPy - [**YouTube**] May 2022
- **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%.

Researcher — University of Alberta, Edmonton, AB **Sep 2020 — Present**

- Developed python applications to solve optimization problems. Designed machine learning models for time-series prediction problems.
- Deployed differential privacy in Machine learning training models. Took the leadership of a team of ML devs to evaluate differential privacy mechanism.
- Led a team of programmers to win the 1st runner up at summer E-Hackathon.

Python Teaching Assistant — University of Alberta, Edmonton, AB **Sep 2020 — Dec 2020**

- Worked collaboratively with a team of TAs to organize the content of **CMPUT 274** a course in **python**.
- Provided solutions to assignments and marked over 200 python coding using automation scripts.
- Advised undergraduate students with their coding style to improve their programming skills.

Researcher — Stuttgart Universität, Germany **Dec 2019 — Jun 2020**

- Led three projects in renewable energy and electric vehicle transportation in German electricity market.
- Published a professional article on electric vehicle charging policy and integration
- Supervised a number of computer science MSc students on their projects
- Proven to be an effective team player to maintain a productive relationship between departments.

Test Tech Lead — Surplec HV, Spruce Grove, AB **Jul 2019 — Nov 2019**

- Supervised the transformer test department to detect anomalies in transformers from experiment data.
- Managed to restructure testing environment and made an automation for data acquisition of experiments.
- Got promoted to the lead position in less than three months (Left the job for an exciting opportunity in Germany).

Relevant Publications

- **M. H. Rouhani**, Omid Ardakanian, and Petr Musilek, "Robust Optimal Sizing of Electric Charging Stations equipped with renewable Energy Sources," *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**]

Projects

Sizing of Charging Stations Co-located with Solar Panel and Battery Storage **Oct 2021**
*Project sponsored by **ATCO Electric***

- 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 **Jun 2021**
Alberta power industry consortium (APIC) 2021 Hackathon Competition

- 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 systems with queues [**Python Code**] **Mar 2021**

- Developed an algorithm using advanced data structures model a queueing system.

Leadership Activities

- President and CEO of a non-profit Iranian community based in Edmonton **May 2017 — May 2018**
- Hired as a Resident Community Advisor at the University of Alberta Residence **May 2017 - Aug 2018**
- Helped with hiring process of University of Alberta, Residence **Feb 2018**

Achievements

- More than 80 citations for research reference in Google Scholar **Present**
- 1st runner up winner of APIC E-Hackathon **June 2021**
- Nominated for the Vanier Scholarship, the most prestigious scholarship among Canadian grad schools **Feb 2018**
- Dean's Certificate of Honor for excellence in leadership and academic, Shiraz University **Jul 2013**