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Hadi Rouhani

Computer Science Researcher

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Highlights

- Three years of experience working with python programming and algorithm development
- Expert in data visualization using **Tableau**, **Seaborn**, **plotly**, and **matplotlib** from Python
- Highly skilled in developing machine learning tools and conducting business report as a data scientist
- Team-player with strong communication and leadership skills in agile framework (scrum for research)
- With more than three years of work experience for Canadian and European companies/institutions [1]

Skills

Tools & Languages	C/C++, Python, Git, Linux, SQL, Worked with cloud computation and ComputeCanada
Quantitative topics	Computer networks, algorithm, Markov process, data structure, machine Learning, deep learning
Soft skills	Team player, public speaker, agile framework (scrum for research), active listener, and program planner
Communication	English (fluent speaker), Persian (fluent speaker), German (reading and writing)

Projects

<Machine learning in Medical Science>

1- Pharmaceutical Drug review - A machine learning & data analysis [Python Code]

Supervised a data analysis using natural language processing and machine learning tools

- Leveraged the data by obtaining techniques from **Pandas** and visualization tools and demistify the pattern in the data.
- Deployed NLP and sentiment analysis
- The trained machine learning model provided an accuracy of more than 90%.

2- Breast cancer diagnosis using Machine Learning [Python Code]

*Supervised Machine Learning using classification methods from **Scikit-learn** python*

- Implemented 7 classification machine learning models to evaluate diagnostic of cancer malignency.
- Random forest classification method showed to have the best accuracy ($\approx$ %95).

<Machine Learning in Energy sector>

1- Sizing of Charging Stations Co-located with Solar Panel and Battery Storage

*A business project funded by **ATCO Electric** company, Alberta, Canada*

- Held regular business meetings to identify the core problem as per the client's need.
- Translated the problem into a mathematical optimization solution.
- Developed an API in python and deployed hypothesis testing.
- Took the initiative to generalize the API for other similar scopes.

2- Rooftop solar panel sizing detection using deep learning [Hackathon 1st runner up winner!]

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.
- The team worked interactively in an agile framework with the specs of CI/CD.

<Machine learning in finance and business>

- Predicted a company employees salary using various regression models.
- Developed a machine learning model to predict job position of individual working for a company.

<Computer Science course projects>

C Coding in Linux [C Code]

- Developed a C programming code that shows the virtual memory allocation of a running process in Linux.
- I wrote a C code to model a secure TCP communication between a server and several clients.
- Working with Valgrind in C/Linux.

[1] Holding Canadian Permanent Residency status and eligible to work full-time in Canada

Simulator for systems with queues [Python Code]
- I developed an algorithm using advanced data structures model a queueing system
- An object-oriented programming API was developed to model customers and servers.

Work Experience

Machine Learning Researcher **Sep 2020 — Present**
Department of Computing Science, University of Alberta, *Edmonton, Alberta*
- Developed APIs to solve optimization problems with **cvxpy, cvxopt** python.
- Deployed privacy in Machine learning training models. I took the leadership of a team of MLOps to evaluate differential privacy mechanism.
  supervisor: **Dr. Nidhi Hegde - Borealis AI**

Python Teaching Assistant **Sep 2020 — Dec 2020**
Department of Computing Science, University of Alberta, *Edmonton, Alberta*
- Worked collaboratively with a team of TAs to organize the content of a course on **python**.
- Provided solutions to assignments and marked over 200 python coding using automation tools
- Supervised undergraduate students with their coding style to improve their coding skills.

Data Science Researcher **Dec 2019 — Jun 2020**
Service Computing, Univeristy of Stuttgart, *Stuttgart, Germany*
- I coordinated three projects in data science and advanced probability theory using machine learning algorithms.
- Supervised a number of computer science MSc students.
- Took the initiative to get involved in various projects with the department research team.

Test Tech Lead **Jul 2019 — Nov 2019**
Surplec HV, *Spruce Grove, Alberta [HQ: Sherbrooke, Quebec]*
- Supervised the Test Department to detect anomalies in transformers using experiment data.
- Took the initiative to revamp the testing environment and made an automation for data acquisition for experiments.
- My API significantly reduced the delay time in delivering test documents to the quality department.
- Got promoted to the lead position after my probation (with 25 % increase in salary. Left the job for an exciting opportunity in Germany)

Senior Teaching Instructor **Sep 2018 — Sep 2019**
Department of Electrical & Computer Engineering, University of Alberta, *Edmonton, Canada*
- Supervised a number of teaching assistants on delivering lectures at their best.
- Organized weekly meeting to address concerns and problems with lecture contents and instructor notes.
- Assessed procedures and clarified materials for 3 classes weekly.

National Elite Researcher in Electrical Engineering **Sep 2012 — Sep 2015**
Electric Regional Company, *Shiraz, Iran*
- I was awarded this position due to being the top BSc student in Electrical Engineering at Shiraz University.
- Held regular meetings with the client to understand their problem and address the solution at our best.
- Provided training and required materials to our users in the company to understand the scope of the research.
- Used the real world data to deploy my research proposal.

Solar Panel Design Consultant **Jan 2012 — May 2012**
Pars Rassam Electric, *Shiraz, Iran*
- Consulted on a contract project to equip rural road signs with solar-powered LEDs
- Held regular meetings with the business client to achieve their desire
- The project was deployed on a rural road with more than 100 signs

Education

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

Related Courses

Computer Networks & Performance	Operating Systems (Linux)	Privacy in Machine Learning	Algorithms II
Machine Learning A-Z (Udemy)	Data Science w/ Python (IBM)	Data structure	Neural Networks
Online optimization	Convex optimization (Stanford)	Economics & Finance in Engineering	

Certificates:

- Machine Learning with Andrew NG - **Coursera** — Jan 2022
- Machine Learning & Deep Learning A-Z - **Udemy** — May & July 2019
- Data Science with Python - **IBM Online** — April 2019

Activities & Achievements

Published more than 10 papers in peer reviewed journals/conferences	—
1st runner up APIC-Hackathon	Jul 2021
Ranked among the top 100 graduate students to recieve Vanier Scholarship	Winter 2018
Reached by more than 6000 users in Stackoverflow where I hold 200 reputation points.	—
Active programmer in leetcode.com by solving algorithms in Python and C.	—
President and CEO of a non-profit Iranian community based in Edmonton	May 2017 — May 2018
Helped with hiring process of University of Alberta, Residence	Feb 2018
Recipient of Graduate Recruitment Scholarship ($ 15000)	Sep 2020 — Sep 2021
Travel Award grant from GSA ($ 500) and FGSR ($ 2000)	Jul 2017
Recipient of the Dean's Honor Award as the top BSc Electrical Engineer Student among 164 undergrads	Jul 2013