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Department of Computing Science,  
University of Alberta, Edmonton, AB

# Hadi Rohani

## 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<sup>1</sup>

### SKILLS

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

<sup>1</sup>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

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### 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

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**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

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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 - <b>Coursera</b>	Jan 2022
• Machine Learning & Deep Learning A-Z - <b>Udemy</b>	May & July 2019
• Data Science with Python - <b>IBM Online</b>	April 2019

## ACTIVITIES & ACHIEVEMENTS

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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 receive Vanier Scholarship	Winter 2018
Reached by more than 6000 users in Stackoverflow where I hold 200 reputation points.	—
Active programmer in <a href="https://leetcode.com">leetcode.com</a> 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