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

Hadi Rohani

Computer Science Researcher

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Career Objective

A result-oriented individual with more than two years of experience working with programming and algorithm development for various computing science topics. Highly experienced in object-oriented programming with python. Team-player with strong communication and leadership skills. Advanced knowledge in probability, statistics, math and machine learning algorithms. Worked professionally in both Canadian and European institutions. Hold Canadian permanent residency and eligible to work in Canada.

Skills

Tools and Languages	C/C++, Python, Git, Linux, HTML/XML, Working with Json, SQL
Quantitative Research	Convex optimization, Queueing theory, Computer Networks, Algorithm, Markov decision process, Data structure, Machine Learning, AI and reinforcement learning
Organizational skills	Team-oriented, Public speaker, Acquinted with Canadian/European work environment, Active listener, Program planner and administrator
Communication	English (fluent speaker), Persian (fluent speaker), German (reading and writing)

Technical Experience

Computer Science Researcher **Sep 2020 — Present**
Department of Computing Science, University of Alberta *Edmonton, Alberta*

- Developed an API to solve convex optimization problem using `cvxpy, cvxopt python` for sizing of charging stations co-located with renewable energy resources. Real data is used as training data to evaluate the charging system modeling. Machine learning tools (`scipy, sklearn, pandas`) are used to extract queueing system metrics by learning from the data.
  supervisors: **Dr. Omid Ardakanian** and **Dr. Petr Musilek**
- Analyzing differential privacy in Machine learning methods for smart meters. A team-led by me worked on a machine learning API for home smart meters to evaluate differential privacy mechanism.
  supervisor: **Dr. Nidhi Hegde**
- Led a team-based project for APIC Hackathon competion where an API was developed in `python` to detect rooftop from Google Maps using computer vision tools and recommend the best sizing requirement for installation of solar panel. The team worked interactively through `git`.
- As a lab instructor, I developed an API in `python` to identify the anomaly in student's performance based on their experiment results and reports.

Teaching Assistant **Sep 2020 — Dec 2020**
Department of Computing Science, University of Alberta *Edmonton, Alberta*

- Worked collaboratively with a team of TAs to arrange the content of a 2nd-year undergraduate course on `python`.
- Provided solutions to the assignments and marked over 200 python coding assignments using automations (i.e `makefile`, using `python` API, bash command line etc.)
- Provided daily reports through `git`.

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

- I Led three data science and probability theory projects on implementation of novel density estimation in power system analysis and using machine learning algorithms evaluate the feasibility of electric vehicle-to-grid power transaction.
- Supervised two computer science master students with their projects on smart energy systems.

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

- Led the Test Department to detect faults and short circuits in transformers using experiment data.
- Organized the testing environment in the department and made a structured data acquisition to capture/record/reuse the experiment data.
- I developed an API in MS Excel to verify that running experiments on transformers follow all standards.

Education

PhD in Computing Science - [In progress], *University of Alberta, Edmonton, Canada* Sep 2020 - Present
M.Sc. in Electrical & Computer Engineering, *University of Alberta, Edmonton, Canada* Sep 2016 - Sep 2019
M.Sc. (2nd top student) in Electrical & Computer Engineering, *Shiraz University, Shiraz, Iran* Sep 2013 - Sep 2015
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	Economics & Finance in Engineering	

Course Projects

Simulator for Queueing systems [Python Code]
Computer Networks & Performance

- I developed an algorithm using various data structures including doubly linked lists, tensors, hash tables to model a queueing system
- An object-oriented programming API was developed to represent users and servers.
- I improved the coding so that it would have the best time complexity

Applied Machine Learning Projects

- Predict the salary of a company given some features in a real dataset using regression models from `sklearn` library.
- Develop an API to train a machine learning model to predict the job positions of a company based on available features in their dataset using decision tree regression model from `sklearn Python`.

Programming in Linux
Operating Systems Concept

- Developed a C programming code that shows the virtual memory allocation of a running process in Linux. [C Code]
- I wrote a C code to model the TCP communication between a server and several clients. This communication achieved via local and external IP addresses.
- Working with `Valgrind` in C/Linux.

Activities & Achievements

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
Recipient of Graduate Recruitment Scholarship ($ 15000)	Sep 2020 - Sep 2021
Travel Award grant from GSA ($ 500) and FGSR ($ 2000)	Jul 2017