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Department of Computing Science,
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(Mohammadhadi)
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Computer Science Researcher

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HIGHLIGHTS

- A data scientist researcher with a demonstrated history of working on optimization, machine learning, data processing, wrangling, and problem solving.
- More than two years of experience working with Python and developing modular programs.
- Proficient in data visualization using various platforms including Tableau and Plotly.
- A strong team-player having leadership experience and taking initiative for a good cause.

EDUCATION

M.Sc. in Computer Science, *University of Alberta, Edmonton, Canada*
M.Sc. in Electrical Engineering, *University of Alberta, Edmonton, Canada*
B.Sc. (with distinction) in Electrical & Computer Engineering, *Shiraz University, Shiraz, Iran*

SKILLS

Tools & Languages	C/C++, Python, Git, Linux, SQL, Worked with cloud computation and ComputeCanada
Quantitative topics	algorithm, Markov process, data structures, machine Learning, deep learning
Soft skills	strong leadership, agile framework, active listener, and program planner
Communication	English (fluent), Persian (fluent-native), German (intermediate)

WORK EXPERIENCE

Machine Learning Researcher   Sep 2020 — Present
Department of Computing Science, University of Alberta, Edmonton, Alberta

- Developed python applications to solve optimization problems. Modeled machine learning models to predict time-series problems.
- Deployed differential privacy in Machine learning training models. Took the leadership of a team of ML devs to evaluate differential privacy mechanism.

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 in **python**.
- Provided solutions to assignments and marked over 200 python coding using automation tools.
- Advised undergraduate students with their coding style to improve their programming skills.

Data Science Researcher   Dec 2019 — Jun 2020
Service Computing, Univeristy of Stuttgart, Stuttgart, Germany

- 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
- Collaborated with a team of professionals working on deployment of a charging station on-campus Vaihingen.
- Supervised a number of computer science MSc students on their projects
- Took the initiative to get involved in various projects with the department research team.
- Proven to be an effective team player to maintain a productive relationship between departments.

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

- Supervised the transformer test department to detect anomalies in transformers using 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).

Residence Assistant   May 2018 - August 2019
Hired through multiple interview process by the University of Alberta Residence Team

- Administered regular checking in with students and residents for their well-being.
- Participated in on-call shifts, monitoring residence community during after hours.
- Acted as an effective liason between students and Residence staff.

Energy System Researcher   Sep 2018 — Sep 2019
Department of Electrical & Computer Engineering, University of Alberta, Edmonton, Canada

- Conducted extensive research on modeling and control of HVDC power electronics.
- Successfully developed a novel modular multilevel converter for hybrid AC and DC applications.
- Coordinated two projects that led to high impact publications.
- Worked with hardware-in-the-loop real time simulators for switched-mode modeling of power electronic converters.
- Nominated by the Department for the Vanier Scholarship National competition.
- Helped with teaching at technical lab sessions and supervised teaching assistants on their presentation materials.

PROJECTS

<MLOps - Machine learning in Production>
1- Continuous Integration ML Deployment [Code]   Feb 2022
Hand writted digits prediction using ensemble learning

- Analyzed images of hand written digits to solve a classification problem
- Optimization the number of estimators for the ensemble learning algorithm with 98 % accuracy
- Reduced the feature dimension and successfully achieved a 97 % accuracy
- Developed a pipeline and ran in production in Github workflow

<Machine learning in Medical Science>
1- Pharmaceutical Drug review - A machine learning & data analysis [Python Code]   Jan 2022
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]   Jan 2022
*Supervised Machine Learning using classification methods from **Scikit-learn** python*

- Implemented 7 classification machine learning models to evaluate diagnostic of cancer maligency.
- 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   Oct 2021
*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!]   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.
- The team worked interactively in an agile framework with the specs of CI/CD.

<Machine learning in finance and business>   Jun 2020
- 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] **Feb 2021**
- Developed a C programming code that shows the virtual memory allocation of a running process in Linux.
- Wrote a C code to model a secure TCP communication between a server and several clients.
- Worked with Valgrind in C/Linux.

<Queueing system modeling in transportation and communication networks>
Simulator for systems with queues [Python Code] **Mar 2021**
- Developed an algorithm using advanced data structures model a queueing system.

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

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

- 1st runner up APIC-Hackathon Jul 2021
- Ranked among the top 100 Canadian graduate students to recieve Vanier Scholarship Winter 2018
- Recipient of Graduate Recruitment Scholarship ($ 15000) Sep 2020
- 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