# Mahtab **Farrokh**

GRADUATE RESEARCH ASSISTANT

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## Summary

Research assistant at the University of Alberta, focusing on learning accurate prediction models for medical imaging problems and using hidden representation learning approaches.
**Interests:** Machine Learning, Computer Vision, AI Applications in Medical Science

## Education

**University of Alberta** *Edmonton, Canada*
M.Sc. in Computing Science - GPA: 3.9/4 *2021 - 2023*
**AmirKabir University of Technology (Tehran Polytechnic)** *Tehran, Iran*
B.Sc. in Computer Software Engineering - GPA: 18.23/20 *2015 - 2020*

## Skills

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| **Programming** | Python3, C/C++, Node.JS, Matlab |
| **Web** | React, HTML5, CSS, Express with Node.JS, Django with Python |
| **Databases** | MySQL, MongoDB, PostgreSQL, Redis |
| **Frameworks and Tools** | Keras, Pytorch, Numpy, Scikit, Pandas, Qt |

## Work Experiences

**Tebinja** *Tehran, Iran*
ARTIFICIAL INTELLIGENCE DEVELOPER *Oct. 2017 - May 2019*
- Designed and implemented a web-based symptom checker system that takes the patients' symptoms as an input and predicts possible disease using machine learning models. The system was implemented using Python, Node.js and React. To address this problem, the results of 4 algorithms were merged: Bayesian Network, Decision Tree, DQN(Deep Q-network), Deep Neural Network.

## Research Experiences

**University of Alberta** *Edmonton, Canada*
M.SC. PROJECT *May 2021 - Now*
- Improving prostate cancer's biochemical recurrence(BCR) prediction from pathology tissue images using a representation learning approach, under supervision of Dr. Russell Greiner.

**Amirkabir University of Technology** *Tehran, Iran*
B.SC. PROJECT *Jan. 2019 - Apr. 2020*
- Designed and implemented a multi-label classification algorithm using link prediction to improve a symptom checker's diagnosis under the supervision of Dr. Maryam Amir Haeri.

## Teaching Experiences

**University of Alberta** *Edmonton, Canada*
TEACHING ASSISTANT *2022 - 2021*
- Intelligent Systems, Instructor: Dr. James Wright
- Introduction to the Foundations of Computation II, Instructor: Dr. Megan Flanders

**Amirkabir University of Technology** *Tehran, Iran*
TEACHING ASSISTANT *2016 - 2019*
- Signals & Systems, Instructor: Dr. Mehdi Rasti
- Artificial Intelligence & Expert Systems, Instructor: Dr. Ahmad Nikabadi
- Engineering Statistics, Instructor: Dr. Maryam Amir Haeri
- Data Structure & Algorithms, Instructor: Dr. Mehdi Dehghan
- Introduction to Python3 programming

## Certificates

**AI for Medical Diagnosis** *Certificate*
by deeplearning.ai *Aug. 2020*
**Fundamentals of Reinforcement Learning** *Certificate*
by University of Alberta, Alberta Machine Intelligence Institute *Aug. 2020*
**Convolutional Neural Networks** *Certificate*
by deeplearning.ai (More Certificates are listed on my homepage) *Sep. 2019*

# Notable Projects

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|---|---|---|
| 2021 | **Adversarial Attack on Sentiment Analysis Task**, Proposed a new algorithm Text-GAN, which applies an Autoencoder on text and a GAN model learns to add noise to the latent space in the way that the new generated text fools the victim model. | *Project* |
| 2021 | **Generated Differential Private Synthetic Data**, Proposed a new method PATE-ACGAN, which applies the PATE idea to an Auxiliary Conditional GAN | *Project* |
| 2020 | **Circuit Element Detector** , Implemented using YOLO5 image object detection | *Project* |
| 2019 | **Message Broker**, Implemented For Distributed Systems course project by Go | *Project* |
| 2019 | **Food Ordering website**, Implemented For Web Programming course project by React and Node.js and mongoose | *Project* |
| 2018 | **Time Series Prediction**, Using srima model | *Project* |
| 2017 | **Classical Search and Local Search algorithms**, AI Course Project by Python, implementation of BFS, DFS(unlimited, limited, iterative), A*, bidirectional, genetic, hill climbing, simulated annealing | *Project* |
| 2016 | **Search Engine**, Data Structure Course Project by Python, implementation of BST, AVL (Balanced BST), TST, Balanced TST, Trie and HashMap using chaining approach based on LinkedList | *Project* |

# Extracurricular Activity

**Students Scientific Chapter(SSC)**                              *Tehran, Iran*
Member                                                             *2017 - 2018*
- Elected as a member of Students Scientific Chapter(SSC), CEIT Department, Amirkabir University of Technology

**Linux Festival**                                               *Tehran, Iran*
Member of Execution Committee                              *Spring 2017 and 2016*
- 9th and 8th National AUT Linux Festival

**ACM ICPC**                                                     *Tehran, Iran*
Member of Execution Committee                         *Fall 2018 and 2017 and 2016*
- 18nd, 17nd, and 16nd International AUT ACM ICPC

**DMC**                                                          *Tehran, Iran*
Member of Execution Committee                                      *Fall 2017*
- 1st Data Mining Cup