AHMAD POURIHOSSEINI

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EDUCATION

Sep. 2021 - Present
MSc in Applied Computing (MScAC) - Computer Science Concentration
The Department of Computer Science
University of Toronto, ON, Canada

Sep. 2015 - Feb. 2020
B.S. in Computer Engineering - Software
School of Electrical and Computer Engineering
The Department of Software Engineering
University of Tehran, Tehran, Iran
GPA: 3.97 (19.41 / 20) - Ranking 1st among CE Students

Sep. 2011 - Jun. 2014
Diploma in Mathematics and Physics Discipline
Allameh Helli 3 High School
Affiliated with the National Organization for Development of Exceptional Talents (NODET)
GPA: 19.89 / 20

RESEARCH EXPERIENCE

Jun. 2020 - Jul. 2021
Research Assistant, Data Analytics Lab at the University of Tehran
I worked on the application of pointer networks on a combinatorial optimization problem on graphs using PyTorch and NetworkX.

Feb. 2019 - Feb. 2020
Research Assistant, Machine Learning and Computational Modeling Lab at the University of Tehran
I worked with a graduate student on a method to increase the diversity of the adversarial perturbations generated by a specific adversarial generator, in order to increase the robustness of adversarial defense modules that are trained using those perturbations. This research was also the subject of my bachelor's thesis, under the supervision of Dr.Araabi.

Mar. 2018 - Aug. 2018
Research Assistant, Intelligent Information Systems Lab at the University of Tehran
I helped the main researcher solve an optimization problem by writing code for and experimenting with different optimization algorithms. The result of this optimization would determine how much improvement his text retrieval method, which was a variation of the positional language model (PLM), offered over the existing ones.

Sep. 2011 - May. 2012
EUROMATH 2012, Cyprus Mathematical Society
The abstract of my paper, titled "Prefix Codes and Data Compression" was accepted for presentation at EUROMATH 2012, but unfortunately due to Visa issues, I was unable to attend this conference.

TEACHING EXPERIENCE

I have been a TA for the following courses in University of Tehran:

Artificial Intelligence - Fall 2019 - Dr. Fadaei and Dr. Moradi

Formal Methods in Software Engineering - Fall 2019 - Dr. Faghih

Advanced Programming - Spring 2018 through Spring 2020 - Dr. Khosravi and Dr. Sadeghi

Discrete Mathematics – Spring 2018, Fall 2017 - Dr. Mohammadi

Engineering Probability and Statistics – Fall 2018, Fall 2017 - Dr. Bahrak

Database Systems – Spring 2019, Fall 2018 - Dr. Shakery

SELECTED PROJECTS

Fall 2019 — **Auto-Shakespeare**

Course project - Neural Networks and Deep Learning

An RNN that generates text which closely resembles the writing style of Shakespeare. Implemented using PyTorch.

Apr. 2019 — **Pet-Colorizer**

Personal project

A neural network that can turn your grayscale images of pets into colored ones. Built using the Fast.ai library.

Spring 2019 — **Super Mario**

Course project - Advanced Programming (as a TA)

A minimal C++ implementation of the famous SuperMario game, using SDL2. I was the TA of the course and the project would be shown to students as an example of good design.

Spring 2018 — **NotMNIST Character Recognizer**

Course project - Artificial Intelligence

A neural network for the classification of letters A-J from the notMNIST dataset, built from scratch using Python and without the use of any external libraries.

Spring 2018 — **KhaneBeDoosh**

Course project - Internet Engineering

A fully-fledged web-application for house rental and sale, using Java, react, and MySQL.

Fall 2017 — **Atalk**

Course project - Compiler Design and Implementation

Full implementation of a compiler for Atalk - an actor-based programming language - with MIPS as its target instruction set, using Antlr4 and Java.

Spring 2017 — **MIPS processor**

Course project - Computer Architecture

Full Verilog implementation of a MIPS processor with a limited instruction set that utilized pipelining.

PROFESSIONAL EXPERIENCE

Jun. 2019 - Sep. 2019 — **Machine Learning Intern at Sensifai**

My task was to set up a real-time object detection pipeline on an instance of Coral Dev Board, which is a piece of hardware specialized for prototyping on-device machine learning products. The input and output were both handled as video streams and were received and dispalyed on external devices. This internship helped me better understand the practical aspects of machine learning that happen in real-world settings.

Jun. 2017 - Sep. 2017 — **Back-end Developer Intern at Boghche**

I was responsible for the development of a Telegram bot that would receive orders from customers and register them in the central system. This was done by creating a Node.js web application that would receive user input via HTTP requests sent from Telegram and would communicate with the central server through a web API to query for or register the appropriate information. This job helped me gain a great degree of knowledge in back-end web development.

AWARDS AND HONORS

Supporter Foundation of University of Tehran (SFUT) Honorable Student Award, 2019
I won this award because, for four consecutive years, I had the highest GPA among the students of my major, which also made me exempt from the national university entrance exam for studying for a master's degree in Computer Engineering.

Faculty of Engineering (FOE) Award for three consecutive years: 2016, 2017, and 2018
This award is given to the three students with the highest GPAs per major. In all three cases, I received the award because I had the highest GPA among the students in my major.

Ranked Top 0.3% in The Nationwide University Entrance Exam
Among more than 167,000 participants

Accepted in the first stage of the national mathematical Olympiad of Iran, 2014

ADDITIONAL ACTIVITIES / VOLUNTARY WORK

Dec. 2019 - Jan. 2020 — **Machine Learning Instructor in the IEEE Data Science Winter School in the University of Tehran**
I contributed to this winter school by providing the students with a fairly detailed introduction on the topic of SVMs, and also co-designing small SVM projects in the form of Jupyter Notebooks and guiding the students through them in order to give them a hands-on experience of working with SVMs (see notebooks and certificate).

Jun. 2018 - Aug. 2018 — **Deep Learning Specialization by Andrew Ng on Coursera**
Taking this course greatly broadened my knowledge of deep learning by teaching me many topics ranging from the very basic like different optimization algorithms and hyperparameter tuning, all the way to the more advanced like computer vision, natural language processing, and speech recognition (see certificate). Note that I first audited this course and obtained its certificate later.

Summer 2017, Summer 2018 — **Deep Learning Summer School attendee**
This was my first introduction to deep learning. It provided both a theoretical foundation, via lectures and invited speakers, and a practical experience through computer assignments and hands-on sessions.

Sept. 2016 - Aug. 2017 — **Layout Designer for the *F1* publication of the ACM student chapter of the University of Tehran**
My job was designing the graphical layout of the content, and creating the final ready-to-print file, using Adobe InDesign.

Sept 2013 - Mar. 2014 — **16th Khwarizmi Youth Festival, 2015**
My project in this annual festival was a computer program that would receive an image as input and then search the database for images closest to the input in terms of color and texture features. I was accepted in the first stage of the selection process.

RELEVANT SKILLS

- Advanced knowledge of PyTorch and intermediate knowledge of Tensorflow, two of the most popular deep learning libraries.
- Advanced knowledge of Fast.ai which provides a high-level API on PyTorch, dramatically increasing the speed of ML projects.
- Fluent in the programming languages C, C++, python, Java, and javascript.
- Working knowledge of SQL databases, and a NoSQL database.

LANGUAGES

Persian – Bilingual

Azeri Turkish – Bilingual

English – Fluent

Scores of the TOEFL test taken in October 2020: Overall: 119, Reading: 30, Listening: 30, Speaking: 29, Writing: 30

Scores of the GRE test taken in October 2019 : Q: 168, V: 159, W: 4

Turkish – Advanced