

Education

- M.Sc. Computer Science**, Western University, London, Ontario, Canada Sep 2022 — Dec 2023
• Thesis Advisor: Prof. L. Ilie
- B.Sc. Computer Engineering**, Sharif University of Technology, Tehran, Iran Sep 2017 — Feb 2022
• GPA: 17.27/20 (3.57/4)
• Thesis Advisor: Prof. H. R. Rabiee
• Thesis Title: Interpretability of U-Net Model in the Segmentation of Medical Images
- Diploma in Mathematics and Physics**, Farzanegan Amin 1, Isfahan, Iran Sep 2013 — Jun 2017
• Affiliated with the National Organization for Development of Exceptional Talents
• GPA: 19.67/20 (4/4)

Research Interests

- Applied Machine Learning
- Computer Vision
- Natural Language Processing
- Medical Image Analysis
- Autonomous Driving
- Interpretable AI

Research Experiences

- Research Assistant** Nov 2021 — May 2022
Supervisor: Prof. A. M. Alahi
Visual Intelligence for Transportation (VITA) Lab, École Polytechnique Fédérale de Lausanne
My project was the **Human Pose Prediction from Partial Observations**. I worked on the design and development of a teacher-student model based on the Meta Pseudo Labels model and diffusion models to reconstruct the full poses and then predict future poses using them.
- Research Assistant** Jun 2021 — Jan 2022
Supervisor: Prof. H. R. Rabiee
Data Science and Machine Learning Lab (DML), Sharif University of Technology
My project was the **Interpretability of Segmentation Models** with a focus on medical applications, where I tried to find new and innovative ways to make segmentation models interpretable using legacy methods in classification. As a solution, I developed a wrapper function that performs the classification interpretability methods pixel-wise and then combines them.
- Research Assistant** Nov 2020 — Jan 2022
Supervisor: Prof. M. H. Rohban
Bioinformatics and Computational Biology (BCB) Lab, Sharif University of Technology
My project was the **Design of An Automatic Orthodontic Diagnosis and Cephalometric Analysis Tool**. I developed several semi-supervised and self-supervised models to solve this problem since our labelled dataset was very small and we had a large unlabelled dataset. I also tried to solve this problem differently: I split the problem into two separate landmark detection and classification tasks. I developed several CNN regression models for landmark detection.

Teaching Experience

- Teaching Assistant**, Data Structures and Algorithms Sep 2022 — Dec 2022
Prof. R. Solis-Oba
Western University
I help mark assignments and exams, proctor exams, and hold office hours.
- Teaching Assistant**, Engineering Probability and Statistics Sep 2021 — Feb 2022
Prof. A. Sharifi
Sharif University of Technology
I helped design and grade homework problem sets and edited some course materials.
- Teaching Assistant**, Design of Algorithms Feb 2021 — Jun 2021
Dr. M. Seddighin
Sharif University of Technology
I prepared teaching materials, including summary notes of lectures and assisted students with homework problems.

Teaching Assistant, Engineering Probability and Statistics

Dr. A. Najafi

I helped with designing and grading homework problem sets. Also, I held classes to assist students with homework and exams.

Feb 2021 — Jun 2021

Sharif University of Technology

Teaching Assistant, Numerical Computation

Dr. F. Baharifard

I assisted with homework problem sets preparation and grading.

Feb 2021 — Jun 2021

Sharif University of Technology

Teaching Assistant, Engineering Probability and Statistics

Prof. A. Motahri

I helped with designing and grading homework problem sets and exams. Also, I held classes to assist students with homework.

Sep 2020 — Jan 2021

Sharif University of Technology

Teaching Assistant, Data Structures and Algorithms

Dr. M. Seddighin

I designed some of the course projects and held workshops to guide students for them.

Sep 2020 — Jan 2021

Sharif University of Technology

Teaching Assistant, Data Structures and Algorithms

Dr. M. Seddighin

I designed several assignment problem sets and also helped with grading exams.

Sep 2019 — Jan 2020

Sharif University of Technology

Teaching Assistant, Advanced Programming

B. Hatami and M. Mostafazadeh

I mentored some of the students during the course project.

Feb 2019 — Jun 2019

Sharif University of Technology

Work Experiences

Intern, Payam Pardaz, Isfahan, Iran

As a Qt and C++ developer, I worked on Ravin EDR, a service for windows systems that tracks and records events such as kernel-level activities and events related to processes and file systems.

Jul 2020 — Sep 2020

Intern, Payam Pardaz, Isfahan, Iran

As a Qt and C++ developer, I worked on Ravin Network and Log Management, which monitors servers, network infrastructure devices, security devices, network services, databases, etc., extracts all network traffic flows and detects network anomalies using pre-defined rules.

Jul 2019 — Sep 2019

Skills

Programming

Python, Java, C, C++, C#, R

Frameworks

Pytorch, Django, Android, Qt

Libraries

Pandas, NumPy, Scikit-Learn, Matplotlib, PIL

Databases

SQL

Version Control

Git

Typesetting

Latex

Soft Skills

Active listening, Creativity, Decision-making, Teamwork, Critical thinking, Flexibility, Desire to learn

Languages

• Persian (Native)

• English (TOEFL iBT: 106)

• German (B1)

Honors

• Western Graduate Research Scholarship

• Member of Iran's National Elites Foundation

• Ranked 140th among 137788 participants in National University Entrance Exam (Top 0.1%)

Volunteer Experiences

Mentor of Blockchain Workshop, Computer Science Summer School

Computer Science Summer School (CSs) is an event held by Rasta Scientific Association whose purpose is to teach computer science fields and team working to high school students. I led students to learn basic blockchain concepts by solving simplified real-world problems.

Sep 2020

Head of Cryptography Workshop , Computer Science Summer School	Sep 2019
I designed the workshop so that students learn fundamental cryptography concepts such as symmetric encryption systems, Diffie-Hellman key exchange protocol, and RSA encryption system by solving simplified real-world problems and supervised mentors during the workshop.	
Mentor of Data Mining Workshop , Computer Science Summer School	Sep 2019
Head of Cryptography Workshop , Computer Science Summer School	Sep 2018
Mentor of Recommender Systems and Game Theory Workshops , Computer Science Summer School	Sep 2018
Mentor of Algorithms and Recommender Systems Workshops , Computer Science Summer School	Sep 2017
Instructor of Students' Research Group, Isfahan Mathematics House	Apr 2017 - Sep 2017
The Isfahan Mathematics House was founded to popularize and spread mathematics and be a suitable platform for the acquaintance of students with the history and various aspects of mathematical sciences. High school students might join one of several research groups to learn more about research. I was one of the instructors of the cryptography research group.	

Certificates

Structuring Machine Learning Projects , Coursera (certificate)	Oct 2021
Improving Deep Neural Networks , Coursera (certificate)	Oct 2021
Neural Networks and Deep Learning , Coursera (certificate)	Jul 2021
Task-Oriented Course in Artificial Intelligence and Machine Learning , Quera (certificate)	Jun 2021
Advanced Python Programming and Object-Oriented Thinking , Quera (certificate)	Jun 2021
Summer School of Intelligent Learning , Institute for Research in Fundamental Sciences (IPM) (certificate)	Aug 2019

Selected Courses

Introduction to Programming	20/20	Advanced Programming	18.8/20
Discrete Structures	17.5/20	Engineering Probability and Statistics	19.5/20
Data Structures and Algorithms	19.1/20	Artificial Intelligence	18/20
Design of Algorithms	17.3/20	Database Design	17.2/20
Advanced Information Retrieval	17.3/20	Mobile Programming	20/20
Computer Simulation	20/20	Compiler Design	20/20
Data and Network Security	18.5/20	System Analysis and Design	20/20
Software Engineering	20/20	CNNs for Visual Recognition (online course - cs231n)	

Selected Academic Projects

- Pacman ([code](#))
Designed Pacman game as the project of introduction to programming course in C.
- Farm Frenzy ([code](#))
Designed Farm Frenzy game as the project of the advanced programming course in Java.
- Weather Forecast ([code](#))
Designed a weather forecasting app using several APIs as one of the mobile programming course projects in Java and Android.
- Photo Editor ([code](#))
Design a photo editor app as one of the mobile programming course projects in C++, Java, and Android.
- Persian Information Retrieval System ([code](#))
Designed a traditional information retrieval system for the Persian Wikipedia dataset using the vector space model as one of the advanced information retrieval course projects in python.
- News Classification ([code](#))
Applied several machine learning methods, such as KNN, SVM, Random Forest, etc., on the AG News dataset as one of the advanced information retrieval course projects in python.
- Web Crawling & Link Analysis ([code](#))
Designed a web crawler on semanticscholar.org and applied link analysis methods to score authors as one of the advanced information retrieval course projects in python using Elasticsearch.
- C-Minus Compiler ([code](#))
Designed compiler backend for C-Minus grammar as the project of compiler design course in python.
- Online Music Platform ([code](#))
Designed an online music platform like Spotify as the project of system analysis & design course in python using Django framework.