HAMID KAMKARI

hamidk@cs.toronto.edu
+1 (437) 986-8970
https://hamidrezakmk.github.io/

EDUCATION

University of Toronto *2022 - 2024*
Master of Science in Applied Computing (MScAC)
Department of Computer Science

Sharif University of Technology *2018 - 2022*
Bachelor of Science Overall GPA 19.22/20
Department of Computer Engineering Ranked Among the Top 10

RESEARCH AND PUBLICATION

Sharif University of Technology **Tehran, Iran**
Predicting Drug Combination Effects by Utilizing Chemical & Multi-Omics Data *January 2022 - Ongoing*

- `(Preparing manuscript for submission)`
- We used Graph Neural Networks and Attention mechanisms to create a general state-of-the-art framework for predicting drug dose response using SMILES representation of drugs.

Maxplanck Institute of Informatics (MPI-INF) **Saarbrücken, Germany**
Designing nature-based algorithm to solve Semi-Definite Programs (SDP) *August 2020 - July 2022*

- `(Submitted to SODA) arXiv:2111.02291 [cs.ds, math.co]`
- We produced a general recipe to create algorithms to address SDPs based on previous work on nature-inspired LP dynamics. We have provided proof and empirical results in our paper to back up our findings.

Maxplanck Institute of Informatics (MPI-INF) **Saarbrücken, Germany**
Fine-Grained Complexity of Optimizing Bias Terms on Neural Networks *January 2022 - February 2022*

- Under the supervision of Andreas Karrenbauer and with the collaboration of Karl Bringmann, we devised tight bounds for the complexity of fine-tuning bias terms of neural networks.

Aalto University **Espoo, Finland**
RNA sequence design using Graph Neural Networks *July 2021 - September 2021*

- We created a data-driven black box approach for RNA sequence design. The topic involved a baseline familiarity with RNA structures and an in-depth understanding of Graph Neural Network architectures and machine learning basics.

ACADEMIC EXPERIENCE

Teaching Assistance **University of Toronto, Ontario, Canada**

- Introduction to the theory of Computation (CSC236) François Pitt *September 2022 - Ongoing*

Teaching Assistance **Sharif University of Technology, Iran**

- Artificial Intelligence course (CE40417) Mohammad Hossein Rohban *September 2021 - January 2022*
- **Head** of Data Structure and Algorithms course (CE40254) - Mohammad Ghodsi *January 2021 - June 2021*
- Artificial Intelligence course (CE40417) Mohammad Hossein Rohban *January 2021 - June 2021*

- Probability and Statistics course (CE40181) Ali Sharifi-Zarchi — *September 2020 - January 2021*
- Discrete Structures course (CE40115) Mohammad Ali Abam — *January 2020 - June 2020*
- Advanced Algorithm design course (CE40354) Ali Sharifi-Zarchi — *January 2020 - June 2020*
- Data structure and Algorithms course (CE40254) Mahdi Safarnejad-Boroujeni — *January 2020 - June 2020*
- Data structure and Algorithms course (CE40254) Mahdi Safarnejad-Boroujeni — *September 2019 - January 2020*

WORK EXPERIENCE

Fanap IT Company — *January 2022 - Present*

- Our work at Fanap involves dealing with an object detection model able to analyze OPG (Orthopantomogram) images and detect certain tooth features automatically. This project facilitates machine learning and computer vision techniques in the context of medical image processing.

National Olympiad in Informatics Committee — *September 2020 - December 2021*

- My work involves careful curating of national competitive contests for talented nationwide students as well as coordinating educational programs related to computer science and algorithms. As a member, I have created a graph theory course and organized the Iranian IOI team selection contests.

Mentor-ship, Teaching, and Online Educational Content

- Teaching creative algorithm design as well as basics of data science to employees of computer science-related companies in MAPSA boot camp. — *June 2020 August 2020*
- Computer Olympiad Teacher in well-known Iranian high schools as well as a mentor at IOI preparation camp for International Olympiad in Informatics held in Baku, Azarbaijan. — *January 2019 February 2019*
- Leader of Quera College content creation team in *Quera* IT company. My work involved creating online courses that focus on the basics of programming as well as creative algorithm design. I and my colleagues created two online courses on *Basics of Programming* and *Advanced Design of Algorithms and Data-structures* that were used nation-wide with almost 4000 participants. — *June 2018 July 2019*

HONORS AND AWARDS

ACM-ICPC
Regional Gold Medal
Team ranked 3rd
December 2018

APIO
Asia-Pacific Informatics
Bronze Medal
May 2018

INFO-Cup
World-wide contests
Gold Medal
March 2018

Olympiad in Informatics
Gold and Silver Medal
In National Contests
September of 2016 & 2017

RELEVANT COURSES

Core Courses — **Sharif University of Technology**

Statistics and Probabilities (20/20), Technical Presentation (20/20), Artificial Intelligence (20/20), Algorithm Design (20/20), Algorithms and Data-Structures (20/20), Bio-Informatics (20/20), Modern Information Retrieval (20/20), Stochastic Processes (Graduate Course - 19.8/20), Linear Algebra (20/20), Numerical Computation (20/20), Signals & Systems (20/20), Operating Systems (20/20), Computer Networks (18.8/20)

Online Courses

Introduction to Machine learning, Coursera online course by Andrew Ng, HSE Advanced Machine Learning Coursera

SKILLS

Programming Skills:

Python, Pytorch, Sklearn, Docker, C++ (for competetive programming), Java, MATLAB, LaTeX.

Languages:

Persian (Native) - English (Fluent) TOEFL iBT 116/120
Speaking: 28/30 - Writing: 29/30 - Reading: 30/30 - Listening: 29/30

TECHNICAL PROJECTS

ML-Mnemonist
Lightweight Python framework for ML development
Python

Client AI-challenge
Python Client for a game in Sharif AI challenge
Python

Simple C Server
Server programmed in C with multiprocess and multithread capabilities
C/C++

Compiler Design
Compiler for object-oriented programming language
C++