Hamidreza Kamkari

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EDUCATION

Sharif University of Technology   *2018 - 2022*
4th Year, B.Sc.   Overall GPA 19.38/20 | Last Year GPA 19.93/20
Department of Computer Engineering   Ranked Among the Top 6%

AE Highschool   *2016 - 2018*
Higher Secondary Education   Overall Score 19.23/20
Mathematics, Physics

RESEARCH AND PUBLICATION

Aalto University   **Finland**
RNA sequence design using Graph Neural Networks   *July 2021 - Ongoing*

`(Preparing Manuscript)`

· Group led by Prof. Pekka Orponen with the aim of RNA sequence design. Given a certain goal secondary structure for an RNA molecule we incorporate deep learning approaches - in specific graph deep neural networks - to design a certain sequence that folds into that certain structure. (more information)

Sharif University of Technology   **Tehran, Iran**
Predicting Drug Combination Effects by Utilizing Chemical & Multi-Omics Data   *November 2021 - Ongoing*

· The purpose of this project is to predict the effect of combining different drugs using Deep Learning approaches using chemical and multi-omics data. The data we use in this study are SMILES drug database, gene expression profiles, gene knockouts, and proteomics.

Maxplanck Institute of Informatics (MPI-INF)   **Saarbrücken, Germany**
Designing nature-based algorithm to solve Semi-Definite Programs (SDP)   *August 2020 - September 2021*

· (Submitted) `arXiv:2111.02291 [cs.ds, math.co]`
· Group led by Dr. Andreas Karrenbauer with the co-operation of Prof. Kurt Melhorn and the aim of the group was to design a novel algorithm based on the Physarum Polycephalum natural model to solve Semi-Definite programs.

ACADEMIC EXPERIENCE

Technical Staff   **Sharif University of Technology, Iran**
· Worked as technical staff for Python client Sharif **AI Challenge** national contests.   *January 2020*
· Staff at organizing **Winter Seminar Series (WSS)**.   *December 2019*

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

WORK EXPERIENCE

Fanap IT Company   *January 2022 - Present*

· Our work at Fanap involves dealing with an 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 nation-wide 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 highschools as well as mentor at IOI preperation 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 basics of programming as well as creative algorithm design. Me and my colleagues created two online courses on *Basics of Programming* and *Advanced Design of Algorithms and Data-structures* that was used nation-wide with almost 4000 participants.   *June 2018 / July 2019*

HONORS AND AWARDS

🔗 **ACM-ICPC**	🔗 **APIO**	🔗 **INFO-Cup**	🔗 **Olympiad in Informatics**
Regional Gold Medal	Asia-Pacific Informatics	World-wide contests	Gold and Silver Medal
Team ranked 3rd	Bronze Medal	Gold Medal	In National Contests
December 2018	*May 2018*	*March 2018*	*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), Differential Equations (19.5/20), Numerical Computation (20/20), Signals & Systems (20/20)

Online Courses

Introduction to Machine learning, Coursera online course by Andrew Ng.

SKILLS

Programming Skills:

Python, Pytorch, Sklearn, R, 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

🔗 **Compiler Design**	🔗 **Client AI-challenge**	🔗 **Online Card Game**	🔗 **Hospital simulator**
Compiler for object oriented programming language	Python Client for a game in Sharif AI challenge	Multi-player game based on the well-known Duelyst	Computer simulator for hospital to extract statistical info
C++	*Python*	*Java - JavaFX - Networking*	*MATLAB*