

Ghazal Kalhor

COMPUTER ENGINEERING · STUDENT

School of Electrical and Computer Engineering, University College of Engineering, University of Tehran, North Kargar st., Tehran, Iran.

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Education

B.Sc. in Computer Engineering

COLLEGE OF ELECTRIC AND COMPUTER ENGINEERING, UNIVERSITY OF TEHRAN

Tehran, Iran

Sep. 2017 - Present

- **GPA of Last Two Years: 19.61/20 (Cum. GPA: 19.28/20)**

• Related Courses: Algorithmic Graph Theory(20/20), Artificial Intelligence(20/20), Engineering Probability and Statistics(20/20), Algorithm Design(20/20), Machines and Language Theory(20/20), Discrete Mathematics(20/20), Database Design(19.8/20), Advanced Programming(19.25/20)

Minor in Mechanical Engineering

COLLEGE OF MECHANICAL ENGINEERING, UNIVERSITY OF TEHRAN

Tehran, Iran

Sep. 2017 - Sep. 2018

- **GPA: 19.18/20**

High School Diploma in Mathematics and Physics

FARZANEGAN HIGH SCHOOL

Tehran, Iran

Sep. 2013 - Jun. 2017

- **GPA: 19.98/20**

Honors & Awards

2021	Ranked 3rd among 106 Computer Engineering B.Sc. students, University of Tehran	Tehran, Iran
2019, 2020	Supporter Foundation of University of Tehran (SFUT) Honorable Student Award which is given to the top-ranking students with high GPA, University of Tehran	Tehran, Iran
2017	Ranked in the Top 0.2% (99.8 percentile) in Iranian University Entrance Exam among more than 148,000 participants(B.Sc)	Tehran, Iran
2016	Finalist in 14 th Iranian Laboratory Olympiad in Chemistry among students of top high schools of Iran	Qazvin, Iran
2015, 2016	Ranked in the Top 2% in Iranian Olympiad in Chemistry among more than 30,000 talented Iranian students in the first round	Tehran, Iran
2014	Ranked 2nd in the provincial stage of Khwarizmi Youth Festival	Tehran, Iran

Research Interests

- Social Network Analysis
- Graph Analytics
- Statistical Inference
- Computational Social Science
- Recommender Systems
- Machine Learning

Research Experience

Undergraduate Research Assistant

UNDER SUPERVISION OF [PROF. BEHNAM BAHRAK](#)

University of Tehran

Aug. 2020 - Present

I implemented three popular recommendation algorithms, including item-based collaborative filtering, user-based collaborative filtering, and probabilistic matrix factorization for the recommender system of Goodreads Datasets. My notebooks are [here](#). Currently, I am analyzing the scalability of exponential random graph models (ERGM) as my bachelor's thesis.

Data Science Intern at PAD Laboratory

UNDER SUPERVISION OF [PROF. BEHNAM BAHRAK](#)

Science and Technology Park,

University of Tehran

Jul. 2021 - Sep. 2021

I conducted various graph-based analyses on social networks and bibliographic platforms such as Google Scholar to get some insight into the behavior of users.

Teaching Experience

Head Teaching Assistant

FORMAL LANGUAGES AND AUTOMATA THEORY, [PROF. HOSSEIN HOJJAT](#)

University of Tehran

Dec. 2020 - Present

Supervising Teaching Assistant

ADVANCED PROGRAMMING, [PROF. RAMTIN KHOSEVAT](#)

University of Tehran

Aug. 2021 - Present

Teaching Assistant

STATISTICAL INFERENCE (GRAD. COURSE), [PROF. BEHNAM BAHRAK](#)

University of Tehran

Sep. 2021 - Present

Teaching Assistant	<i>University of Tehran</i>
DATABASE DESIGN, PROF. AZADEH SHAKERY	Dec. 2020 - Present
Teaching Assistant	<i>University of Tehran</i>
DISCRETE MATHEMATICS, PROF. SIAMAK MOHAMMADI	Dec. 2018 - Dec. 2020
Teaching Assistant	<i>University of Tehran</i>
FORMAL LANGUAGES AND AUTOMATA THEORY, PROF. HOSSEIN HOJJAT	Dec. 2019 - Dec. 2020
Teaching Assistant	<i>University of Tehran</i>
ADVANCED PROGRAMMING, PROF. RAMTIN KHOSEYR	Sep. 2019 - Aug. 2021

Professional Development

Recommender Systems, Prof. Joseph A. Konstan

University of Minnesota, Coursera

In this Specialization, I learned about fundamental techniques in recommender systems, including content-based, collaborative filtering, matrix factorization, and hybrid machine learning methods, through four courses. Official certificates that I earned for these courses can be found [here](#).

Statistical Inference, Prof. Behnam Bahrak

University of Tehran

I took this course from the University of Tehran master's program. In this course, I learned to use statistical software (R) for data analysis, apply estimation and testing methods, make data-based decisions, model relationships between variables, and interpret results. (**Final Grade: 20/20**)

Notable Academic Projects

HealthCare Dataset Analysis

Statistical Inference

Conducted various statistical analyses on a HealthCare dataset and designed a model to predict health bills for individuals. (Written in R)

House Price Prediction

Artificial Intelligence

Applied advanced regression techniques like KNN, random forest, and decision tree to predict house prices for the Kaggle [dataset](#). (Written in Python)

Sentiment Analysis of Digikala

Artificial Intelligence

Normalized comments, extracted features and implemented a sentiment analyzer using a Naive Bayesian classifier. (Written in Python)

Feedforward Neural Network

Artificial Intelligence

Implemented a feedforward neural network from scratch and learned its hyperparameters to achieve the highest accuracy in the classification of the Fashion-MNIST dataset. (Written in Python)

Predicting COVID 19

Artificial Intelligence

Implemented an optimal neural network to classify the photos of the humans' lungs into Covid19, Normal, and Pneumonia classes. (Written in Python)

Freelancers Collective Database

Database Design

Implemented a database with functions, triggers, views, and indexes for a freelancers' collective. (Written in PostgreSQL)

Multicast Protocol

Computer Networks

Implemented the Distance Vector routing protocol, which uses the Bellman-Ford algorithm for routing and forwarding messages and files among virtual nodes. Also, implemented the BGMP protocol to handle multicasting. (Written in C++)

FTP Server

Computer Networks

Implemented an FTP server on a client-server model architecture using separate control and data connections between the clients and the server. (Written in C++)

Course Enrolment Application (Bolbolestan)

Internet Engineering

Developed a web application for online course registration and searching. (Backend: Java(Spring framework) - Frontend: JavaScript(Reactjs) - DB: MySQL - Deployment: Docker, Kubernetes)

Circuit-Solver

Electrical Circuits

Implemented software for visualizing and solving electrical circuits. (Written in Python)

Smart Brace

Minor Program

Designed a smart brace for scoliotic patients by employing piezoelectric sensors. Also, I developed a website for this product.

Technical Skills

Programming Languages	R, Python, C, C++, JAVA
Databases	MySQL, SQLServer, PostgreSQL, MongoDB, Redis, Elasticsearch, Cassandra, Neo4J
R & Python Libraries	SNAP, NetworkX, igraph, ggplot2, ergm, NLTK, NumPy, pandas, scikit-learn, Keras
Web Development	React, JavaScript, CSS, HTML5, TypeScript, Bootstrap, JSP, Spring
Hardware Design Languages	Verilog, SystemVerilog
Simulation	ModelSim, Quartus, Proteus, NS2
Tools	Git, Gephi, L ^A T _E X, RStudio, Jupyter notebook, Maven, Postman, Docker, Kubernetes, WordPress
Operating Systems	Linux(Ubuntu), macOS, Windows

Volunteering Experience

Member of ACM Student Chapter

RESPONSIBLE FOR ORGANIZING ACADEMIC PROGRAMS.

University of Tehran

Oct. 2021 - Present

Member of UT AP Team

DESIGNED PROGRAMMING PROJECTS FOR ADVANCED PROGRAMMING COURSE.

University of Tehran

Sep. 2019 - Present

Member of DMC Team

DESIGNED QUESTIONS FOR THE DISCRETE MATHEMATICS CONTEST AND ORGANIZED THE CONTEST.

University of Tehran

Apr. 2019 - Jun. 2019

Workshops

Teaching Assistance Training

A three-hour workshop held by the School of ECE, University of Tehran

Fall 2019

Introduction to AVR

Directed by Kowsar Educational and Research Center, University of Tehran

Summer 2018

Languages

Persian Native

English Professional working proficiency

Interests

Playing chess, Teamworking, Leadership, Voluntary work, Reading books ([here](#) is the list of my readings)