

Mohammad Abolnejadian

📍 Sharif University of Technology, Tehran, Iran

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EDUCATION

Sharif University of Technology

Sep. 2019 – Present (Expected Feb. 2024)

B.Sc in Computer Engineering

Tehran, Iran

GPA: 19.24/20

The best university in Iran, according to QS ranking 2023

Atomic Energy High School

Sep. 2016 – Jul. 2019

Diploma of Mathematics

Tehran, Iran

GPA: 19.83/20

One of the most competitive schools in Iran, with a $\approx 3\%$ acceptance rate

RESEARCH INTERESTS

- Human-Computer Interaction
- Artificial Intelligence (esp. Human-Centered AI)
- Interaction & UI Design
- Software Engineering (esp. for AI-Based Systems)

RESEARCH EXPERIENCE

Cyber-Physical Systems (CPS) Lab

May 2023 – Present

Supervisor: [Dr. Mohsen Ansari](#)

Sharif University of Technology

- The research focuses on leveraging cutting-edge metaheuristic algorithms on fog scheduling applications.
- Worked with **iFogSim** simulation tool. Implemented over eight metaheuristic algorithms in Java in order to get the desired parameters and comparisons. Some implementations are public. [\[code\]](#)

HCI Researcher on AI for Education

Jun. 2023 – Present

Supervisor: [Dr. Sharareh Alipour](#)

Tehran Institute for Advanced Studies (TeIAS)

- Worked on a paper called **Leveraging ChatGPT for Adaptive Learning through Personalized Prompt-based Instruction: A CS1 Education Case Study**, submitted to CHI 2024 case studies and is currently under review.
- Developed a platform called learnprogrammingwithgpt.com in which students can use ChatGPT[®] as their Python programming tutor.
- The experiment was done on over 60 high school students, comparing this platform with traditional introductory programming teaching methods.

Intelligent Software Engineering (ISE) Lab

Aug. 2023 – Present

Supervisor: [Dr. Abbas Heydarnoori](#)

Sharif University of Technology

- Working on collecting a **dataset of Python kernels** from Kaggle[®] and running analysis on them so we can provide an extract of data valuable for researchers from these kernels.
- This work also involves **AI methods** for analyzing notebooks and providing valuable metrics concerning parameters like quality of code, library usage, etc.

Reliable and Durable IoT Applications & Networks (RADIAN) Lab

Oct. 2023 – Present

Supervisor: [Dr. Bardia Safaei](#)

Sharif University of Technology

B.Sc Project

- This research is on the intersection of IoT, HCI, and AI for healthcare cases, especially for accessibility and sports.
- In this research, I mainly work on implementing an AI model and interactive UI on Raspberry Pi[®] in order to do a case study on the target group.

PUBLICATIONS

- Sharareh Alipour, **Mohammad Abolnejadian**, Kamyar Taeb, "Leveraging ChatGPT for Adaptive Learning through Personalized Prompt-based Instruction: A CS1 Education Case Study", (**CHI2024**) Case Studies, **Acceptance Rate: 24%**
- Mojtaba Mostafavi, Arash Asgari, **Mohammad Abolnejadian**, Abbas Heydarnoori, "DistilKaggle: A Distilled Dataset of Kaggle Jupyter Notebooks", (**MSR2024**) Data and Tool Showcase Track, *In Progress...*

WORK EXPERIENCE

Software Engineer Aug. 2022 – May 2023
Cafe Bazaar *Tehran, Iran*

- **The biggest Android marketplace in Iran**, with over 50M active monthly users (as of 2023).
- Worked in payment service tribe, handling in-app payments and a new gift card storefront.
- We used **Agile methodologies** for our software development.

Full Stack Developer Sep. 2021 – Dec. 2022
Pezhvak AI Startup *Tehran, Iran*
A division of Dr. Abolfazl Motahari's lab

- Developed an **NLP platform** to showcase its usages such as Speech to Text, Speaker Identification, etc.
- Used a full-stack development kit in the process, using tools such as Flask SDK, Flutter SDK, etc.
- Some projects were funded by Mobile Communications Company of Iran (**MCI**), the biggest mobile operator in Iran.

HONORS & AWARDS

International Robocup Competition Jun. 2018
2nd Place, Soccer 2D Simulation League *Montreal, Canada*
Cyrus Team

Iran Open Robotics Competition Apr. 2018
1st Place, Soccer 2D Simulation League *Tehran, Iran*
Cyrus Team
1st Place, Soccer 2D Simulation League - Starter
AE Team

Asia-Pacific Robocup Competition Dec. 2018
2nd Place, Soccer 2D Simulation League - Starter *Kish, Iran*
Cyrus Team

University Entrance Exam (Concours) Sep. 2019
ranked **12th nationally**, Mathematics field *Iran*
Among more than 164,000 students (the top $\approx 0.007\%$)
ranked **7th nationally**, English Literature field
Among more than 165,000 students (the top $\approx 0.004\%$)

TEACHING EXPERIENCE

Compiler Design (Lead TA) (x4) Spring, Fall 2022; Spring, Fall 2023
Intstructor: Dr. Gholamreza Ghassem-Sani *Sharif University of Technology*
Designing & Grading Project | Student Guidance | Correcting Mid-term & FinalExams

Data Structure & Algorithms (TA) Fall 2023
Intstructor: Dr. Mohammadali Abam *Sharif University of Technology*
Designing & Grading Assignments

Information Retrieval (TA) <i>Intstructor: Dr. Hamid Beigy</i> Designing & Grading Assignments	Fall 2023 <i>Sharif University of Technology</i>
Embedded Systems (TA) <i>Intstructor: Dr. Mohsen Ansari</i> Designing the Final Project (Solving a real-world problem using Raspberry Pi)	Spring 2023 <i>Sharif University of Technology</i>
Computer Simulation (TA) <i>Intstructor: Dr. Bardia Safaei</i> Designing & Grading the Final Project	Spring 2023 <i>Sharif University of Technology</i>
Software Engineering (TA) <i>Intstructor: Dr. Mehran Rivadeh</i> Designing & Grading Assignments Correcting & Designing Mid-term & Final Exams	Spring 2023 <i>Sharif University of Technology</i>
Operating Systems (TA) <i>Intstructor: Dr. Hossein Asadi</i> Designing & Grading Assignments Correcting Mid-term & Final Exams	Fall 2022 <i>Sharif University of Technology</i>
Linear Algebra (TA) (x3) <i>Intstructors: Dr. Hamidreza Rabiee & Maryam Ramezani</i> Conducting Workshops Designing & Grading Assignments Providing Learning Material	Spring, Fall 2022; Spring 2023 <i>Sharif University of Technology</i>
Engineering Probability & Statistics (TA) (x2) <i>Intstructors: Dr. Ali Sharifi-Zarchi; Dr. Amir Najafi</i> Designing & Grading Assignments	Fall 2021; Fall 2023 <i>Sharif University of Technology</i>
Computer Language & Organization (TA) (x2) <i>Intstructor: Dr. Laleh Arshadi</i> Designing & Grading Assignments	Fall 2021, Spring 2022 <i>Sharif University of Technology</i>
Advanced Programming (TA) (x2) <i>Intstructors: Dr. Amin Fazli; Dr. Vahid Salmani</i> Designing the Final Project	Fall 2020, Fall 2021 <i>Sharif University of Technology</i>

REMARKABLE PROJECTS

Learn Programming with GPT Web Application code This platform was developed for the research paper titled <i>Leveraging ChatGPT for Adaptive Learning through Personalized Prompt-based Instruction: A CS1 Education Case Study</i> and is available at learnprogrammingwithgpt.com . This platform offers ChatGPT as the user's Python programming tutor based on their educational background. This web application's frontend was developed using the Flutter SDK and its backend uses Flask library for Python.	Summer 2023
Real-Time Gesture-Controlled Raspberry Pi Car with YOLOv8 code <i>Supervisor: Dr. Alireza Ejlali</i> The project involves building a car using Raspberry Pi and controlling its movement using hand gestures. The hand gestures are recorded using a phone's camera and detected using the YOLOv8 model. This project also had a hardware implementation that involved packaging and using different modules with Raspberry Pi.	Spring 2023
Sentiment Analysis Comparing Six Classification Methods code <i>Supervisor: Dr. Abolfazl Motahari</i> This project involves a preprocessing pipeline performing over six tasks, three methods for word embedding , and six classification methods . Finally, I compared all of these methods to propose the best method for the given dataset	Spring 2023
CMinus Compiler code <i>Supervisor: Dr. Gholamreza Ghassem-Sani</i> In this project, we created a one-pass compiler for the C-minus programming language (a simplified version of the C programming language). This project was done in three phases: We developed the scanner in the first phase, the parser in the second phase, and finally the intermediate code generator in the third phase	Fall 2021

File Manager Mobile Application | [code](#)

Spring 2022

Supervisor: *Dr. Mehdi Mostafazade*

This project is an **Android-first mobile application** that can be used as a file-sharing platform. Easily upload your files to your account and download them anywhere using your personal account. I designed the whole UI using the **Figma** software.

Search Engine for Quranic Verses | [code](#)

Spring 2022

Supervisor: *Dr. Ehsaneddin Asgari*

Leveraged **TF-IDF**, **Boolean**, **Fasttext**, **Transformers** embeddings and **Elastic search** to construct an advanced search engine for Quranic verses. Additionally, with the help of statistical and algorithmic methods, other tools such as identifying central verses, and clustering verses conceptually have been developed.

TECHNICAL SKILLS

Programming Languages: Java, Python, C/C++, SQL, Dart, Swift, Verilog

Frameworks: Flutter, Django, React

Libraries: Pytorch, Scikit-Learn, Numpy, NLTK, SciPy

Tools: Figma, Adobe XD, Git, Docker, K8S, Kafka, \LaTeX , Postgres, Postman, Raspberry Pi

LANGUAGE PROFICIENCY

Persian: Native

English: Fluent

TOEFL iBT[®]: 108/120 (Reading: 26/30, Listening: 30/30, Speaking: 25/30, Writing: 27/30)
(Oct. 2023)

GRE[®] General: Verbal: 146/170, Quantitative: 168/170, Writing: 3.5/7
(Nov. 2023)

NOTABLE COURSES

Software Engineering <i>Dr. Mehran Rivadeh</i>	20/20	Database Design <i>Dr. Abbas Heydarnoori</i>	20/20
Object-Oriented Design <i>Dr. Raman Ramsin</i>	20/20	Modern Information Retrieval <i>Dr. Ehsaneddin Asgari</i>	20/20
Artificial Intelligence <i>Dr. Mohammadhossein Rohban</i>	20/20	Design of Algorithms <i>Dr. Masoud Seddighin</i>	20/20
Embedded Systems <i>Dr. Mohsen Ansari</i>	20/20	Linear Algebra <i>Dr. Hamidreza Rabiee & Maryam Ramezani</i>	20/20

EXTRA CURRICULAR ACTIVITIES

Gym Rat, never miss a leg day; **NBA fanatic**, never miss a game; **Tech nerd**, always up on the latest; **UI designer**, making things pop; **Running addict**, gotta keep moving; **Social butterfly**, squad magnet

REFERENCES

Gholamreza Ghassem-Sani

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