

# Mohammad Naeimi

COMPUTER SOFTWARE ENGINEER · DATA SCIENTIST

Department of Computer Engineering, Amirkabir University of Technology (AUT) - Tehran Polytechnic, Tehran, IRAN

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## Research Interests

- 🔗 ML/Deep Learning
- 🔗 Natural Language Processing
- 🔗 Generative Adversarial Networks
- 🔗 IR/Recommender Systems
- 🔗 Graph Neural Networks
- 🔗 Computational Biology

## Education

### Master of Science (M.Sc.) in Computer Software Engineering

Tehran, Iran

AMIRKABIR UNIVERSITY OF TECHNOLOGY (AUT) - TEHRAN POLYTECHNIC → USNEWS, TIMES, QS

Sep. 2022 - Jul. 2024 (Expected)

- Thesis: **Improving Music Recommender Systems Using Hybrid Methods** (In Progress)
- Supervisor: **Dr. Mostafa H. Chehreghani**

### Bachelor of Science (B.Sc.) in Computer Engineering

Isfahan, Iran

ISFAHAN UNIVERSITY OF TECHNOLOGY (IUT) → USNEWS, TIMES

Sep. 2018 - Sep. 2022

- Thesis: **Converting Genome to Gene Expression in Cancer Cells with CycleGAN**
- Supervisors: **Dr. Mohammad Hossein Manshaei & Dr. Mehran Safayani**

### High School Diploma in Natural Sciences Discipline

Kashan, Iran

NATIONAL ORGANIZATION FOR DEVELOPMENT OF EXCEPTIONAL TALENTS (NODET)

Sep. 2013 - Jun. 2017

## Work Experience

### Back-End Web Developer

Kashan, Iran

MATNO COMPANY

May. 2021 - Sep. 2022

- **Tasks:** Back-end Projects, Web Scraping, Telegram Bot, SQL & No-SQL Databases
- **Skills:** Programming, Web Development, Teamwork, Problem-Solving, Responsibility, Communication
- **Tools:**
  - NodeJS, Docker, GIT
  - Frameworks: NestJS, AdonisJS, ExpressJS, Django
  - Databases: PostgreSQL, MySQL, MongoDB, Redis

## Research Experience

### Research Assistant

Tehran, Iran

DATA SCIENCE RESEARCH GROUP,

UNDER THE SUPERVISION OF **DR. MOSTAFA H. CHEHREGHANI**,

Mar. 2023 - PRESENT

DEPARTMENT OF COMPUTER ENGINEERING, AMIRKABIR UNIVERSITY OF TECHNOLOGY (AUT) - TEHRAN POLYTECHNIC

- Conduct Research, Develop & implement AI Models, Compile results, Provide progress reports
- Deep Learning, Data Science, Recommender Systems, Graph Neural Networks, Natural Language Processing
- **Improving Music Recommender Systems Using Hybrid Methods** (In Progress)

In this ongoing research, I leverage hybrid recommendation methods and incorporate diverse side information to improve the fairness and performance metrics of music recommender systems. A key aspect of my approach involves utilizing NLP-extracted features derived from the lyrics of music as valuable side information. By integrating these linguistic insights, I aim to deepen the understanding of user preferences and, consequently, provide more accurate and personalized music recommendations. This project demonstrates how innovative approaches can be used to optimize recommender systems.

### Undergraduate Research Assistant

Isfahan, Iran

GAME THEORY AND MECHANISM DESIGN (GTMD) RESEARCH LABORATORY,

UNDER THE SUPERVISION OF **DR. MOHAMMAD HOSSEIN MANSHAEI**,

Mar. 2022 - Sep. 2022

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING, ISFAHAN UNIVERSITY OF TECHNOLOGY

- Conduct Research, Program & Run AI Models, Summarize Findings, Prepare Progress Reports
- Deep Learning, Data Science, Generative Adversarial Networks, Computational Biology, Image Processing
- **Converting Genome to Gene Expression in Cancer Cells with CycleGAN**

For this project, I leveraged two critical datasets from the Cancer Genome Atlas (TCGA) project—namely, the gene expression dataset and the somatic mutation dataset (SNP). Employing a cutting-edge method known as DeepInsight, I transformed these datasets into image representations. Subsequently, by implementing a robust CycleGAN and rigorously testing its functionality, I utilized the transformed images derived from the TCGA datasets as the training data. My objective was to achieve a meaningful conversion between the two distinct dataset domains, thereby contributing to the advancement of understanding gene expression patterns in cancer cells.

### Undergraduate Research Assistant

Isfahan, Iran

OPERATING SYSTEMS GROUP UNDER THE SUPERVISION OF **DR. MOHAMMAD REZA HEIDARPOUR**,

Mar. 2021 - Aug. 2021

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING, ISFAHAN UNIVERSITY OF TECHNOLOGY

- Conduct Research, Run Simulations, Summarize Findings, Prepare Progress Reports
- Operating Systems, Embedded Systems, Microprocessors
- **Porting FreeRTOS on Raspberry Pi 3B (Simulating & Porting FreeRTOS)**

I actively contributed to the FreeRTOS Porting project, demonstrating my proficiency in embedded systems and real-time operating systems. I successfully simulated FreeRTOS and executed a porting onto the ATmega32 microcontroller. Subsequently, in this project we launched the real-time operating system, FreeRTOS, on Raspberry Pi 3B. After running the test scenarios, we collect the results table and investigate the processing status of this operating system. Calculating the processing power of the combination of the FreeRTOS operating system and different hardwares can be used in various applications.

# Teaching Experience

## Teaching Assistant of Web Search & Information Retrieval Course

Tehran, Iran

UNDER THE SUPERVISION OF **DR. SAEEDH MONTAZI**,

Sep. 2023 - PRESENT

DEPARTMENT OF COMPUTER ENGINEERING, AMIRKABIR UNIVERSITY OF TECHNOLOGY (AUT) - TEHRAN POLYTECHNIC

- Teach & Troubleshoot Students, Design Assignments & Projects, Grade Assignments & Projects
- Teaching, Programming, AI/Machine Learning, Information Retrieval, Recommender Systems, Data Analysis

## Teaching Assistant of Operating Systems Course

Isfahan, Iran

UNDER THE SUPERVISION OF **DR. MOHAMMAD REZA HEIDARPOUR**,

Sep. 2021 - Jan. 2022

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING, ISFAHAN UNIVERSITY OF TECHNOLOGY (IUT)

- Teach & Troubleshoot Students, Design Assignments & Projects, Grade Assignments & Projects
- Teaching, Programming, Operating Systems, Algorithms, Linux, LaTeX

## Teaching Assistant of Design & Analysis of Algorithms Course (Two Classes)

Isfahan, Iran

UNDER THE SUPERVISION OF **DR. ZEINAB MALEKI**,

Mar. 2021 - Jul. 2021

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING, ISFAHAN UNIVERSITY OF TECHNOLOGY (IUT)

- Teach & Troubleshoot Students, Design Assignments & Projects, Grade Assignments & Projects
- Teaching, Programming, Algorithms, Data Structures, LaTeX

## Teaching Assistant of Basic Programming Course

Isfahan, Iran

UNDER THE SUPERVISION OF **DR. ELHAM MAHMOUDZADEH**,

Sep. 2019 - Jan. 2020

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING, ISFAHAN UNIVERSITY OF TECHNOLOGY (IUT)

- Teach & Troubleshoot Students, Design Assignments & Projects, Grade Assignments & Projects
- Teaching, Programming, Algorithms, C/C++

# Certificates

## Deep Neural Networks with PyTorch

COURSERA - IBM

Online

Jul. 2023

## Applied Machine Learning in Python

COURSERA - UNIVERSITY OF MICHIGAN

Online

May. 2021

## Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning

COURSERA - DEEPLARNING.AI

Online

Apr. 2021

## Project-oriented course in Web Development with PHP

QUERA COLLEGE (AN IRANIAN PROGRAMMING TRAINING PLATFORM)

Online

Mar. 2021

## Introduction to Artificial Intelligence (AI)

COURSERA - IBM

Online

Feb. 2021

## Advanced Python programming and Object-oriented thinking course

QUERA COLLEGE (AN IRANIAN PROGRAMMING TRAINING PLATFORM)

Online

Jan. 2019

# Skills

<b>Knowledge</b>	Algorithms, AI/ML/DL, Data Science, Recommender Systems, NLP, Information Retrieval, GANs, GNNs
<b>Programming</b>	Python (Advanced), JavaScript/TypeScript (Advanced), C/C++ (Intermediate), SQL (Intermediate), PHP (Basic)
<b>Frameworks/Libraries</b>	TensorFlow, Keras, Scikit-Learn, PyTorch, NLTK, NumPy, pandas, Matplotlib
<b>Web development</b>	NodeJS, AdonisJS, NestJS, Django
<b>Databases</b>	PostgreSQL, MySQL, Microsoft SQL Server, Metabase, Redis, MongoDB
<b>Technologies</b>	Git, Docker, LaTeX
<b>Operating Systems</b>	Windows, Linux (Ubuntu, Kali)
<b>Soft Skills</b>	Teamwork, Problem-Solving, Responsibility, Communication, Flexibility
<b>Languages</b>	Persian (Native Proficiency), English (Full Professional Proficiency), French (Elementary Proficiency)

# Relevant Courses

## GRADUATE COURSES | Amirkabir University of Technology (AUT) - Tehran Polytechnic

**Big Data Analytics** (Spring 2023), **Natural Language Processing** (Spring 2023), **Advanced Algorithms** (Spring 2023),

**Cloud Computing** (Spring 2023), **Web Search and Information Retrieval** (Fall 2022)

## UNDERGRADUATE COURSES | Isfahan University of Technology (IUT)

**Software Engineering I, II** (Spring 2021, Spring 2022), **Computer Networks I, II** (Spring 2020, Fall 2021),

**Machine Learning Fundamentals** (Fall 2021), **Artificial Intelligence** (Spring 2021), **Design & Analysis of Algorithms** (Fall 2020),

**Operating System Principles** (Fall 2020), **Microprocessor** (Fall 2020), **Computer Architecture & Organization** (Spring 2020),

**Data Structures** (Spring 2020), **Theory of Formal Languages** (Spring 2020)

# Hobbies & Interests

Keeping up with the latest Developments in Technology

Learning a New Skill

Watching Movies

Listening to Music

Going to the Gym

Cycling

Swimming