Mohammad Naeimi

Computer Software Engineer · Data Scientist

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MhmdNmi | MhmdNmi | Mohammad Naeimi

Research Interests

- **AI/Machine Learning**
- **Natural Language Processing (NLP)**
- **Large Language Models (LLMs)**
- **IR/Recommender Systems**
- **Graph Neural Networks (GNNs)**
- **Deep Learning & Neural Networks**

Education

Master of Science (M.Sc.) in Computer Software Engineering — *Tehran, Iran*

Amirkabir University of Technology (AUT) - Tehran Polytechnic → USNews, Times, QS — *Sep. 2022 - PRESENT*

- Thesis: **Improving Music Recommender Systems Using Hybrid Methods**
- 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, SQL & No-SQL Databases, Web Scraping, Telegram Bot
- **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 Natural Language Processing Course — *Tehran, Iran*
Under the Supervision of **Dr. Saeedeh Momtazi**, — *Feb. 2024 - Jul. 2024*
Department of Computer Engineering, Amirkabir University of Technology (AUT) - Tehran Polytechnic
- Teaching, Programming, AI/Machine Learning, Natural Language Processing

Teaching Assistant of Web Search & Information Retrieval Course — *Tehran, Iran*
Under the Supervision of **Dr. Saeedeh Momtazi**, — *Sep. 2023 - Feb. 2024*
Department of Computer Engineering, Amirkabir University of Technology (AUT) - Tehran Polytechnic
- 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)
- Teaching, Programming, Operating Systems, Algorithms, Linux, LaTeX

Teaching Assistant of Design & Analysis of Algorithms Course — *Isfahan, Iran*
Under the Supervision of **Dr. Zeinab Maleki**, — *Mar. 2021 - Jul. 2021*
Department of Electrical & Computer Engineering, Isfahan University of Technology (IUT)
- 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)
- Teaching, Programming, Algorithms, C/C++

Certificates

Deep Neural Networks with PyTorch — *Online*
Coursera - IBM — *Jul. 2023*

Applied Machine Learning in Python — *Online*
Coursera - University of Michigan — *May. 2021*

Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning — *Online*
Coursera - DeepLearning.AI — *Apr. 2021*

Project-oriented course in Web Development with PHP — *Online*
Quera College (An Iranian programming training platform) — *Mar. 2021*

Introduction to Artificial Intelligence (AI) — *Online*
Coursera - IBM — *Feb. 2021*

Advanced Python programming and Object-oriented thinking course — *Online*
Quera College (An Iranian programming training platform) — *Jan. 2019*

Skills

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

Relevant Courses

Graduate Courses | Amirkabir University of Technology (AUT) - Tehran Polytechnic
Neural Computing & Deep Learning (Fall 2023), **Complex Networks Analysis** (Fall 2023), **Distributed Systems** (Fall 2023), **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**