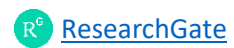


# Parsa Mohammadi | Curriculum Vitae

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🌐 <https://parsam.eu.pythonanywhere.com>

✉ [parsamohammadi@aut.ac.ir](mailto:parsamohammadi@aut.ac.ir)



## EDUCATION

- **Amirkabir University of Technology (AUT), Tehran, Iran** Sep 2020 – Present
  - B.S. in Electrical Engineering
    - **GPA: 3.56 (17.42 out of 20)**, Last 2 years: **3.88 (18.1 out of 20)**
    - Ranked within the top 1% of the Iranian University Entrance exam.
- **Shahid Beheshti (NODET), Kermanshah, Iran** Sep 2016 – Sep 2020
  - Mathematics and physics diploma
    - GPA: 18.87 out of 20.00
    - Ranked within the top 2% of the Nationwide NODET Entrance exam.

## RESEARCH INTERESTS

- Speech Processing
- Large Language Models
- NLP
- AI in healthcare

## TEACHING EXPERIENCES

**Amirkabir University of Technology (AUT), Tehran, Iran** Feb 2023 – Jul 2023

**Course:** “Linear Control Systems - Electrical Engineering”

- Assisted students by solving sample questions and guiding them through lessons.
- Taught MATLAB and Simulink basics to students.
- Provided education material, including projects and weekly homework.
- *Supervisor: Dr. Amir A. Suratgar (Amirkabir University of Technology, Tehran, Iran)*

**Course:** “Computer Architecture & Microprocessors” Sep 2023 – Feb 2024

- Created educational materials, including projects and weekly homework.
- Facilitated instructional sessions focused on practical problem-solving methodologies.
- *Supervisor: Dr. Ahad Shabani (Amirkabir University of Technology, Tehran, Iran)*

**Course:** “Logical Circuits” Sep 2024 – Present

- Taught VHDL programing with Vivado and ISE.
- Assisted students by solving sample questions and providing guidance during lessons.
- *Supervisor: Dr. Zahra Shariatmadar (Amirkabir University of Technology, Tehran, Iran)*

**Sharif University of Technology (SUT), Tehran, Iran** Sep 2023 – Present

**Course:** “Automatic Speech Recognition” – **For three semesters**

- Provided education material, including projects and weakly homework.
- Conducted weekly quizzes and workshops on using ASR tools like ESPNet.
- Managed practical sessions for hands-on experience with ASR technologies.
- *Supervisor: Dr. Hossien Sameti (Sharif University of Technology, Tehran, Iran)*

## WORK EXPERIENCES

**Machine Learning Intern - [Asr Gooyesh Pardaz](#)** · Full-time, Tehran, Iran Jul 2023 – Sep 2023

- Trained an end-to-end Automatic Speech Recognition (ASR) model using E-Branchformer architecture on a Persian dataset.
- Achieved a 15% improvement in model performance compared to previous models.
- Implemented the trained model on Hugging Face Space with Gradio, providing an interactive user interface. Link to [online demo](#).
- *Supervisor: Dr. Hossien Sameti (Sharif University of Technology, Tehran, Iran)*

## RESEARCH EXPERIENCES

### Data-driven Maintenance of Urban Infrastructure in Smart City

Dec 2021 – Jul 2022

- Utilized Random Forest, K-means algorithms and MLP to optimize the cost of maintenance and repair of power networks. Achieved 90% accuracy for predicting power network failures.
- Developed a Decision Support web application for control centers using Django framework.
- Implemented trained Machine Learning models into the web application.
  - Supervisor: Dr. Alireza Fereidunian (K. N. Toosi University of Technology, Tehran, Iran)

### Tondguyan Petrochemical Company Maintenance System

Jul 2023 – Sep 2023

- Performed feature reduction on a dataset of mechanical properties of facilities.
- Implemented the K-means algorithm to identify anomalous data clusters.
  - Supervisor: Dr. Somaye Mohammadi (Sharif University of Technology, Tehran, Iran)

## PUBLICATIONS

- Tamanaeifar, M. H., Nasiri, M. G., **Mohammadi, P.**, Haghshenas, M., Ghadamgahi, M. M., Alimadady, M., Fereidunian, A. (2022, September). *Collaborative Design and Development of Integrated Preventive Maintenance Decision Support Software for Smart City Infrastructure based on Accumulated Data Analytics* [Paper presentation].  
8th International Conference on Industrial and Systems Engineering, Mashhad, Iran.  
(<https://civilica.com/doc/1537570>)
- Mohammadi, P.**, Suratgar, A., Menhaj, M. Eye Pupil Control Analysis. Vision Research Journal (Under Review)

## SKILLS

### Programming Skills

Python

- TensorFlow
- PyTorch
- NumPy
- Pandas
- Sklearn
- Gradio
- OpenCV
- Matplotlib
- Django
- PyQt
- Threading
- Async IO

C/C++

HTML/CSS

JavaScript

Matlab

- Electrical Libraries
- Simulink

VHDL

Verilog

HSPICE

### Machine Learning Skills

NLP

- NER
- Sentiment analysis
- Large Language models
- Multi-modal models

Signal/Speech processing

- RNN
- LSTM
- Transformer
- Conformer
- E-Branchformer
- ESPnet toolkit

Image processing

- CNN
- Transfer Learning
- Object Detection
- U-Net
- Style Transfer
- Siamese Network

Prompt engineering

AI Classic algorithms

Hugging Face 🤗

### Others

Linux

Git

Docker

Jupyter Notebook

PythonAnywhere

ISE Design Suite

Vivado Design Suite

- IP Core

- HLS

- Vitis

- Micro Blaze

Proteus 8

PCB Design (Altium Designer)

STM32 Microcontroller

Cadence (VLSI Designer)

Microwind

## SELECTED PROJECTS

- **Bachelor thesis: Chest X-ray Images Diagnosis and Report Generation** Feb 2024 – Present
  - Tuned **Mini-Gemini** (Pre-trained VLLM) on a large dataset of radiology images.
  - Created a **new dataset** of paired images and reports for training.
  - Achieved significant performance improvements on the test set.
  - *Supervisor: Dr. Saeed Sharifian (Amirkabir University of Technology, Tehran, Iran)*
- **Sentiment Analysis of Twitter Posts – Machine Learning Course** Sep 2023 – Feb 2024
  - Conducted preprocessing steps on a dataset of Twitter posts (tokenization, stemming, normalization, etc.). Performed feature extraction using TF-IDF.
  - Tuned a BERT-based uncased model on the data.
  - Achieved 95% accuracy on the test set.
- **Trained A Gender Classifier from Scratch** Jul 2023 – Sep 2023
  - Trained a MobileNet architecture model using Keras and TensorFlow.
  - Created a new dataset by merging five large image datasets with gender labels.
  - Achieved 92.7% accuracy on the test set.
  - Integrated the model with Django and deployed it on a personal website. Link to [project](#).
- **Personal Website** Jul 2023 – Sep 2023
  - Developed a personal website using the Django framework.
  - Included sections for biography, contact information, and online projects. Link to [website](#).

## COURSES

- |   |  |
|---|--|
| • Artificial Intelligence [Fall 2021]   | • Advanced Programming [Winter 2023]   |
| • Machine Learning [Fall 2023]  | • Multimedia Systems [Winter 2024]   |
| ➤ <b>Online Certificated Courses:</b>   |  |
| • Machine Learning <ul style="list-style-type: none"><li>- <i>Dr. Andrew Ng</i></li></ul>                                   | • Deep Learning Specialization <ul style="list-style-type: none"><li>▪ Structuring Machine Learning Projects</li><li>▪ Convolutional Neural Networks</li><li>▪ Sequence Models (Transformers)</li><li>- <i>Dr. Andrew Ng</i></li></ul> |
| • Django for Everybody <ul style="list-style-type: none"><li>- <i>Dr. Charles Severance</i></li></ul>                       | • MATLAB for beginners <ul style="list-style-type: none"><li>- <i>MathWorks</i></li></ul>  |
| • Analysis of intelligent biomedical images <ul style="list-style-type: none"><li>- <i>Dr. Mohammad H, Rohban</i></li></ul> |  |

## VOLUNTEERING EXPERIENCES

- **Member of “Amirkabir 2021 International Summer School,” Executive Team** Mar – Sep 2021
  - Invited Dr. Larry Cheng from Penn State University to participate in the summer school.
  - Assisted Dr. Larry Cheng during the summer school sessions.
- **Member of Amirkabir Astronomy Club** Apr 2023 - Present
  - Designed and implemented astronomical events, engaging students and the public in astronomy-related activities.
- **Participated in charity market** Feb 2024
  - Created and sold handmade goods to raise funds supporting underprivileged students.

## Honors

- |  |          |
|--|----------|
| • Won <b>1<sup>st</sup></b> place prize of IEEE Open Data Hackathon Competition. | Nov 2022 |
| • Ranked among <b>top teams</b> in Irancell Labs AI Hackathon.                   | Aug 2023 |

## LANGUAGE PROFICIENCY

- |   |                    |                    |
|---|--------------------|--------------------|
| • English (IELTS will be taken by end of September) | • Persian (Native) | • Kurdish (Native) |
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