Arman Homafar

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LinkedIn
Google Scholar

EDUCATION

Fall 2024 – Present

Master of Computer Engineering

Politecnico di Torino, Turin, Italy

- Current cumulative GPA: **23.87/30**
- **Relevant courses:**

Data Science and Database Technology	29/30
Artificial Intelligence in Medicine	26/30
Computer Architecture	27/30

Fall 2019 – Summer 2023

Bachelor of Computer Engineering

Semnan University, Semnan, Iran

- GPA: **3.52/4** (Last two years' GPA: **3.68/4**)

RESEARCH INTERESTS

Artificial Intelligence,
Machine Learning,
Engineering Applications of Machine Learning,
Explainable Artificial Intelligence (XAI)

PUBLICATIONS

2022

Modeling Coking Coal Indexes by SHAP-XGBoost

A. Homafar, H. Nasiri, and S. C. Chelgani.
Fuel Communications. DOI

In Preparation

Modeling the Hardgrove Grindability Index

A. Homafar, F. Yaghmaee, S. C. Chelgani, and H. Nasiri.

2024

CatBoost-SHAP for Measuring Interactions within Industrial Operational Flotation Variables

S. C. Chelgani, **A. Homafar**, H. Nasiri, and M. Rezaei Laksar.
Minerals Engineering. DOI

2021

Prediction of Uniaxial Compressive Strength and Modulus of Elasticity

H. Nasiri, **A. Homafar**, and S. C. Chelgani.
Results in Geophysical Sciences. DOI

2022

Modeling Operational Cement Rotary Kiln Variables

R. Fatahi, H. Nasiri, **A. Homafar**, R. Khosravi, H. Siavoshi, and S. C. Chelgani.
Particulate Science and Technology. DOI

2023

Diagnosis of Parkinson's Disease Based on Voice Signals

P. Ghaheri, H. Nasiri, A. Shateri, and **A. Homafar**.
Computer Methods in Biomechanics and Biomedical Engineering. DOI

SELECTED PROJECTS

2026 **Explainable Parkinson's Disease Classification from Voice Signals**

Revised and extended our published Parkinson's voice-classification study by introducing subject-wise evaluation, a validation-tuned soft-voting ensemble, and enhanced explainability through SHAP faithfulness and concept-level intervention analyses.

2026 **Semantic Correspondence with Vision Foundation Models**

Developed a dense semantic correspondence pipeline comparing DINOv2, DINOv3, and SAM, with transformer fine-tuning and window soft-argmax decoding on SPair-71k, and evaluated cross-dataset generalization on PF-Pascal and PF-Willow.

TEACHING EXPERIENCE

Teaching Assistant

Fall 2021 Logic Circuit

Fall 2021 Programming in C++

Fall 2022 Artificial Intelligence

Fall 2022 Advanced Programming

INTERNSHIP

Tapesh Company

- Implemented software solutions in C++ and Python for practical engineering tasks.
- Organised database content to support efficient data access and processing.

CERTIFICATES

Stanford University — **Machine Learning**

Tehran Institute of Technology

- Python Programming
- Web Design
- Image Processing
- Adobe Illustrator

PROFESSIONAL SKILLS

Programming Languages	Python, C++, C, Java, MATLAB
AI & Data Science	Machine Learning, Deep Learning, Reinforcement Learning, Computer Vision, Image Processing, Explainable AI
ML Frameworks & Libraries	PyTorch, TensorFlow, scikit-learn, SHAP, LIME, Pandas, NumPy

AWARDS AND HONOURS

- Among the top 3% of Computer Engineering students in Semnan University.
- Among the top 2% of University Entrance Exam participants in Iran.
- Received tuition waiver from Semnan University for Bachelor's degree in 2019.

INTERESTS AND HOBBIES

Playing piano, football, tennis, swimming, literature, and reading.

REFERENCES

Saeed Chehreh Chelgani

Director of the Swedish School of Mines, Lulea University of Technology, Lulea, Sweden.
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Mohammad Rahmani Manesh

Head of Electrical and Computer Engineering Department, Semnan University, Semnan, Iran.
✉ rahmanimanesh@semnan.ac.ir

Dr. H. Nasiri

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