

Mohammad Javad Ranjbar

University of Tehran

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Research Interests

Conversational AI | Large Language Models | Multimodal AI | Controllable Generative Models |
Speech Synthesis & Processing

Education

University of Tehran

Master of Science in Computer Software Engineering, GPA: Perfect 4.0/4.0 (19.07/20)

Tehran, Iran

2022–Present

Thesis: Zero-Shot Text-to-Speech for Persian Language

Supervisors: Dr. Azadeh Shakery & Dr. Hesham Faili

Curated a comprehensive multispeaker Persian dataset comprising over 5K hours of audiobooks and podcasts. Employed advanced ASR systems and multiple alignment models to extract accurate transcriptions and achieve precise audio-text synchronization. Developed and trained multispeaker TTS models specifically optimized for Persian language.

Amirkabir University of Technology

Bachelor of Science in Electrical Engineering, Last 2 Years GPA: 3.64/4.0

Tehran, Iran

2016–2021

Thesis: Facial Expression Recognition with Robotic Implementation

Supervisors: Dr. M.B. Menhaj & Dr. H. Taheri

Designed and implemented an intelligent personal assistant system on a low-cost robot. Integrated advanced facial expression recognition for real-time emotion detection, coupled with multimodal interaction capabilities including gesture-based responses, context-aware music selection, and speech command processing.

Publications

2025: M.J. Ranjbar, A. Shakery, H. Faili. *PersianPunc: Neural Punctuation Restoration for Persian Speech Recognition and Text Processing*. Under preparation.

2025: M.J. Ranjbar, A.H. Sheikh, S. Ranjbar, S. Karimi, A. Shakery, H. Faili. *PersianMedQA: Evaluating LLMs on a Persian-English Bilingual Medical Question Answering Benchmark*. Under review at AACL 2025.

2025: B. Mousaei Shir-Mohammad, S. Karimi, **M.J. Ranjbar**, et al. *Stage-Aware Deep Fusion Network for Remaining Useful Life Prediction of Bearings*. Under review at IEEE Transactions on Reliability.

2022: M.J. Ranjbar, M.B. Menhaj, H. Taheri. *Social Robots: An Open-Source Framework for Personal Assistant Robots*. ICRoM 2022.

Technical Skills

- **Deep Learning Frameworks:** PyTorch, TensorFlow, Transformers (HuggingFace),
- **Programming & Tools:** Python (Expert), R, C++, MATLAB, Git, Docker, L^AT_EX
- **Specialized Libraries:** librosa, espnet, fairseq, speechbrain, datasets, evaluate
- **Languages:** Persian (Native), English (Fluent - TOEFL: 103/120),

Professional Experience

University of Tehran

Research & Teaching Assistant

Tehran, Iran

Jan 2023–Present

Research Assistant at NLP Lab & Intelligent Information Systems Lab

Leading research on Persian speech synthesis and medical LLMs.

Chief Teaching Assistant:

Machine Learning Methods in NLP (Sep 2024–Jan 2025): Designed comprehensive assignments, led weekly discussions

Digital Speech Processing (Jan 2024–Present): Updated course materials, created hands-on exercises

Teaching Assistant: Machine Learning, Statistical Inference, Deep Learning, Advanced Algorithms

Designed final projects and homework assignments for 200+ students across multiple courses

Sharif University of Technology

Teaching Assistant

Tehran, Iran

Feb 2024–Present

Machine Learning & Deep Learning Courses

Designed and implemented LLM agent assignment for Deep Learning course. Organized comprehensive ML contest with 1000+ participants across three domains: NLP, Computer Vision, and General ML. Developed both problem statements and complete solution frameworks.

Sofia

Co-founder & NLP Engineer

Tehran, Iran
Aug 2023–Present

Omnipresent RAG-based Customer Service Chatbot

Architected and deployed multi-platform chatbot (Telegram, WhatsApp, Web). Achieved **20,000+ active users** on University of Tehran's website. Implemented RAG pipeline with custom knowledge base integration.

Neuromatch Summer School

Teaching Assistant

Remote
Jun–Jul 2024

Mentored international students in Deep Learning with focus on Natural Language Processing. Guided students through daily sessions covering deep learning architectures and applications.

Amirkabir Robotics School (FIRA Academy)

Instructor & Developer

Tehran, Iran
2020–2022

Taught Image Processing & ML courses, developed SWIMBot platform for Diginext. Created comprehensive curriculum for computer vision and machine learning fundamentals.

Key Projects

PersianMedQA: Medical LLM Evaluation: *Research Project - 2025*

Created large-scale dataset of Persian medical questions (20000+ questions) to evaluate 40+ state-of-the-art LLMs across Persian and English. Benchmarked general-purpose, Persian fine-tuned, and medical models in zero-shot and chain-of-thought settings.

Multimodal Question-Answering System: *ML Course Contest Design - 2025*

Created a novel dataset featuring 5 Iranian animal species using the Google Search API. Applied SAM2 for background removal and generated a synthetic multi-object counting dataset. Trained a multimodal question-answering model to count the number of different animals in each image.

Advanced NLP with FLAN-T5: *Generative AI Course - 2023*

Fine-tuned FLAN-T5 using traditional methods and LoRA for enhanced summarization. Implemented RLHF to reduce toxic language while maintaining coherence.

Persian Music Dastgah Detection: *ML Course - 2022*

Comprehensive analysis of traditional Persian music classification. Explored diverse preprocessing techniques, feature extraction methods, and clustering approaches for Dastgah detection.

Selected Coursework & Certifications

Graduate Courses (Perfect 4.0/4.0):

- Machine Learning (20/20)
- Digital Speech Processing (20/20)
- Statistical Inference (19.2/20)
- Deep Learning (18.75/20)

Professional Certifications:

- Machine Learning (Stanford/Coursera)
- NLP Specialization - 4 Courses (DeepLearning.AI)
- Generative AI with LLMs (DeepLearning.AI)
- Algorithms Specialization (Stanford/Coursera)

Honors & Academic Excellence

2022: Top 0.5% (76th among 13,000) - Computer Engineering National Master's Entrance Exam

2022: Top 1% (35th among 2,000) - Computer Science National Master's Entrance Exam

2016: Top 0.25% (411th among 163,000) - National University Entrance Exam

References

Dr. Azadeh Shakery

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Dr. Heshaam Faili

Professor
University of Tehran
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Dr. M.B. Menhaj

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