# Mohammad Javad Ranjbar

EPFL NLP Lab, advised by Prof. Antoine Bosselut | NTHU BIIC Lab, advised by Prof. Chi-Chun Lee

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## RESEARCH INTERESTS

Multimodal foundation models | Multilingual & low-resource NLP | Speech understanding & generation
Reliable AI | Mechanistic interpretability

## EDUCATION

**University of Tehran**, M.Sc. in Computer Engineering — Tehran, Iran, Sep 2022–Oct 2025
GPA 4.0/4.0 (19.07/20). Thesis: Zero-Shot Text-to-Speech for Persian Language.
Advisers: Dr. Azadeh Shakery, Dr. Heshaam Faili.

**Amirkabir University of Technology**, B.Sc. in Electrical Engineering — Tehran, Iran, Sep 2016–Sep 2021
Thesis: Facial Expression Recognition with Robotic Implementation.
Advisers: Dr. M. B. Menhaj, Dr. H. Taheri.

## PUBLICATIONS

[1] **ICLR 2027** Submitted — **M. J. Ranjbar Kalahroodi**[*], A. K. Tarun[*], C. I. Meister, and A. Bosselut, "How Far Can Synthetic Speech Take Us? Synthetic Data Recipes for Pretraining Multilingual Speech Language Models." [*]*Equal contribution.*

[2] **EMNLP 2026** Main Conference — **M. J. Ranjbar Kalahroodi**, H. Faili, and A. Shakery, "ParsVoice: A large-scale multi-speaker Persian speech corpus for text-to-speech synthesis." ACL Anthology. Data. Model. Code.

[3] **EACL 2027** Findings — **M. J. Ranjbar Kalahroodi**[*], M. Amini[*], P. Bathayan, H. Faili, and A. Shakery, "PARSA-Bench: A comprehensive Persian audio-language model benchmark." arXiv. Data. [*]*Equal contribution.*

[4] **LREC 2026** Main Conference — **M. J. Ranjbar Kalahroodi**, A. H. Sheikholselami, S. Karimi Arpanahi, S. Ranjbar Kalahroodi, H. Faili, and A. Shakery, "PersianMedQA: Evaluating LLMs on a Persian-English bilingual medical question answering benchmark." ACL Anthology. Data.

[5] **SilkRoadNLP** EACL 2026 Workshop — **M. J. Ranjbar Kalahroodi**, H. Faili, and A. Shakery, "PersianPunc: A large-scale dataset and BERT-based approach for Persian punctuation restoration." ACL Anthology. Data. Model.

[6] **SilkRoadNLP** EACL 2026 Workshop — S. Jafari, T. Azin, M. H. Khan, **M. J. Ranjbar Kalahroodi**, *et al.*, "APARSIN: A multi-variety sentiment and translation benchmark for Iranic languages." ACL Anthology.

[7] **ICRoM 2022** IEEE — **M. J. Ranjbar Kalahroodi**, M. B. Menhaj, and H. Taheri, "Social robots: An open-source framework for personal assistant robots." IEEE Xplore. Code.

## RESEARCH EXPERIENCE

**EPFL NLP Lab**, Researcher — Lausanne, Switzerland, Mar 2026–Present

- With Prof. Antoine Bosselut, as part of the Swiss AI Initiative: working on Apertus 2, Switzerland's fully open multilingual LLM (EPFL, ETH Zurich, CSCS), adding multilingual audio understanding.
- Studying how far synthetic (TTS) speech data can stand in for real speech when pretraining multilingual speech-language models, varying data mixtures and training curricula across six languages, including low-resource ones.
- Resulted in one paper submitted to ICLR 2027 [1]; a second paper is in preparation for ACL 2027.

**National Tsing Hua University**, Research Assistant — Hsinchu, Taiwan, Jan 2026–Present
BIIC Lab with Prof. Chi-Chun Lee, on a Taiwan–Germany collaborative project on affective speech foundation models across cultures.

**University of Tehran**, Research Assistant — Tehran, Iran, Jan 2023–Mar 2026
Led Persian speech and language projects at the NLP Lab and Intelligent Information Systems Lab.

- Built ParsVoice [2], the largest open Persian speech corpus (4,000+ hours of multi-speaker audiobooks; its TTS-ready subset alone is over 25× the previous largest open Persian TTS dataset), via an automated ASR

and alignment pipeline; fine-tuned Whisper for transcription and XTTS for zero-shot voice cloning (3.6/5.0 MOS). The corpus and its TTS system were reused to build six PARSA-Bench tasks.

- Designed PARSA-Bench [3], the first Persian audio-language benchmark: 16 tasks and 7,645 samples. Evaluating eight models showed that on most tasks they do better reading the text than hearing the same content: the language knowledge is there, but listening is the bottleneck.
- Persian LLM resources: bilingual medical question answering [4] and punctuation restoration [5].

**Amirkabir University of Technology**, Research Assistant — Tehran, Iran, Sep 2020–Sep 2022

Computational Intelligence and Large-Scale Systems Lab. Built an open-source framework for personal-assistant robots with real-time facial emotion recognition, published at ICRoM 2022 [7].

## HONORS & AWARDS

Ranked **76th** of ∼15,000 (top 0.5%), National M.Sc. Entrance Exam, Computer Engineering — 2022

Ranked **35th** of ∼2,000 (top 2%), National M.Sc. Entrance Exam, Computer Science — 2022

Ranked **411th** of ∼163,000 (top 0.25%), National University Entrance Exam (Math & Physics) — 2016

## INVITED TALKS

**Audio and Text Understanding for Low-Resource Languages**

University of Amsterdam, hosted by Dr. Willem Zuidema — Aug 2026

LMU Munich, hosted by Dr. Hinrich Schütze — Jul 2026

## INDUSTRY EXPERIENCE

**Sofia**, Co-founder & NLP Engineer — Tehran, Iran, Aug 2023–Aug 2024

Architected and deployed a multi-platform RAG customer-service chatbot (Telegram, WhatsApp, web) that reached 20,000+ active users on the University of Tehran website.

**Amirkabir Robotics School (FIRA Academy)**, Robotics Engineer — Tehran, Iran, Jan 2021–Apr 2021

Built the SWIMBot robotics platform for Diginext.

## TEACHING EXPERIENCE

**University of Tehran**, Chief Teaching Assistant — Tehran, Iran, Jan 2023–Mar 2026

*Chief TA* for ML Methods in NLP and Digital Speech Processing: led the teaching team, set the assignments and exams, and ran the discussion sessions.

*TA* for Information Retrieval, Machine Learning, Statistical Inference, Deep Learning and Advanced Algorithms: designed course projects and homework, and held office hours.

**Neuromatch Summer School**, Teaching Assistant — Remote, Summers 2024–2026

Mentored international students across the NLP, neuroscience and computer vision courses.

**Amirkabir Robotics School (FIRA Academy)**, Instructor — Tehran, Iran, Sep 2021–Sep 2022

Designed and taught the image processing and machine learning course.

**Amirkabir University of Technology**, Lab Course Instructor — Tehran, Iran, Oct 2021–Jan 2022

Part of the teaching team that held the lab sessions for Introduction to Computational Intelligence.

## TECHNICAL SKILLS

- **Deep learning:** PyTorch, TensorFlow, Hugging Face (Transformers, Datasets, Evaluate, PEFT)
- **Speech and audio:** librosa, ESPnet, fairseq, SpeechBrain
- **Programming and tools:** Python, C++, R, MATLAB, Git, Docker, LaTeX

## LANGUAGES

English: C1 (TOEFL iBT 103/120). Persian: native (C2).

## REFERENCES

**Dr. Azadeh Shakery**
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