Mehrshad Alipoor

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Summary

My principal research interest is to make a rigorous real-world impact through the implementation of Artificial Intelligence (AI) in medicine. My latest research is on evaluating whether autonomous AI agents can be trusted to support treatment decisions in oncology. I possess extensive experience working across multidisciplinary pipelines—including close collaboration with medical doctors and clinical specialists—aiming directly at the translation and clinical deployment of AI in the clinic.

Education

Politecnico di Milano Sep 2023 – Oct 2026
Master of Science in Biomedical Engineering Final grade: 104/110
Master's Thesis: Evaluating Clinical Agentic AI Systems in Oncology

Supervisor: Prof. V. Miskovic; *Co-supervisors:* Dr. A. Prelaj, Prof. A. Pedrocchi, Prof. M. Carman

K. N. Toosi University & IMI Sep 2021 – Aug 2023
Master of Business Administration (MBA), Finance GPA: 17.93/20

Amirkabir University of Technology Sep 2016 – Feb 2021
Bachelor of Science in Biomedical Engineering, Biomechanics

Scientific Research & Publications

1. Romanò, R., **Alipoor, M.**, Insagaray, M.B., Carminati, G., Ferrarin, A., Natangelo, S., Mazzeo, L., Vendittelli, A., Leone, G., Peppoloni, V., Villaescusa Gonzalez, B., Corrao, G., Proto, C., Lo Russo, G., Baili, P., Carman, M., Pedrocchi, A., Miskovic, V., Corso, F., & Prelaj, A. (2026). "124P Multidimensional evaluation of AI agents: Reasoning quality and clinical effectiveness in real-world I line decision-making for NSCLC." *ESMO Real World Data and Digital Oncology*, 14, 100940. Presented as a poster at the ESMO Congress 2026. [DOI | ResearchGate]

2. Dadfar, M., **Alipour, M.**, & Sheikhhoseini, R. (2021). "Countermovement Jump Variables and Estimated Peak Power in Female Children with Dynamic Knee Valgus." *ISBS Proceedings Archive*: Vol. 39.

3. Dadfar, M., **Alipour, M.**, Jafarian, M., & Sheikh Hoseini, R. (2020). "Correlation between tibial external rotation and lower extremity biomechanical characteristics during gait in female juniors with dynamic knee valgus." *International Conference on Motion Analysis, Tehran, Iran* [Link]

4. **Alipoor, M.**, Naghdlou, S., & Tabatabai Ghomsheh, F. (2018). "Assessing wear factor of the elbow joint in shoulder amputation by biceps performance analysis." *World Congress of Biomechanics (WCB)*. (Accepted)

Research & Academic Projects

Decoding visual stimuli from fMRI | GitHub 2025
- Team project: predicted the category of a viewed image from fMRI activity in visual-cortex regions (4,466 voxels); compared MLP, BiLSTM, Transformer, 3D-CNN, and BiGRU models.
- Handled strong class imbalance with class weights and PCA; mapped Integrated Gradients attributions back to single voxels.

Lung nodule malignancy classification from CT | Article 2025
- Fine-tuned ConvNeXt-Tiny on full CT slices and on nodule crops (LIDC dataset) for benign/malignant and 5-level malignancy classification; MixUp and CutMix for class imbalance, Grad-CAM++ for explanations.

Medical question answering on PubMedQA | GitHub 2025
- Team project: BM25 retrieval and document clustering, fine-tuned BERT and RoBERTa classifiers, prompting of Llama 3.2, and a voice-based retrieval-augmented chatbot.

Blood-cell classification and Mars terrain segmentation | GitHub 2024
- Fine-tuned EfficientNetV2 to classify 96×96 white blood cell images into 8 classes; trained a U-Net from scratch to segment 128×64 Mars terrain images.

3D MRI segmentation and EEG sleep staging 2024

- Segmented brain ventricles in 3D multimodal MRI; extracted EEG features to classify sleep stages (REM, NREM, awake).

Flood prediction on an urban drainage network | GitHub 2023

- Multi-label classification of which network edges are flooded after a simulated storm in Houston, TX, from surface type, water flow, drainage capacity, and green-space ratio.

Experience

Fondazione IRCCS Istituto Nazionale dei Tumori (AI-On-Lab) Feb 2026 – Present
Agentic AI Researcher Intern Milan, Italy

- Designed and built, largely on my own, a framework to evaluate AI agents that support treatment decisions in advanced lung cancer, looking at both their reasoning and their final recommendation
- Worked with oncologists and engineers at AI-On-Lab to ground the framework in clinical practice; the work led to a co-authored abstract (2nd author) presented as a poster at the ESMO Congress 2026

Snapp Dec 2022 – Dec 2023
Product Manager Tehran, Iran

- Managed feature discovery and the roadmap for a ride-hailing platform with 5 million rides per day
- Launched a single digital onboarding flow for new drivers, which reduced on-site verification time from 2 days to 10 minutes
- Introduced a BI dashboard that reduced the administrative workload of the operations team
- Redesigned the driver acquisition landing page; online conversion increased by 20%

T-Learning Nov 2021 – Dec 2022
Associate Product Manager Tehran, Iran

- Wrote, prioritized, and tracked product roadmaps and OKRs with the CEO and CPO
- Designed a new billing settlement model; host retention increased by 30%
- Redesigned the interactive FAQ, which reduced customer support tickets by 50%

Pasho Sep 2019 – Mar 2021
Founder Tehran, Iran

- Developed shock-absorbing forearm crutches; wrote the business plan, financial projections, and investor pitch
- Ranked in the top 10% of national engineering projects for technical innovation

Skills

Programming: Python, R, MATLAB, SQL, Bash; Git, Docker

Data Analysis: pandas, NumPy, SciPy, scikit-learn; data visualization (Matplotlib, Seaborn); dimensionality reduction (PCA, autoencoders); learning from imbalanced data

LLMs & NLP: LLM agents and evaluation; Hugging Face Transformers, BERT/RoBERTa fine-tuning; RAG (LangChain)

Machine Learning & Imaging: PyTorch, TensorFlow/Keras; CNNs, U-Net, recurrent models, Transformers; explainability (Integrated Gradients, Grad-CAM++); MRI, fMRI, and CT data

Languages: Persian (native), English (fluent; MSc taught in English), Italian (basic)