

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. The primary focus of my latest research is leveraging Large Language Models as judges to evaluate an autonomous agentic AI system engineered for treatment prediction 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 predictive AI architectures.

Education

Politecnico di Milano Master of Science in Biomedical Engineering, Bioinformatics (Expected Oct 2026) <i>Master's Thesis:</i> Evaluating Clinical Agentic AI Systems in Oncology GitHub Repo Link	Sept. 2023 – Present GPA: 26.72/30
K. N. Toosi University & IMI Master of Business Administration (MBA), Finance	Sept. 2021 – Aug. 2023 GPA: 17.93/20
Amirkabir University of Technology Bachelor of Science in Biomedical Engineering, Biomechanics	Sept. 2016 – Feb. 2021

Scientific Research & Publications

- Romanò, R., Corso, F., Carminati, G., Alipoor, M., Ferrarin, A., Peppoloni, V., Villaescusa Gonzalez, B., Arangoa, T., Mazzeo, L., Vendittelli, A., Natangelo, S., Montelatici, G., Leone, G., De Braud, F.G.M., Lo Russo, G., Baili, P., Pedrocchi, A., Carman, M., Miskovic, V., & Prelaj, A.** (2026). "Multidimensional evaluation framework for clinical AI agents supporting I-line immunotherapy decision-making in advanced NSCLC." *European Society for Medical Oncology (ESMO) Congress 2026*. (Submitted)
- 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. [\[Link\]](#)
- 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* [\[Link\]](#)
- 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

Neuroengineering (fMRI Visual Stimulus Decoding) Link	2025
- Developed a deep learning pipeline to decode and classify perceived visual stimulus categories from human brain activation maps using fMRI data. - Conducted ROI-based feature analysis and architectural exploration across CNN, RNN, and fully connected networks to map bidirectional information flows in visual cortices. - Implemented dimensionality reduction and explainability techniques to backtrack and evaluate voxel-level contributions to overall classification performance.	
Artificial Neural Network & Deep Learning Link	2025
- Engineered a deep convolutional neural network pipeline to execute automated multi-class classification of 96×96 high-resolution white blood cell images. - Implemented a semantic computer vision segmentation architecture tailored for identifying structural features in 128×64 planetary terrain images.	

Applied AI in Biomedicine (Digital Pathology) Link	2025
- Trained an image classifier utilizing pre-trained network architectures to differentiate between benign and malignant pathology features. - Formulated confidence-interval estimations by establishing a dual multi-input processing layer pipeline utilizing full-slice and zoomed-slice inputs.	
Natural Language Processing Link	2025
Developed an interactive conversational AI medical question-answering assistant fine-tuned on the PubMed Q&A biomedical domain dataset.	
Biomedical Image Processing (3D Multimodal MRI)	2024
Coded a 3D multimodal MRI semantic parsing algorithm to execute automated brain ventricle volume segmentation mappings.	
Biomedical Signal Processing	2024
- Developed a physiological signal processing pipeline to extract wave characteristics from raw data streams. - Classified discrete sleep macro-architectures including REM, NREM, and awake stages based on EEG variations.	
Machine Learning Link	2023
- Built localized baseline data classifiers to predict corporate loan approval criteria and environmental pollution metrics. - Constructed predictive optimization algorithms for urban environmental telemetry data to simulate flood risks.	

Experience

Fondazione IRCCS Istituto Nazionale dei Tumori (AI-On-Lab)	Feb 2026 – Present
Agentic AI Researcher Intern Link	Milan, Italy
- Designed and developed a comprehensive, multi-tier evaluation framework to bench-test and validate autonomous AI agents specialized in Non-Small Cell Lung Cancer (NSCLC) treatment planning - Architected a 5-tier metric system covering reasoning, output quality, safety, workflow, and reliability, establishing standardized KPIs for clinical LLM deployment - Collaborated with cross-functional medical and technical teams at AI-On-Lab to validate framework scalability and its impact on medical workflows, culminating in a primary-author submission to the ESMO Congress 2026	
Snapp	Dec 2022 – Dec 2023
Product Manager	Tehran, Iran
- Managed feature discovery and roadmap execution for a ride-hailing platform processing 5 million daily rides - Launched a single-source digital onboarding solution for drivers, successfully optimizing the lead-to-driver workflow and slashing on-spot verification processing time from 2 days down to 10 minutes - Deployed a BI dashboard that provided analytics for the operation team to mitigate administrative overload - Shipped the redesign of the driver acquisition landing page, accelerating online conversion rates by 20%	
T-Learning	Nov 2021 – Dec 2022
Associate Product Manager	Tehran, Iran
- Worked with executive leadership (CEO, CPO) to compose, prioritize, and track product roadmaps and strategic OKRs within an Agile discovery and delivery framework - Engineered a scalable billing settlement model that directly enhanced host retention by 30% - Optimized interactive FAQ systems, reducing customer service support ticketing overhead by 50%	
Pasho	Sept 2019 – March 2021
Founder	Tehran, Iran
- Crafted financial projections, authored business plans, and built investor-ready pitch decks - Recognized for technical innovation merit, placing within the top 10% of national engineering projects	

Skills

Medical AI & Imaging: Digital Pathology Image Classification, 3D MRI Semantic Parsing, fMRI Decoding, Generative & Predictive Segmentation (PyTorch, TensorFlow, Keras)

Agentic AI & NLP: Autonomous Agent Architecture, LLM Orchestration (LangChain), LLM-as-a-Judge Evaluation, RAG Systems, Prompt Engineering

Software Engineering & DevOps: Python, SQL, MATLAB, R, Bash, Git/GitHub, Workflow Automation (Docker), FastAPI & Prototyping (Streamlit, Flask), CI/CD Pipelines

Languages: English (Working proficiency), Italian (Basic Level)

Academic References

Dr. Arsela Prelaj | Medical Oncologist & AI Researcher
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Prof. Mark Carman | Associate Professor of Computer Science
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Prof. Alessandra Pedrocchi | Professor of Neuroengineering
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Dr. Vanja Miskovic | Postdoctoral Researcher & AI Engineer
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