📍 Grenoble, France

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Zahra KANANI

Artificial Intelligence for Healthcare | Biomedical Engineering | Medical Device Regulation

Biomedical Engineer specializing in Artificial Intelligence for Healthcare.

Passionate about developing **AI methods** for **medical imaging** and **clinical decision support**. Experienced in applying machine learning to biomedical data, with expertise in **semi-supervised** and **domain adaptation** techniques (FixMatch, AdaMatch, FlexMatch). Motivated to translate research into practical and innovative healthcare solutions.

Technical Skills

Artificial Intelligence & Data Science

- **Programming:** Python
- **Libraries:** PyTorch, TensorFlow, Keras
- **Methods:** CNNs, Semi-supervised Learning, Transfer Learning
- **Visualization:** Matplotlib, TensorBoard

Biomedical Engineering & Regulation

- **Modeling & Simulation:** Abaqus, SolidWorks, CATIA
- **Biomedical Applications:** Orthopedic implant, Cardiovascular devices, Tissue modeling
- **Regulatory Standards:** ISO 13485, ISO 14971, ISO 10993, EU MDR

Awards and honors

- Recipient of a scholarship from the Multidisciplinary Institute for Artificial Intelligence (MIAI).
- Earlier academic honors: direct M.Sc. admission (2013) and Talented Students Center membership (2009–2013).

Languages

- English (Fluent)
- French (intermediate)

Artificial Intelligence Experience

Master 2 AI for One Health (AI4OneHealth)

Grenoble Alpes University, Grenoble, France (2024-2025) | Supervisor: Pascal Mossuz

- **Relevant Courses:** Machine Learning and Deep Learning for Health, Medical Text Mining, Application of AI for Healthcare

Master 2 Internship

Laboratoire d'Informatique de Grenoble (LIG), Université Grenoble Alpes (May–Sep 2025) | Supervisors: Prof. Masih Reza Amini and Dr. Aude Sportisse

- **Thesis**: Improving Semi-Supervised Learning under Class Imbalance: A Comparative Study of FixMatch, AdaMatch, and a Hybrid AdaMatch–FlexMatch Approach
- Implemented and trained deep learning models on LIG's GPU servers using PyTorch.
- Developed an AdaMatch–FlexMatch hybrid method that improved minority-class accuracy while preserving majority-class performance.

Selected AI Projects

- Image Classification with CNN: Applied TensorFlow/Keras
- Biomedical Text Classification: Compared TF-IDF and PubMedBERT.
- Information Retrieval: Built a Python-based search engine with PyTerrier.
- COVID-19 Abstract Analysis: Processed and analyzed abstracts using spaCy and MetaMap.

Biomedical Engineering and Regulatory Experience

Regulatory Specialist

Food and Drug Administration of Iran , Tehran, Iran, 2017-2022

- Evaluated and regulated medical devices, with a focus on orthopedic and cardiovascular devices.

Research Assistant

Orthopedic and Dental Biomechanics Lab (ODBL), AmirKabir University of Technology, Iran, 2015-2017

- Conducted experimental and numerical analyses for orthopedic implant studies.

Bachelor & Master in Biomedical Engineering (Bio-Mechanics)

AmirKabir University of Technology, Tehran, Iran (2009-2015)

- **Master Thesis:** Optimization of large intestine anastomosis using Finite Element Method.
- **Bachelor Thesis:** Effect of Poly-L-lactic material on bone–plate fixation stability.

Publication

Biocybernetics and Biomedical Engineering (2019). "Investigating the effects of suturing parameters on leakage from intestinal anastomosis: finite element analyses." DOI

Certification

ISO 13485:2016 – Medical Devices QMS (BSI Training Academy, 2021)