

# Termeh (Masoumeh) Taheri

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## SOFTWARE PROFICIENCY

Python, TensorFlow, PyTorch, Scikit-learn, Keras, Librosa, FFmpeg, Essentia, SciPy, OpenCV, NLTK, PostgreSQL, Docker, Linux, Celery, Pytest, FastAPI, Elasticsearch, C++, Java, MATLAB, React, HTML, CSS

## EXPERIENCE

### Software Engineer (Backend), Roshan Company

Aug 2022 - Aug 2024

- Built scalable backend systems with **Python (Django, FastAPI)** for AI-powered applications, focusing on performance, modularity, and maintainability
- Designed and optimized **REST APIs** and data pipelines, integrating machine learning models and external services
- Deployed and maintained production services on remote **Linux** servers, ensuring system configuration, security, and service reliability
- Implemented **CI** pipelines with GitLab, including automated testing (Pytest) and containerization (Docker), to support reliable backend development

### AI Researcher, Computational Intelligence Laboratory

Jan 2020 - Jul 2022

- Designed and trained machine learning models for cancer and COVID-19 detection from medical imaging data, achieving improved diagnostic accuracy through ensemble learning and feature engineering
- Developed deep neural networks for imagined speech classification from EEG signals, applying spectral decomposition and time-frequency analysis techniques to enhance signal quality and model interpretability

## RECENT PUBLICATIONS

**Taheri, M., & Omranpour, H.** (2024). Breast cancer prediction by ensemble meta-feature space generator based on deep neural network. *Biomedical Signal Processing and Control*, 87, 105382.

Omranpour, H., Mohammadi Ledari, Z., & **Taheri, M.** (2023). Presentation of encryption method for RGB images based on an evolutionary algorithm using chaos functions and hash tables. *Multimedia Tools and Applications*, 82(6), 9343-9360.

## Ongoing Research

### SAR-LM: Symbolic Audio Reasoning with LLMs via Chain-of-Thought Prompting

Aiming to enhance the reasoning abilities of large language models (**LLMs**) over audio by transforming raw sound into symbolic, time-aligned representations using models like PANNs, MERT, and Whisper. These are converted into structured text prompts for chain-of-thought reasoning with open-source LLMs (e.g., Qwen-3). Evaluated on the MMAU benchmark to measure performance on multi-step audio-based question answering.

### GT4D: Multimodal 4D Guitar Transcription – C4DM, Queen Mary University of London

Developing a multimodal dataset (video, direct audio, microphone, MIDI) for AI-driven guitar transcription. Implementing audio signal processing techniques for synchronization and training **transformers** and large language models (**LLMs**) for automated transcription.

## EDUCATION

MSc. Artificial Intelligence - Queen Mary University of London

September 2025

*Thesis:* **Multimodal Machine Perception**

Advisor: Prof. Emmanouil Benetos

B.Sc. Computer Engineering - Noshirvani University of Technology

July 2022

*Thesis:* **Ensemble deep learning algorithm for medical image analysis**

Advisor: Dr. Hesam Omranpour

## HONORS & AWARDS

Chevening Scholarship: Full scholarship recipient for MSc Artificial Intelligence, QMUL

2024–2025

Babol Noshirvani University of Technology: First place for the best bachelor project across all departments

2022

Research Grant (No P/M/1110): Supported publication in *Biomedical Signal Processing and Control*

2021