RAFAH SANJAKDAR

AI Engineer & Researcher | Deep Learning & Computer Vision | Data Science
+963988259943 | rafahsa4@gmail.com | Damascus, Syria
GitHub: https://github.com/rafahsa

PROFESSIONAL SUMMARY

AI Engineer and Informatics graduate specializing in Artificial Intelligence and Data Science, with a strong foundation in scientific research, Deep Learning, Computer Vision, and 3D medical image analysis. Experienced in designing robust machine learning pipelines, ensemble modeling, and performance optimization. Actively engaged in applied research, with hands-on experience ranging from multi-modal medical imaging to real-time video processing and tracking systems. Passionate about leveraging rigorous research-driven AI to solve complex real-world and healthcare challenges.

CORE SKILLS & TECHNOLOGIES

- **Programming Languages:** Python, C++.
- **Frameworks & Libraries:** PyTorch, TensorFlow, Keras, Scikit-learn, Pandas, NumPy, OpenCV, SimpleITK, MediaPipe.
- **Artificial Intelligence, Computer Vision & NLP:** Deep Learning, 3D Medical Image Analysis (Segmentation & Classification), Volumetric Processing, Vision Transformers & Large Language Models (LLMs), Object Detection & Tracking, Ensemble Modeling, Data Augmentation.
- **Model Evaluation & Reliability:** Cross-Validation Strategies, Data Leakage Prevention, Probability Calibration, Comprehensive Performance & Error Analysis.
- **Databases:** MySQL, Oracle, Relational & Non-Relational Databases, Data Modeling, Querying & Management.
- **Scientific Research & Academic Writing:** Systematic Literature Reviews (SLR), Experimental Design, Academic Paper Formulation (LaTeX), Technical Documentation.
- **Development Tools & Environments:** Git, GitHub, MATLAB, VS Code, Jupyter Environments.

PROJECTS & PRACTICAL EXPERIENCE

Academic & Personal AI & Deep Learning Projects

Worked on end-to-end deep learning pipelines, computer vision systems, multi-modal medical image analysis, and dynamic video recognition. Responsibilities included neural architecture design, 3D volumetric MRI processing, temporal sequence modeling, probability calibration, dynamic tracking, and leakage-controlled ensemble systems.

Reliable Multimodal Brain Tumor Grading System - "Glioma-Grading 3D"

Technologies: PyTorch, MONAI, SwinUNETR, 3D ResNet, Multiple Instance Learning (MIL), OpenCV, Scikit-learn

- Conducted a Systematic Literature Review (SLR) mapping architectural landscapes and identifying clinical reliability gaps in glioma grading.
- Developed a leakage-controlled 3D multi-modal framework using BraTS 2018 MRI sequences (T1, T1ce, T2, FLAIR).
- Built a 3D ensemble model combining 3D ResNet50 (local features), SwinUNETR-3D (global context), and entropy-driven DualStreamMIL-3D.
- Implemented OOF Stacking with Platt Scaling, reducing ECE by 26.9% and Brier score by 16.8% for improved probabilistic calibration.
- Achieved 0.9114 AUC, 88.07% accuracy, and 91.95% F1-score via patient-level 5-fold CV with dynamic thresholding (95.24% Recall).
- Authored and submitted 2 research papers based on the thesis to the **MICCAI 2026 Mentorship Program** and **IEEE**.

Sentiment Analysis Through Video (Facial Emotion Recognition)

Technologies: Python, PyTorch/TensorFlow, MediaPipe, LSTM, OpenCV, RAVDESS Dataset

- Developed a deep learning pipeline using MediaPipe Face Mesh for 3D facial landmark extraction.
- Trained an LSTM network on the RAVDESS dataset for sequence-based multi-class emotion recognition.
- Achieved 98%+ accuracy, precision, recall, and F1-score with real-time inference support.

EDUCATION

Syrian Private University - SPU
B.Sc. in Artificial Intelligence and Data Science Engineering
2021 – 2026
Graduation Date: May 31, 2026
GPA: 3.0 / 4.0

CERTIFICATIONS

- Advanced C++ Programming - New Horizons Center
- Comprehensive Nursing and Holistic Care - Professor MEDx

LANGUAGES

- Arabic: Native
- English: Full Professional Proficiency
- French: Limited Working Proficiency