



Marwa Jabberi

PhD in computer science

Doctor on contract at the Higher Institute of Computer Science and from Technologies de Communication de Sousse (ISITCOM Sousse)

Personal Information

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 [Marwa Jabberi](https://www.linkedin.com/in/MarwaJabberi)

Date of birth: 05/25/1990

Nationality: Tunisian

Sex: Female

Civil Situation: Married, 2 childrens

PROFIL PROFESSIONNEL

Doctor in computer science, specializing in computer vision and in artificial intelligence. My research work focuses on the analysis and modeling of visual data, the reconstruction 3D and the exploitation of deep learning techniques, notably the convolutional 3D neural networks. My academic activities also cover Big Data frameworks and tools of development in Python, with the use of libraries of deep learning such as TensorFlow. I invest myself in elsewhere in university education and training in artificial intelligence and in data science.

Education & Diploma

Doctorate

January, 2024

Title: Deep Learning Approach for 3D Face Analysis and Recognition

Specialty: Computer Science

Establishment: ISITCOM Sousse

Mention: Very honorable

Thesis director: HDR. Ali Wali

Research theme:

The work in this thesis falls within the field of 3D facial recognition, with a approach based on the 3D reconstruction of the face, the generation of key points and the exploitation of 3D convolutional neural networks. The proposed contributions improve the robustness against pose variations and spoofing-type attacks, while outperforming classic 2D methods.

Master

June, 2016

Title: 3D portrait recognition invariant to facial expressions using the method of wavelets

Specialty: Automatic Reasoning Systems

Establishment: FSM (Faculty of Sciences of Monastir)

Rating: Fair

Supervisor: HDR. Samir Belaid

Research theme:

This work focuses on 3D facial recognition based on bi-orthogonal lifted wavelets. An approach combining global and local descriptors, extracted respectively from the salient region of the face and nose, has been proposed and validated on the FRAV3D basis, demonstrating increased robustness against facial expression variations.

License applied

June, 2012

Specialty: Computer Network Technologies

Establishment: FSM (Faculty of Sciences of Monastir)

Mention: Very Well

Supervisors: HDR. Samir Belaid & MA. Basma Oueslati

Professional Experience

(Since - 2024)	Doctoral contract at IsitCom Higher Institute of Computer Science and Communication Technologies, Sousse (IsitCom), University of Sousse, Tunisia
(Since - 2024)	Vacation at Pristini School of AI Pristini School of AI ,University of Sousse, Tunisia
(2022 - 2023)	Vacation at ESSTHS Higher School of Science and Technology of Hammam Sousse (ESSTHS) University of Sousse, Tunisia
(2022 - 2023)	Doctoral Student Contract at EPI EPI Digital School, University of Sousse, Tunisia
(2021 - 2022)	Doctoral Student Contract at ESSTHS Higher School of Science and Technology of Hammam Sousse (ESSTHS) University of Sousse, Tunisia
(2020 - 2021)	Vacation at IsitCom Higher Institute of Computer Science and Communication Technologies, Sousse (IsitCom), University of Sousse, Tunisia
(2019 - 2020)	Vacation at ISGS Higher Institute of Management of Sousse (ISGS), University of Sousse, Tunisia

Mother language Arabic

Other language(s)

	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoke production	
French	Proficient User	Proficient User	Proficient User	Proficient User	Proficient User
English	Proficient User	Proficient User	Proficient User	Proficient User	Proficient User

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user Common
European Framework of Reference for Languages

Technical and Research

Scientific Production :

- 6+ papers in international scientific journals
- 4+ papers in international scientific conferences
- Two theses defended in co-supervision (ENIS)
- Two co-supervised theses (ENIS)
- Six theses under co-supervision (ENIS)

Research Objectives :

Objective 1. Smart Brain — Learning & Intelligent Systems

Advance the theoretical and algorithmic foundations of learning machines and cognitive systems by developing models that emulate human perception, reasoning, and pattern recognition:

- **Deep Learning & Neural Systems:** Design and improve deep convolutional neural networks (CNNs), generative models (e.g., GANs), and representation learning for visual data and high-level feature extraction.
- **Evolutionary & Hybrid Algorithms:** Explore the integration of evolutionary computing and heuristic optimization with deep learning to enhance adaptability and model generalization.
- **Swarm & Multi-Agent Intelligence:** Investigate distributed learning frameworks inspired by collective behaviors, enabling collaborative problem-solving across multiple intelligent agents.

Key Applications: autonomous vision systems, adaptive perception modules, and bio-inspired decision frameworks.

Objective 2. Smart Perception — Computer Vision & Pattern Analysis

Develop robust perception models for interpreting complex visual inputs, focusing on high-dimensional and unconstrained scenarios:

- **3D Facial Analysis & Reconstruction:** Innovate alignment and reconstruction strategies for 3D face data from 2D images under large pose variations, enhancing recognition accuracy and pose normalization.
- **Feature Learning & Deep Representations:** Advance learned feature extraction using deep architectures (e.g., DCNNs) to improve classification, alignment, and recognition tasks in noisy or challenging conditions.
- **Multimodal & Hybrid Classifiers:** Design systems combining multiple classifiers, feature sets, and deep networks to increase robustness in perception tasks, including biometric and structural object understanding.

Key Applications: face recognition, 3D scene understanding, and intelligent image preprocessing.

Objective 3. Smart Data Science — AI & Big Data Integration

Leverage scalable analytics and intelligent models for extracting insights from large, complex datasets at the intersection of machine learning, vision, and data science:

- **Machine Learning & Deep Analytics:** Apply machine learning and deep learning to study complex structured data, enabling predictive modelling, anomaly detection, and representation learning.
- **Data Mining & Big Data Frameworks:** Develop analytic pipelines and mining strategies for large databases, supporting classification, clustering, and visualization of high volume data.

- **AI for Real-World Systems:** Explore applications in biometric authentication, virtual reality, human–computer interaction, and intelligent surveillance, using cloud computing and distributed data platforms.
Key Applications: scalable AI systems for pattern discovery, analytics-driven decision support, and data-intensive intelligent applications.

Teaching Activity :

▪ Artificial Intelligence & Data Science

- **Artificial Intelligence I & II** – Engineering Cycle (AI & Cyber Security tracks)
- **Python for Data Science** – Master (Industry 4.0, High-Tech & ML4B)
- **Big Data Frameworks** – Master
- **Distributed Systems for Big Data** – Master (including work-study programs)
- **Big Data with Python** – Bachelor (Mathematics & Computer Science)

▪ Programming & Software Development

- **Python Programming I & II** –
 - Engineering Cycle (AI & Software Engineering)
 - Bachelor in Computer Science
 - Bachelor IoT
- **Python Programming (Core Course)** – Bachelor IoT
- **Mobile & Multimedia Object Digitization and Coding** – Bachelor Multimedia
- **Compilation Techniques (Lab Sessions)** – Bachelor Computer Science

▪ Networks & Systems

- **Operating Systems & Network Systems** – BTS Programs
- **Application Security** – BTS Information Systems
- **Local and Wide Area Networks (LAN/WAN)** – Bachelor (IoT, Multimedia, Networks)
- **Wired & Wireless Networks** – Bachelor Applied Networks
- **Cisco Certification (CCNA 3 & 4) – Practical Labs**

Scientific Distinctions

- **1st Prize – GAN Competition**, at the Workshop on Intelligent Machines: Theory & Applications (WIMTA'35).
- **1st Prize – Best Presentation**, at the Workshop on Intelligent Machines: Theory & Applications (WIMTA'34).
- **1st Prize – Best Thesis Pitch (180 seconds competition)**, at the Workshop on Intelligent Machines: Theory & Applications (WIMTA'33).
- **2nd Prize – Scientific Paper Writing Competition**, at the Workshop on Intelligent Machines: Theory & Applications (WIMTA'32).

Scientific Outreach & Academic Engagement

- **Winter School on Maxillofacial Surgery and Artificial Intelligence**, Hammamet, Tunisia – *Organizing Committee Member and Speaker.*
- **Workshop on Intelligent Machines: Theory & Applications**, Sfax, Tunisia – *Organizing Committee Member.*

- **International Conference on Information Networking –**
Presentation of published research work.
- **Tunisian Forum on Artificial Intelligence –**
Invited Speaker.

Scientific Activities

▪ Reviewer for International Journals (26 Reviewed Papers)

Active reviewer for high-impact Q1 and Q2 indexed journals, including:

- **Arabian Journal for Science and Engineering (Q1)**
- **Cognitive Computation (Q1)**
- **Multimedia Tools and Applications (Q1)**
- **Scientific Reports (Q1)**
- **Signal, Image and Video Processing (Q2)**
- **Multimedia Systems (Q1)**

Research Projects

✓ **AI-Driven Next-Generation Maxillofacial Surgery**

Project ID: PRC2024-D3P04

Project Coordinator: Tarak M. Hamdani

Project Title: *Next-Generation Maxillofacial Surgery: Integration of AI-Driven 3D Imaging Techniques for Pre- and Post-Operative Analysis.*

Research Laboratories Involved:

- ReGIM-Lab (Research Groups in Intelligent Machines)
- Evaluation and Management of Craniofacial Pathologies Laboratory
- GAMA – Geometry, Analysis and Applied Mathematics

Socio-Economic Partners:

- DATS Medical
- Maxillofacial Surgery Department, CHU Sfax
- Genetics Department, CHU Sfax

Project Scope:

Development of intelligent AI-based systems for 3D medical imaging, enabling automated analysis, surgical planning optimization, and post-operative outcome assessment in maxillofacial surgery.

✓ **THUNDER – MSCA Staff Exchanges**

Program: Horizon Europe – MSCA Staff Exchanges

Project ID: HORIZON-MSCA-2024-SE-01 (Grant No. SEP-211112455)

Project Coordinator: Adel M. Alimi

Project Objective:

Strengthening international research collaboration in intelligent systems, medical AI, and advanced computational modeling through academic and clinical mobility.

Major International Partners:

- Assistance Publique – Hôpitaux de Paris
- LMU Klinikum
- Fundación Canaria Instituto de Investigación Sanitaria de Canarias
- KU Leuven
- University of Vienna
- University of Sfax
- National Engineering School of Sfax
- Vicomtech

Additional Information

Scholar Google



dblp



Orcid

