

# Raheb Aref Mahyoub, Saeed

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## ABOUT MYSELF

A Mechatronics Engineer specializing in **Advanced Robotics** and **AI-driven Automation**. My expertise lies in designing and deploying intelligent, connected systems, with hands-on experience in **Cloud Robotics**, **Digital Twins**, and conversational AI. I am passionate about building the next generation of flexible, autonomous robots that solve real-world industrial challenges, from concept and simulation to physical deployment.

## WORK EXPERIENCE

### Lead Robotics Developer & IT Manger

FSDM Robotics Club - Fes, Morocco

(02/2025 - Current)

- Spearheaded the 'FSDM Bot' project, an autonomous conversational robot, leading the full development lifecycle from ideation to public demonstration.
- Architected and implemented a **Cloud Robotics** framework for the bot, enabling off-board processing for complex AI tasks and remote management.
- Led a multidisciplinary student team through the entire project workflow, from conceptual design and **Digital Twin simulation** to final hardware integration.
- Mentored club members on integrating advanced concepts like IoT communication protocols (MQTT), industrial automation (MES/MOM), and flexible system design.

### Weather Station Implementation Intern

Faculty of Sciences Dhar El Mahraz - Fes, Morocco

(04/2023 - 06/2023)

- Led the development of a connected weather monitoring system, utilizing IoT protocols for real-time sensor data aggregation and transmission to a cloud backend.

## PROJECTS

### Flagship Project: FSDM Conversational Bot

- Designed, built, and deployed "FSDM Bot," an autonomous mobile robot capable of real-time navigation and natural language conversation to assist faculty visitors and students.
- Technology Stack:
  - **AI & Mobility:** Utilized **ROS** for navigation (**SLAM**, path planning), and **NLP** models for the conversational engine.
  - **Cloud & IoT:** Implemented a **Cloud Robotics** architecture to process conversational AI, enabling

remote updates and fleet management. Integrated **IoT** protocols for robust sensor data communication.

- **Hardware:** Engineered the complete electromechanical system, including sensor integration (**LIDAR**, cameras) and actuator control.

### Digital Twin for Flexible Fabrication Cell

- Developed a **Digital Twin** of a robotic manufacturing cell in simulation (Gazebo/CoppeliaSim), mirroring the physical hardware for offline programming and process optimization.
- Integrated **MES** data feeds to simulate real-time production changes, validating the flexibility of the robotic arm's path planning in a dynamic environment.

## EDUCATION

### Master in Smart Industry

Sidi Mohamed Ben Abdellah University

(10/2024 – Current)

### Bachelor in Mechatronics and Embedded Systems

Sidi Mohamed Ben Abdellah University

(09/2022 – 07/2023)

### Specialist Technician in Mechatronics

Institute Specialized in Automotive Professions (ISMA)

(09/2020 – 07/2022)

## SKILLS

### • Advanced Robotics & Industry 4.0

Cloud Robotics, Digital Twins, Manufacturing Execution Systems (MES/MOM), Industrial Communication (MQTT, OPC-UA), Flexible Manufacturing Systems, Advanced Robotics (Kinematics, Dynamics)

### • Robotics & Automation

Robot Operating System (ROS, ROS 2), Simulation (Gazebo, CoppeliaSim, Simulink), Control Systems, PLC, SCADA, Sensors & Actuators

### • AI & Data Science

Machine Learning, Deep Learning, Computer Vision (OpenCV), NLP (for Conversational AI)

### • Programming & Cloud

Python, C++, C#, Java, Cloud Platforms (AWS/Azure basics), IoT Platforms

### • Mechanical & Electrical

3D Modeling (SolidWorks), CAD (CATIA), Circuit Design (Proteus), PCB Design, Rapid Prototyping (3D Printing)

## LANGUAGES

**Arabic:** Mother tongue, **English:** B1, **French:** B1