



Taha Mohammed

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WORK EXPERIENCE

MASTER'S THESIS – FRAUNHOFER IPK – 01/04/2025 – 01/01/2026 – BERLIN, GERMANY

- Developed a vision-based calibration system for collaborative robots using CNN (ResNet-18, PyTorch) and deep learning
- Sensor fusion system: integration of RGB-D data, robot kinematics and visual odometry with ROS 2
- Mechatronic system integration: hardware, electronics and software components with real-time deployment
- Closed-loop control with iterative optimisation
- Key contribution: intelligent data selection outperforms conventional methods (87.5% faster, 76% more accurate)
- Hardware-in-the-loop validation and automated surface processing

MECHATRONIC SYSTEMS DEVELOPER – TU BERLIN – 01/01/2025 – 01/12/2025 – BERLIN, GERMANY

- Designed and built innovative solutions for pesticide-free agriculture, combining mechanical engineering, electrical engineering and computer science
- Developed AI-based image recognition and motor control systems; parameterised and trained corresponding models
- Simulated and validated autonomous systems using ROS 2, Gazebo and CUDA-accelerated perception
- Wired electrical and electronic assemblies and selected appropriate components
- Implemented real-time AI and motor control on NVIDIA Jetson Orin™ NX, Orin™ Nano and Xavier NX using CUDA, C++ and Python
- Conducted, evaluated and documented field trials to validate technical concepts

MECHATRONICS ENGINEER – EUROPEANS@SIEMENS PROGRAM – SIEMENS AG – 01/08/2019 – 01/02/2023 – BERLIN, GERMANY

- Awarded a Siemens scholarship to join an international dual-education program in mechatronics and automation engineering with professional German training.
- Gained hands-on experience in PLC programming, robotics, sensors, machine vision, and embedded systems for industrial automation and Industry 4.0 environments.
- Performed instrumentation and control tasks at Siemens' 4800 MW power plant using SPPA-T3000 Distributed Control System (DCS).
- Developed a camera-based sorting system integrating machine vision and a robotic arm as a final project.
- Built and wired industrial control cabinets according to German standards.

PROJECTS ENGINEER – ORIGIN SYSTEMS – 01/03/2018 – 29/07/2019 – CAIRO, EGYPT

- Managed machine vision-based automation projects in the pharmaceutical industry.
- Conducted commissioning and technical support for 11 track-and-trace systems at Egyptian International Pharmaceuticals Industries Co (EIPICO).
- Installed, configured, and maintained 8 track-and-trace machines at Medical Union Pharmaceutical (MUP).
- Developed and enhanced programming skills using LabVIEW, including automation and system integration tasks.
- Coordinated with cross-functional teams to ensure timely project delivery and system reliability.

INTERNSHIP AS FAB LAB ENGINEER – GIZA SYSTEMS – 01/07/2016 – 29/01/2017 – CAIRO, EGYPT

- Received training in fabrication laboratory processes and prototyping techniques.
- Initiated and contributed to the FLOW project, a mobile fabrication lab.

- Conducted workshops and training on Arduino, CAD design, electronics, and embedded systems.
- Operated and maintained machines including CNC, 3D printers, laser cutters, and laser scanners for prototyping and testing.

● EDUCATION AND TRAINING

01/03/2023 – CURRENT Berlin, Germany

MASTER STUDENT TU University

- Specialization in Computer Science, Simulation & Optimization, and Measurement, Control & Regulation.
- Focused on Robotics, Embedded Systems, Machine Learning, Deep Learning, and Computer Vision.
- Developed skills in Python, C, PyTorch, TensorFlow, ML pipelines, and system-level optimization.

Website <https://www.tu.berlin/> | **Field of study** Computational Engineering Science

01/06/2011 – 30/06/2016 Assiut, Egypt

BACHELOR OF SCIENCE IN MECHATRONICS ENGINEERING Assiut University

- Graduated with a "very good" grade from Assiut University, mechatronics section, in 2016, ranking as the 4th top student in the mechatronics section.
- Participated in an international robot competition called Minesweeper robot.
- Received training in numerous factories in Egypt.

Website <https://www.aun.edu.eg/main/> | **Field of study** Mechatronics | **Final grade** 2.3 GPA |

Thesis Autonomous Navigation for Flying Robots

● LANGUAGE SKILLS

Mother tongue(s): **ARABIC**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
GERMAN	C1	C1	C1	C1	C1
ENGLISH	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● SKILLS

embedded systems | Microsoft Office | python | C++ | ROS / ROS2 | Machine Learning | Deep Learning | Machine Vision | Image Processing | Sensor Fusion | Camera Calibration & Vision Pipelines | Gazebo Simulation | NVIDIA Isaac Sim | Autonomous Systems | NVIDIA Jetson Platforms | Real-Time Data Processing | Hardware-Software Integration | Git | Sensor Integration | Docker | Robotics System Integration | Microsoft Project