

Ahmed Fathy Abdelkhalek

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Personal Information

Date of Birth: 30.9.2000 **Nationality:** Egyptian

Education

MSc in Engineering and Material Science, Mechatronics Department *Feb 2024 - Nov 2025*
The German University in Cairo *Cairo, Egypt*

- **Thesis:** "Design, Modelling, and Control of a Compliant Multi-Finger Robotic Harvester"
- **Thesis grade:** Excellent (1.0) **Overall grade:** Excellent (1.0)

BSc in Engineering and Material Science, Mechatronics Department *Sep 2018 - Jun 2023*
The German University in Cairo *Cairo, Egypt*

- **Thesis:** "Trajectory Tracking Control of a 3 Degree of Freedom Magnetic Robotic System"
- **Thesis grade:** Excellent (1.0) **Overall grade:** Very Good (1.8)

Work Experience

Design Engineer Team Lead *Aug 2025 - Present*
FabriHub, Full-time *Cairo, Egypt*

- Leading a team of 4 design engineers via resource management to achieve an 80% project delivery rate.
- Managing the design-to-quote pipeline by communicating with other departments to define client requirements and assess DFM, costs, and feasibility.

Teaching Assistant *Sep 2024 - Jul 2025*
The German University in Cairo, Full-time *Cairo, Egypt*

- Taught 300+ students in several courses including Advanced CNC, Industrial Automation, CAD/CAM, and Electric Circuits II.
- Assisted in the preparation of course content, quizzes, and exams for the aforementioned courses.

Mechatronics Technical Engineer, KUKA Department *Jul 2024 - Sep 2024*
Smart Systems, Full-time *Cairo, Egypt*

- Developed automated solutions for different applications, including bathtub spray painting and pick and place, using KUKA robots and their simulation platform, KUKA.Sim.
- Implemented 12+ designs for numerous projects, including robotic cells, calibration tools, and robot teaching tables.

Engineering Design and 3D Printing Services *Jul 2022 - May 2024*
Self-employed, Part-time *Cairo, Egypt*

- Designed, manufactured, and tuned a Delta robot 3D printer that is capable of ± 0.15 mm tolerances.
- Provided design and 3D printing services for local clients in Egypt to accelerate prototyping phases.

Workshops and Internships

GUC-IAS Workshop: Cooperation of Heterogenous Agents in Industrial Application *Nov 2024*
University of Stuttgart *Stuttgart, Germany*

- Integrated 3 robots, a Unitree Go1, TurtleBot, and Franka Emika Panda, for collaborative operations to perform sequential object handovers.
- Led the Unitree Go1 team, guiding, coaching, and directing team members to help achieve the aforementioned task.

Research Intern *Jul 2022 - Sep 2022*
Multi-Robot Systems Lab, The German University in Cairo *Cairo, Egypt*

- Conducted extensive research on Egypt's agricultural challenges and how to drive optimal farming practices.
- Designed and fabricated a robotic gripper prototype to optimise crop harvesting by reducing crop damage to 15%.


Research Intern *Aug 2021 - Oct 2021*
Control and Dynamical Systems Lab, The German University in Cairo *Cairo, Egypt*


- Implemented a wireless data server using Python sockets to synchronise multiple Raspberry Pi-controlled Micro Air Vehicles (MAVs) with low latency.
- Developed a web server leveraging Python and Flask, enabling users to access and manipulate real-time sensory data and issue commands to MAVs.

Skills

CAD and Electronics: SolidWorks, AutoCAD, Inventor, KiCad
Simulation: Simulink, Simscape Multibody, Gazebo Classic, ANSYS, KUKA.Sim
Programming Languages: Python, MATLAB, C++, , KUKA Robot Language (KRL)
Frameworks & Developer Tools: ROS1, Linux, Git, L^AT_EX
Languages: Arabic (Native), English (C1), German (A2)

Publications









A. Fathy, O. M. Shehata and E. -S. I. Morgan, "Development and Validation of Multi-Model Miniature Delta Robot Platform for Precise Manipulation Tasks," 2025 6th International Conference on Control, Robotics and Intelligent System (CCRIS), Guangzhou, China, 2025 

A. Fathy, M. Ashraf and A. El-Badawy, "Computed torque control of a prismatic-input delta parallel robot," 2022 4th Novel Intelligent and Leading Emerging Sciences Conference (NILES), Giza, Egypt, 2022 

Honors and Awards

3rd Best Paper Award	Oct 2022
2022 4th Novel Intelligent and Leading Emerging Sciences Conference (NILES)	Giza, Egypt

Certifications

SOLIDWORKS Additive Manufacturing Associate Dassault Systèmes 	Jun 2025
SOLIDWORKS CAD Design Professional Dassault Systèmes 	Apr 2025
Computer Vision for Engineering and Science Specialization Mathworks 	Jun 2024
Object Tracking and Motion Detection with Computer Vision Mathworks 	Jun 2024
Introduction to Computer Vision Mathworks 	May 2024
State Estimation and Localization for Self-Driving Cars University of Toronto 	Nov 2023
Introduction to Self-Driving Cars University of Toronto 	Oct 2023
Introduction to Image Processing Mathworks 	Sep 2023