

Mahmoud Shanan

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EDUCATION

2023 - PRESENT **University of Manchester**
MSc Robotics

Robotic System Design Project – Leo Rover (2 semesters)

- Led a team of 4 students to develop and upgrade an autonomous mobile robot (Leo Rover), which can navigate an unknown environment, avoid obstacles, locate a target object, and pick it up
- Modified the mechanical design of the Leo Rover to attach a LiDAR, robotic manipulator, and depth camera using SolidWorks, 3D printing, and laser cutting (more details in [portfolio](#))
- Developed the software using ROS 2, Gazebo simulation, python, and C++. It includes path planning algorithms (navigation/SLAM), computer vision (object detection), and manipulator control (grasping)

2020 - 2023 **University of Manchester**
BEng Mechatronic Engineering – First Class Honours

2-DOF Drone Control – Quanser Aero 2 (Final Year Individual Project) – Grade: 80%

- Used MATLAB/Simulink and hardware-in-loop simulation to evaluate the performance of PID control in UAVs; designed and tuned cascaded PID controllers to control the helicopter and bi-copter configurations
- Researched a new configuration for the studied platform, and modified the mathematical model of the system, such that it is controlled as a quadcopter (more details in [portfolio](#))

Embedded Systems Project (Second Year) – Grade: 92%

- Led a team of 5 students to develop a microcontroller-based buggy (STM32), which can autonomously follow a line around a track using infrared sensors (more details in [portfolio](#))
- Designed the chassis of the buggy using SolidWorks, the sensors' PCB using Altium, and a PID controller using C++. Created Gantt Charts, risk assessments, and coordinated between the team and supervisor.

2006 – 2020 **Lycée International Balzac, Cairo Egypt**
French Baccalauréat Série S – Mention Très bien (17.6/20)

WORK EXPERIENCE

August 2023 **EISewedy Electric – Special Cables Plant**
Engineering Summer Intern (3 weeks)

- Explored different types of cables (fibre optics, LAN) and their manufacturing processes (materials used, product assembly, machines, and quality control)
- Discovered the production planning process; interpreting stakeholders' requirements, analysing material and machine availability, allocating machines efficiently, and issuing daily reports

August 2022 **Amir & Joseph Service Centre**
Technical Service Advisor Intern (5 weeks)

- Applied diagnosis and fault-finding methods, while analysing different sensors and actuators inside automotive internal combustion engines and gearboxes, using wiring diagrams and software

August 2018 **Hamleys**

Sales intern (1 month)

- Guided customers through their shopping experience in 4 different isles of the store, and learned how to adapt in a fast-paced atmosphere
- Entertained almost 40 walk-in customers per day to make them feel the Hamleys ambiance, and succeeded in drawing smiles on children and parents' faces

POSITIONS OF RESPONSIBILITY

July 2022

Dale Carnegie

How to win Friends and Influence People (3-day course)

- Learned Dale Carnegie's methods of communicating professionally and confidently, and applied them during group activities; demonstrated leadership principles, explored strategies for expressing ideas and persuading people, and practiced public speaking

October 2021 – June 2022

University of Manchester

Peer Assisted Study Sessions (PASS) Leader

- Guided first year students through their studies and university experience in 1-hour sessions every week

SKILLS

Software:

- MS Office, Ubuntu (Linux), Mac OS, C/C++ programming, Python (NumPy, Pandas, PyTorch), assembly, VHDL
- ROS 2, Gazebo Simulator, Rviz, URDF, MATLAB/Simulink, SolidWorks, Fusion360, Altium, LabVIEW, and Multisim

Languages:

- Fluent in spoken and written English, French, and Arabic
- Intermediate level in Spanish (B2)