

# Nour Morsi

BEng, MRes, AFHEA, AMIMechE

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## Research interests

3D-printing, rapid prototyping, robotics and autonomous systems, artificial intelligence and machine learning; computer and robot vision.

## Education

### PhD in Robotics and Machine Vision Systems & PGR Certificate of Research

Glasgow, UK

Glasgow Caledonian University, Glasgow

2020-present

- Specialized in robot motion integrated with machine vision, 3D printing, and AI.
- Thesis title: Feasibility testing and part handling by advanced simulation for small and medium sized enterprises.
- Developed automated robotic systems for adaptive inspection, requiring expertise in robotic motion, machine vision, light systems, and machine learning integration.
- Received **Best Poster Award** at the PGcon Conference 2022

### BENG in Mechanical Engineering (1<sup>st</sup> Class Honours)

Glasgow, UK

University of Strathclyde, Glasgow

2016-2020

- *Dean's Honour list (2017, 2018, 2019)*
- Thesis title: Evaporative Cooling System in Building Components.
- Design and simulation for cooling components , achieving a 30% cooling improvement.

## WORK EXPERIENCE

### Teaching Assistant

Glasgow Caledonian University, Glasgow

2022 –2023

- Developed and supervised image processing and machine learning tutorials for students.
- Supervised 3<sup>rd</sup> year mechanical design projects and python lab sessions.

### Robotics Specialist

Dubai TRA Summer Camp, Dubai

2019-2020

- Planned robotics educational and recreational activities for students.
- Proposed and planned interactive workshops, increasing summer intake by 20%

### Junior Mechanical Engineering Intern

Heights Contracting LLC, Abu Dhabi

2018-2019

- Analyzed pressure valve designs using finite analysis and non-destructive testing.
- Provided implementation strategies on the assembly of pressure valves.

## Publications

- **Morsi, Nour M.**, Harrison, C., Mata, M., & Semple, D. (2021). Feasibility Testing of Robotics and Part Handling by Advanced Simulation for Small and Medium-Sized Enterprises. International Conference on Robotics, Computer Vision, and Intelligent Systems - ROBOVIS 2021.

- **Morsi, Nour M.**, Harrison, C., Mata, M., & Semple, D. (2023). Autonomous robotic inspection system for drill holes tilt: feasibility and development by advanced simulation and real testing. The 28th International Conference on Automation and Computing (ICAC2023).
- **Morsi, Nour M.**, Harrison, C., Mata, M., & Semple, D. (2024). In-progress: Development of an adaptive robotic inspection system for aerospace components. Anticipated publication in Frontiers in Robotics and AI.

## Technical training & courses:

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- Supervised Machine Learning: Regression and Classification – Coursera
- Associate Fellow of Higher education- Advanced Higher Education, UK
- Python Programming bootcamp- IT Professional Training (ITPT).

## Technical skills

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- Design and build end effector systems using Solidworks, Ansys, and 3D printers.
- Programming languages: C++, Python, Matlab.
- Familiar with many libraries for scientific and robot related work such as: Tensorflow, NumPy, SciPy,
- Libraries: Tensorflow, NumPy, SciPy, Matplotlib, Scikit-learn, OpenCV.
- Experience with Arduino, Raspberry Pi, ROS, and Linux.

## Extra-curricular activities

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- ImechE Member – Active member of the ImechE (Associate Member)
- Stem Ambassador- Organised and assisted workshops hosted in Glasgow Caledonian University.
- Masters project mentor- Assisted masters students in mechanical and electrical projects.