

OMAR ELSHERBINY

Munich, Germany

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EDUCATION

MSc Aerospace, Technical University of Munich (TUM)

Munich, Germany | 10/2023 – present

- **Courses:**
Business Planning (UnternehmerTUM), Aerodynamics of Aircraft 1, Applied CFD, Composite Materials, Fundamentals of Flight Control, Aircraft Design, Space Resources, Politics for Rocket Scientists, Spacecraft Design, Orbit and Flight Mechanics, Life Support Systems, Rocket Propulsion I & II, Electric Space Propulsion, Space Exploration, Topology Optimization, Systems Engineering, Spacecraft Thermal Analysis and Test, Space Mission Design, Model-Based Systems Engineering, Composite Materials
- Semester Thesis: Design and analysis of a cold plate and thermal shroud for a thermal vacuum chamber.
- Master Thesis: Study on Water Electrolysis Propulsion for an ESA flagship mission to Enceladus: Propulsion System and Trajectory Analysis
- Grade: 1.5 (Projected)

BEng Mechanical Engineering, Coventry University

Coventry, UK | 09/2019 – 06/2023

- Top Achiever Scholarship
- Academic Scholarship
- Grade: First Class (with honours)

RESEARCH EXPERIENCE

Chair of Space Mobility and Propulsion, TUM

Munich, Germany | 10/2025 – Present

Researcher, Master Thesis *With Prof. Dr.-Ing. Chiara Manfretti*

- Master thesis on a future ESA Flagship mission to Enceladus. Working on overall mission architecture, trajectory planning and simulation, water electrolysis propulsion system modeling, GNC and ISRU.

Professorship of Lunar and Planetary Exploration, TUM

Munich, Germany | 05/2024 – 06/2025

Scientific Student Assistant *Supervision of Prof. Dr. Philipp Reiss*

- Supporting in building lab infrastructure
- Assisting PhDs with day-to-day research tasks to support ongoing research
- Developing teaching demo materials

Coventry University

Cairo, Egypt | 03/2022 – 05/2023

Researcher *Supervision of Prof. Stratis Kanarachos*

- Data analysis forecast of spot and futures carbon emission prices
- Developing neural networks and running Multifractal Detrended Fluctuation Analysis using MATLAB and Python

Coventry University

Cairo, Egypt | 06/2021 – 06/2022

Research Intern

- Part of the team examining mechanical properties of 3D printed Wood PLA and ABS specimens
- Fabricated the test specimens with 4 different models.
- Performed mechanical tensile tests on the specimen produced.
- Ensured all ISO standards decided on are instigated.

WORK EXPERIENCE

Rocket Factory Augsburg

Augsburg, Germany | 06/2025 – 08/2025

Systems Engineering Intern

- Intern within the Systems Engineering department. Supporting system architecture development and requirement management for orbital launch vehicle subsystems.

Edibon International

Madrid, Spain | 09/2022

Intern

- Testing and Validation of various equipment. The equipment included a hydrogen fuel cell, wind turbine, heat transfer and losses in pipes.

Elsowedy Electric PSP

Dubai, UAE | 07/2021 – 08/2021

Intern

- Trained at El Layyah Power Plant in the operations department.
- Worked alongside each of the following five groups: Engineering, Procurement, Construction, HSE and Quality Control.

GASTEC

Cairo, Egypt | 06/2021 – 07/2021

Intern

- Assisted in converting gasoline cars to use compressed natural gas as well.
- Maintained and repaired compressed natural gas stations.
- Assisted in the engineering design process by running simulations using Solidworks.

Coventry University

Cairo, Egypt | 10/2020 – 05/2021

Manufacturing Assistant

- Operated CNC machines such as Router, laser cutters, lathes, PCB Millers, and 3D Printers.
- Implemented a documentation system to help monitor inventory in the fabrication lab.
- Trained younger students and potential applicants in all technical aspects of the job.

Mathematics Assistant

- Encouraged and enabled foundation-level students in mathematics by giving extra 2-hour sessions every week.

CLUBS & COMPETITIONS

WARR

Munich, Germany | 11/2023 – 01/2024

Mission Control

Part of the mission control team at the Scientific Workgroup for Rocketry and Spaceflight (Wissenschaftliche Arbeitsgemeinschaft für Raketentechnik und Raumfahrt) of the Technical University of Munich.

Robotics Club

Technical Officer

Cairo, Egypt | 10/2021 – 06/2023

One of three technical leads at the robotics club of Coventry University's Branch in Egypt. Led and oversaw a project team in designing a chess-playing robot. Advised technical members in the Robocup competition.

Minesweepers (Competition)

Alamain, Egypt | 01/2022 – 03/2022

Mechanical Lead

Goal: An international competition that aims at raising public awareness of the seriousness of landmines and unexploded ordnances (UXOs) contamination, fostering robotics research and its applications in the area of humanitarian demining in the world and actively contributing toward the achievement of Sustainable Development Goals (SDGs) adopted by the United Nations.

Shell Global, Imagine the Future (Competition)

Cairo, Egypt | 01/2021 – 08/2021

Goal: Encourage students' creative thinking by developing scenarios that envision the future of cleaner energy in Egyptian cities by 2050.

- 3rd place across Egypt and an award of 10,000 EGP

PAPERS/PUBLICATIONS & EVENTS

International Astronautical Congress

Milan, Italy | 10/2024

Conference Papers:

- O. Elsherbiny, M. Eltayeb, K. Zaki, O. Daoud, A. Abdellatif (2024). 'Development of an Air-breathing Electrostatic thruster for High-Altitude propulsion'. *International Astronautical Congress*. Milan, Italy
- A. Abdellatif, O. Elsherbiny (2024). 'Microgravity Testing of a Newly Developed Air-Breathing Electrostatic Thruster'. *International Astronautical Congress*. Milan, Italy

Egyptian Space Summit

Cairo, Egypt | 08/2022

Attendee

SKILLS

Technical Skills

Solidworks, Astah SysML (MBSE), COMSOL, Thermal Desktop, MATLAB, Simulink, Ansys CFX, Autodesk Inventor, Python, Converge CFD, Star CCM, Abaqus, Fusion 360, AutoCAD, CNC, Machining, 3D Printing, and Microsoft Office

Languages

Arabic (native), English (C1), German (A2), Spanish (A1)

Referees (Available upon request)

Prof. Dr. Philipp Reiss	–	Head of Lunar and Planetary Exploration group at TUM.
Kiran Chincholi	–	Head of Systems Engineering at Rocket Factory Augsburg.
Akram Abdellatif	–	Senior Certification and Verification Engineer at Boeing.
Fabian Riegelsberger	–	Research Associate at TUM's Chair of Space Mobility and Propulsion

VOLUNTEERING

Roofing

Fayoum, Egypt | 01/2020

- Volunteered in building roofs in a remote rural area in Egypt. Built 80.5 roofs covering an area of 1,600 feet squared.