MOHAMED ELSHARKASI

PhD Researcher at
The University of Manchester

National Graphene Institute
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LANGUAGES

- Arabic
- English
- Italian

EXPERTISE

- Experienced in various membrane processes
- Benchmarking and modification of flat- and hollow fiber membranes
- Experienced in HPLC, SEM, XPS, FTIR, AFM, and XRD
- Experienced in the use of data analysis, CAD and molecular modeling software

SKILLS

Programming:

- MATLAB
- GAMS
- Ansys Fluent
- ASPEN PLUS
- SPRINT
- STAR
- CCaLC

EDUCATION

2023 – Present
PhD in Chemical Engineering — University of Manchester
Research: Advanced Functional Materials and Analytical Science.
Thesis: Developing polymer composite hollow fiber membranes for the treatment of shale gas produced water and hypersaline wastewater using advanced 2D materials.

2022 – 2023
MSc in Advanced Chemical Engineering — University of Manchester
Awarded Distinction; ranked in the top 5-10% of cohort.
Thesis: "3D Adsorbent Aerogels for Water Purification" focusing on removing heavy metal contaminants to protect ecosystems and human health.

2018 – 2021
BEng in Chemical Engineering — University of Manchester
Awarded First-Class Honors.
Design Project: "Sustainable Production of Chloromethanes."

RESEARCH EXPERIENCE

2023–Present
Research Assocciate — University of Manchester
Thesis Project: 3D Adsorbent Aerogels for Water Purification.

2023–2023
Research Assocciate — University of Manchester
Food Product Design: Spreadable Butter Design.

2022–2022
Postgraduate Research — University of Manchester
Research Project: Low-Grade Waste Heat Utilisation.

2021–2021
Undergraduate Research — University of Manchester
Design Project: Sustainable Production of Chloromethanes.

2019–2019
Undergraduate Research — University of Manchester
Design Project: Sustainable Production of Ammonium Nitrate.

PROFESSIONAL EXPERIENCE

2025-Present
Cleanroom Access
National Graphene Institute — Manchester, Uk
• Trained and certified to work in ISO Class 5 & 6 cleanroom environments for 2D materials research.
• Utilized advanced thin-film characterization tools, including SEM, modeling ellipsometry, Raman spectroscopy, AFM, and XRD.
• Performed hands-on nanofabrication and chemical processing using wet chemistry benches and active etching systems.

2024-Present
Graduate Teaching Assistant
The University of Manchester — Manchester, Uk
• Assisted in teaching core chemical engineering topics: mass and energy balances, process design, and P&ID development.
• Supported lessons on green chemistry, waste minimization, renewable energy modeling, and decarbonization strategies.

2018
Field Engineer Intern
Libyan Iron and Steel Company (LISCO) — Misrata, Libya
• Performed quality tests and impurity analysis on steel products.
• Observed steel plant operations and quality control procedures.

2016
Court Reporter Assistant
Permanent Court Misrata — Misrata, Libya
• Prepared and organized legal documents for case proceedings.
• Communicated professionally with lawyers and court staff.

2015
Trainee Workshop Engineer
Mechanical Workshop and Turnery — Benghazi, Libya
• Gained welding skills; diagnosed and repaired piping faults.
• Operated machinery for engine repair and maintenance.

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About Me

I am a driven and passionate Chemical Engineer dedicated to advancing sustainable and innovative solutions for critical global challenges. With a strong academic foundation and extensive research experience, I have consistently demonstrated excellence in process design, simulation, and optimisation, particularly in chemical and environmental engineering. I am pursuing a PhD in Advanced Functional Materials and Analytical Science at the University of Manchester, with experimental research conducted at the National Graphene Institute (NGI) . My work focuses on developing polymer composite hollow fiber membranes for industrial water purification applications, leveraging the unique properties of 2D materials such as graphene oxide and 1T-MoS2. This research aims to create membranes with enhanced water flux and contaminant rejection capabilities, addressing the global need for sustainable access to clean water. Passionate about sustainability, innovation, and collaboration, I am committed to making a positive and lasting impact in the chemical engineering field.

SPECIALIZATION

- Process Design ●●●●●
- Process Simulation ●●●○○
- Process Optimisation ●●●●○
- Heat Integration ●●●●●

PROFESSIONAL SKILLS

- Leadership ●●●●○
- Project management ●●●●○
- Time management ●●●●●
- Teamwork ●●●●●
- Problem solving ●●●●○

PROFESSIONAL TRAINING

2025 — Analytical and Materials Characterization Techniques — Manchester, UK

2023 — Cryogenic Safety Course — Manchester, UK

2023 — Freeze-Drying Process Training — Manchester, UK

EXTRACURRICULAR ACTIVITIES

2020 — **Arabic Society Member,University of Manchester** — Manchester, UK
• Organised events, promoted cultural exchange, and raised funds for charitable causes.

2018 — **Student Volunteer, Abbey College Manchester** — Manchester, UK
• Organised fundraisers and raised £420 for local food banks.

2011 — **Medical Volunteer, Al-Galaa Hospital** — Benghazi, Libya
• Provided essential support to medical staff during emergency.

AWARDS

2023 — **University of Manchester Scholarship** — Manchester, UK
• Department of Chemical Engineering Scholarship awarded on the merit for postgraduate studies.

2022 — **Libyan Ministry of Education** — Libya
• MSc Scholarship awarded on the merit for postgraduate studies.

2018 — **Libyan Ministry of Education** — Libya
• BEng Scholarship awarded on the merit of becoming one of the top-10 high school graduates across the country.

HOBBIES AND INTERESTS

- Football(watching and playing)
- Formula One (watching)
- Boxing (watching and trained up to sparing)

REFERENCES

Available Upon Request