Dr. MOHAMED ETARHOUNI

CONTACT INFORMATION

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ORCiD

PROFILE

Experienced and forward-thinking lecturer and researcher in Electrical and Electronic Engineering, with a PhD specialising in advanced renewable energy systems. Over 8 years of teaching experience across UK and international institutions, delivering a broad range of modules including electronics, embedded systems, power electronics, and control systems. Passionate about inclusive and engaging education, integrating tools like Canvas, MATLAB-Simulink, Mobius, and Proteus into both in-person and online teaching.

I hold a PGCert (teaching qualification) in Teaching in Higher Education at Keele University, with a strong focus on curriculum innovation, pedagogical development, and alignment with the UKPSF. Proven track record in supervising student research, promoting interdisciplinary work, and supporting diverse learners. Published in leading journals such as Elsevier and IEEE, with active roles as session chair and peer reviewer. Committed to equipping students with strong technical, analytical, and employability skills through reflective, student-centred teaching.

EDUCATION

PGCert, Teaching in Higher Education, (Pass with Merit)
Keele University, Jan 2024 – June 2025

- Successfully completed modules on reflective teaching and curriculum design for PGCert certificate, successfully completed Apprenticeship in Academic Professional Teaching (APA).

PhD, Electrical & Electronic Engineering
University of Leeds, Feb 2018 – Oct 2021

- Thesis: *Advanced Techniques for Maximum Power Extraction from Solar PV Systems*
- Research focused on optimisation techniques for solar arrays under partial shading, including Series-Parallel Differential Power Processing (SP-DPP) converters and fuzzy logic-based control.
- Developed novel configurations such as Magic Square-Enhanced PV array interconnections.

MSc, Electrical Engineering & Renewable Energy Systems (Distinction)
University of Leeds, Sep 2014 – Dec 2015

- Ranked among the top 4 students; completed key modules in electric drives, grid-connected micro-generation, fuzzy control systems, and renewable energy integration.
- MSc project: Developed a module-integrated DC-DC converter prototype and a bidirectional Ćuk converter for PV applications under partial shading conditions.

BEng, Electronic & Communications Engineering (2:1)
University of Leeds, Sep 2010 – July 2013

Key projects:

- Year 1: Designed and built a remote-controlled vehicle (1st class mark).
- Year 2: Developed an iOS app for circuit simulation and analysis (1st class mark).
- Bachelor Project: Designed small-power converter circuit for phone charger application (1st class mark).

International Foundation Year
University of Leeds, Sep 2009 – June 2010

- Achieved A* in Physics and Maths; C+ in English.

ACADEMIC EXPERIENCE

Lecturer, Electrical Engineering
Liverpool John Moores University, UK, Oct 2022 – Present

- Design and deliver undergraduate and postgraduate modules in analogue and digital electronics, electrical circuits, embedded systems, and engineering mathematics.
- Use **Canvas** as the primary platform for teaching delivery and **Mobius** for designing and conducting assessments.
- Use simulation tools (**MATLAB-Simulink**, **Proteus**) for practical lab work and experimental design.
- Supervise undergraduate & postgraduate projects and support circuit design, PCB development, and integration of renewable energies and power electronics.
- Actively engaged in collaborative research with University of Leeds on power electronics and renewable energy systems.

Lecturer, Electrical Engineering
Teesside University, UK, Nov 2021 – Oct 2022

- Taught various undergraduate & postgraduate modules, such as electronic and electrical principles, circuit analysis, engineering maths, and physics to foundation students.
- Delivered contents via Blackboard Ultra and Microsoft Teams across hybrid and virtual learning formats.

Practical Engineering Tutor, Electrical Engineering
Open University, UK, April 2021 – August 2022

- Involved in delivering virtual teaching in practical engineering module for bachelor level using Adobe Connect (AC) online learning platform
- Planned and delivered different activities within the module, such as, principles of PV solar energy, electronic circuits, and electromagnetism.

Teaching Assistant / Lab Demonstrator, Electrical Engineering
University of Leeds, UK, Feb 2018 – Dec 2021

- Supported modules in postgraduate and undergraduate levels, such as Power Electronics, Electrical Machines, Renewable Energy, Control Systems, and Engineering Mathematics.
- Facilitated lab sessions, tutorials, and adapted teaching for online delivery during the COVID-19 pandemic.
- Supervised a summer internship project titled *"Parallel Differential Power Processing Converters for Maximum Power Generation of Partially Shaded PV Arrays"* (2021) for a second-year Mechatronics student. The project outcomes were published in an Elsevier journal.

Lecturer, Electrical Engineering
University of Tripoli, Libya, Jan 2016 – Jan 2018

- Taught undergraduate modules in renewable energy systems, control, power electronics, and mathematics.
- Supervised final-year projects on solar energy systems and Arduino-based applications.

English Language Instructor
Alhadaf College, Libya, Oct 2013 – July 2014

- Delivered English communication skills to recent graduates, focusing on writing, speaking, and professional readiness.

RESEARCH & PUBLICATIONS (Most Recent)

- Etarhouni, M., Moorthy, H. P., & Chong, B. (2024). Design of novel differential power processing scheme for small-scale PV array application operating under partial shading conditions: Modelling and experimental validation. *Computers and Electrical Engineering, 117*, 109254. https://doi.org/10.1016/j.compeleceng.2024.109254
- Etarhouni, M., & Chong, B. (2023). Control of cascaded PV-Ćuk converter modules by particle swarm optimization under partial shading conditions. *Proceedings of the World Congress on Electrical Engineering and Computer Systems and Science*. https://doi.org/10.11159/eee23.107
- Etarhouni, M., Chong, B., & Zhang, L. (2022b). A novel square algorithm for maximising the output power from a partially shaded photovoltaic array system. *Optik, 257*. https://doi.org/10.1016/j.ijleo.2022.168870
- Etarhouni, M., Chong, B., & Zhang, L. (2022a). A combined scheme for maximising the output power of a photovoltaic array under partial shading conditions. *Sustainable Energy Technologies and Assessments, 50*. https://doi.org/10.1016/j.seta.2021.101878
- Etarhouni, M., Chong, B., & Zhang, L. (2020). Series-parallel differential power processing scheme for maximised power extraction from mismatched photovoltaic panels. *IET Conference Proceedings, 2020*(7). https://doi.org/10.1049/icp.2021.0997

PROFESSIONAL ACTIVITIES

- **Exemplar Poster Recognition** – Keele University, 2025: Poster from the "Teaching Reflectively in Higher Education" module (part of your PGCert) was selected as an exemplar by the Keele Institute for Innovation and Teaching Excellence. Invited to consent for it to be used as a model for future participants.
- **Fellowship (FHEA, D2)**, HEA, awarded Nov 2023
- **Session Chair** – EECCS 2023, London, UK: Chaired a session at the 9th World Congress on Electrical Engineering and Computer Systems and Science (EECCS 2023), August 2023.
- **Peer Reviewer** – CSAE 2022, Nanjing, China: Reviewed research paper on solar PV technologies at the 6th International Conference on Computer Science and Application Engineering.
- **Peer Reviewer:** *International Journal of Energy Research* (Wiley, IF 4.672), *Journal of Computers and Electrical Engineering* (Elsevier, IF 4), *Renewable and Sustainable Energy Reviews* (Elsevier, IF 16.3), *IEEE Transactions on Power Systems* (IEEE, IF 6.5), since 2022
- **TUISC Conference Presenter** on Flipped Learning Pedagogy, Teesside University, UK, July 2022
- **CPD certifications (iHASCO)**: Safeguarding, Prevent Duty, Health & Safety, Fire Awareness

CONTINUING PROFESSIONAL DEVELOPMENT (CPD)

- **Sustainability in HE,** August 2024: Focused on embedding sustainability in higher education to promote global citizenship and innovation.
- **Mobius for Assessments,** July 2024: Enhanced digital assessment practices using Mobius for flexibility and improved student engagement.
- **Supporting Students with Neurodivergence** July 2024: Developed inclusive strategies for neurodivergent learners to improve educational outcomes.
- **Creating Culturally Appropriate Contexts into the Classroom,** June 2024: Promoted equity and inclusion in curriculum design through culturally responsive teaching.
- **How to Write Module Learning Outcomes,** May 2024: Emphasised measurable outcomes using Bloom's Taxonomy to scaffold student progression.
- **How to Support Active Learning Across Modalities,** April 2024: Applied hybrid and multimodal learning strategies to improve classroom interactivity.
- **How to Create Inclusive Assessments,** Dec 2023: Explored fair and accessible assessments with authentic tasks and transparent rubrics.
- **Designing Learning with ABC Model,** Oct 2023: Applied ABC framework to structure active learning through collaboration and discussion.

AWARDS

- **Certificate of Teaching Recognition – Liverpool John Moores University (2024):** *Awarded for professional and effective teaching methods.*
- **Certificate of Teaching Recognition – Liverpool John Moores University (2023):** *Recognised for good lecturing skills in communication, listening, collaboration, empathy, and patience. Described as a kind and ideal teacher.*
- **Research and Scholarship Committee (RSC) Funding Award – Liverpool John Moores University (2023):** Funded CPD activity to attend and present at the 9th International

Conference on Electrical Engineering and Electronics (EEE 2023), Brunel University London. Produced a post-conference report and contributed to CPD recommendations shared with the RSC.

- **Best Paper Award 2019:** Awarded to the top 8 papers at the IEEE Renewable Energy Congress Conference – IREC 2019.
- **Postgraduate Researchers Who Teach or Demonstrate – University of Leeds Partnership Awards 2019:** Shortlisted doctoral candidates contributing to teaching during term time.
- **Leeds for Life Conference Award 2020:** Covered conference fees and travel grants for accepted conference abstract presentation.
- **Ministry of Higher Education Libyan Government Scholarships:** Awarded based on academic performance and ranking in top national student lists.
    - *Doctoral Studies (2018)*
    - *Master Studies (2014)*
    - *Bachelor Studies (2009)*

SKILLS

Teaching & Learning Technologies: Canvas, Mobius, Blackboard Ultra, Microsoft Teams, Adobe Connect, Kahoot, Mentimeter: *Proficient in designing hybrid and online teaching strategies, authentic assessments, and interactive content delivery.*

Curriculum & Assessment Design: Module development, learning outcome mapping (Bloom's Taxonomy), inclusive assessment strategies, ABC learning design. *Experienced in aligning curriculum with institutional frameworks and*

Research & Project Supervision: Undergraduate and postgraduate supervision in solar PV systems, embedded systems, and converter design. *Published in top-tier journals; strong track record of mentoring students to achieve publication and research dissemination.*

Software & Simulation Tools: MATLAB-Simulink, Proteus, Eagle PCB, MPLAB IDE, LabVIEW: *Applied for lab-based instruction and final-year projects in power electronics and renewable energy systems.*

Programming Languages: MATLAB, C/C++, Java, Python: *Utilised in control systems, simulations, and automation projects.*

Interpersonal & Cross-Cultural Communication: Fluent in English and Arabic: *Demonstrated empathy, collaboration, and inclusion through cross-institutional teaching and international academic partnerships.*

SOCIETY MEMBERSHIPS

- **Member,** the Institution of Engineering and Technology IET
- **Member,** Institute of Communication and Power Networks (ICAPNET), University of Leeds

REFEREES

Available on request.