

**Name: Dr. Hamzeh Aljarajreh****Rank: Assistant Professor - Electrical & Electronics Engineering**

Personal Information

Nationality:	Australian
AU Joining Date:	August 2023
E-Mail Address:	h.aljarajreh@au.edu.kw

Professional Information

Education:	- Qualification: PhD in Electrical and Electronics Engineering Major: Electrical Engineering / Power Electronics University: University of Technology Sydney, Australia Year: 2022 - Qualification: MSc in Electronics Engineering Major: Microelectronics Engineering University: UKM University, Malaysia Year: 2012 - Qualification: BSc in Electrical and Electronics Engineering Major: Electronics Engineering University: Mutah University, Jordan Year: 2010
Specialization:	- Power Electronics - Renewable Energy - Microelectronics - Artificial Intelligence
Current Academic Position:	Assistant Professor- Electrical & Electronics Engineering

Current Professional Positions:	- IEEE Member (2009 – Present) - Secretary of IEEE NSW PELS/IES/IAS joint chapter (2020 - 2024) - Technical committee member of SPIES 2024 & 2025. - Special Session Organizer in IEEE PEDG 2023. - Tutorial speaker in 2022 9th International Conference on Power Electronics Systems and Applications. - Reviewer for several IEEE Transaction journals such as IEEE Transactions on Power Electronics (TPEL), IEEE Transactions on Industrial Electronics (TIE), IEEE Transactions on Industry Applications (TIA), and IEEE Journal of Emerging and Selected Topics in Power Electronics (JESTPE).
Previous Administrative Position Held:	NA
Previous Academic Positions Held:	- Lecturer/ Subject Coordinator (Jun 2022 - Jun 2023) in the School of Electrical and Data Engineering, University of Technology Sydney. - Associate lecturer /research assistant (Feb 2016 - Jun 2022) in the School of Electrical and Data Engineering, University of Technology Sydney.
Fellowships And Honors:	- Post-Thesis scholarship granted from UTS 2022. - Australian Research Training Award During PhD study (2018-2022). - 1st prize award at UTS School of Electrical and Data Engineering in the 2021 showcase competition. - Runner-up award at UTS Faculty of Engineering and Information Technology in 2020 showcase research competition. - Ranked as the number one student in Microelectronics engineering at UKM in 2012. - 2011 Jordan Business Council Award for top ten graduates across all Jordanian universities. - Mutah University 3 shields and 9 certificates not only for being the top Faculty of Engineering student every year from 2006- 2010 but also for the highest rank in the whole university across all programs (which is equivalent to a university medal). - Mutah University 2009 certificate for supervising and running workshops for technical staff and final-year students. - Mutah University Scholarship for top electronics engineering students 2006- 2010.
Teaching Experience:	- Assistant Professor at the Australian University, Kuwait (Aug 2023 – Present) in the school of Electrical and Electronics Engineering for different subjects such as Introduction of Computer Programming (C++), Digital Logic, Programable Logic Controller (PLC), and Computer Programming using Python. In addition, I am supervising students in their Graduation projects.

	- Lecturer/ Subject Coordinator (Jun 2022 - Jun 2023) in the School of Electrical and Data Engineering, University of Technology Sydney for various power electronics subjects such as Power Electronics and Drives (PEDs), Renewable Energy Systems Studio A, Renewable Energy Systems Studio B, Advanced Power Electronics (APE), and Circuit Analysis and Design (CAD). Main duties include: • Teaching students different academic subjects such as power electronics, advanced power electronics, and renewable energy sources including wind, solar PV, geothermal, biomass, and Hydro-electricity energy sources. • Maintaining and delivering courses in a variety of forms and places, including online delivery and support. • Establishing and maintaining effective working relationships with students, faculty, and the university. • Inspire students to become lifelong learners and empower them to apply their knowledge and skills to solve real-world problems. • Maintaining participation in professional associations/industry networks to seek external research funding and demonstrate a national reputation in electrical engineering. • Contributing to the frequent evaluation of course analytics, applicable quality assurance standards, and other relevant feedback/benchmarking data.
Industrial And Technical Experience:	Electronics engineer (2015 -2016) in DEMAND MANAGER PY LTD Main duties include: • Designing electronic components, circuits, and systems used for electrical, communication, and control systems, and other industrial applications. • Working on software codes to control these electronic circuits. • Establishing and maintaining effective working relationships with staff.
Research Interest:	- Power Electronics converters include designing efficient multiple-input multiple-output DC/DC converters for renewable energy sources, energy storage systems, and microgrids. - Artificial Intelligence and machine learning.
Research Grants:	- Research Grant, Kuwait Foundation for the Advancement of Sciences (KFAS), Fall 2024, PI (Title: The AI Paradigm Shift: Reshaping Assessment Strategies in Higher Education).

	- Internal Research Grant, Australian University, Spring 2025, PI (Title: Design and Control of Efficient Three-Port Converters for Renewable Energy Applications). - The research was funded partially by the Australian Government through the Australian Research Council (Discovery Project No. DP180100129).
Research and Publications including Journal and Books:	Alam, M. M., Farhangi, M., Dylan, D. C., Siwakoti, Y. P., & Aljarajreh, H. (2023). Design, Implementation and Reliability Assessment of a Fault-Tolerant Three-Port Converter. IEEE Transactions on Industry Applications. Aljarajreh, H., Lu, D. D. C., Siwakoti, Y. P., & Chi, K. T. (2022). A non-isolated three-port DC–DC converter with two bidirectional ports and fewer components. IEEE Transactions on Power Electronics, 37(7), 8207-8216. Aljarajreh, H., Lu, D. D. C., Siwakoti, Y. P., Tse, C. K., & See, K. W. (2021). Synthesis and analysis of three-port DC/DC converters with two bidirectional ports based on power flow graph technique. Energies, 14(18), 5751. Aljarajreh, H., Lu, D. D. C., Siwakoti, Y. P., Aguilera, R. P., & Chi, K. T. (2021). A method of seamless transitions between different operating modes for three-port DC-DC converters. IEEE Access, 9, 59184-59195. Al-Soeidat, M. R., Aljarajreh, H., Khawaldeh, H. A., Lu, D. D. C., & Zhu, J. (2019). A reconfigurable three-port DC–DC converter for integrated PV-battery system. IEEE Journal of Emerging and Selected Topics in Power Electronics, 8(4), 3423-3433. Aljarajreh, H., Rifin, M. R., Mamun, M., Amin, S., & Zaki, W. M. D. W. (2013). low noise amplifiers in RFID systems. Journal of Engineering and Applied Sciences, 8(1), 21-28. Aljarajreh, H., Reaz, M. B. I., Amin, M. S., & Husain, H. (2013). An active inductor based low noise amplifier for RF receiver. Elektronika Ir Elektrotechnika, 19(5), 49-52.
Paper Presentations at Professional Conferences:	S. Feng, D. D. -C. Lu, Y. P. Siwakoti, M. M. Alam, W. Hassan and H. Aljarajreh, "Non-Isolated Three-Port Boost H-Bridge Inverter with Hybrid Modulation for Single-Phase Renewable Power Systems," 2024 IEEE 9th Southern Power Electronics Conference (SPEC), Brisbane, Australia, 2024, pp. 1-5. Lu, D. D. C., Aljarajreh, H., & Al-soeidat, M. (2023, November). Reliability Assessment of Selected Boost-Converter-Based Three-Port DC/DC Converters. In 2023 IEEE International Future Energy Electronics Conference (IFEEC) (pp. 357-362). Almatrafi, N., Lu, D. D. C., Li, L., & Aljarajreh, H. (2023, November). Design Considerations for Virtual Impedance and Virtual Synchronous Generators in Inverter-Based Generators. In 2023 IEEE International Future Energy Electronics Conference (IFEEC) (pp. 538-543).

	Pranto, A. H., Hoque, M. A., Johnson, R., Islam, M. R., Supriya, S., & Aljarajreh, H. (2023, November). Three-phase Inverter with Front-End SEPIC Converter (PLECS-Based). In 2023 IEEE International Future Energy Electronics Conference (IFEEEC) (pp. 380-385). Lu, D., & Aljarajreh, H. (2022, September). Non-isolated multiport DC/DC converters: Applications, challenges, and solutions. In 2022 IEEE 9th International Conference on Power Electronics Systems and Applications (PESA) (pp. 1-5). Lu, D. D. C., Aljarajreh, H., & Hassan, W. (2022, September). Reliability assessment of selected dc/dc boost-converter-based multiport converter topologies. In 2022 32nd Australasian Universities Power Engineering Conference (AUPEC) (pp. 1-6). Alam, M. M., Aljarajreh, H., Farhangi, M., & Siwakoti, Y. P. (2022, March). A novel dc/dc three port converter with fault-tolerant ability. In 2022 5th International Conference on Power Electronics and their Applications (ICPEA) (Vol. 1, pp. 1-7). IEEE. Aljarajreh, H., Lu, D. D. C., & Tse, C. K. (2019, May). Synthesis of dual-input single-output DC/DC converters. In 2019 IEEE international symposium on circuits and systems (ISCAS) (pp. 1-5). Al-Soeidat, M., Khawaldeh, H., Aljarajreh, H., & Lu, D. (2018, November). A compact three-port DC-DC converter for integrated PV-battery system. In 2018 IEEE International Power Electronics and Application Conference and Exposition (PEAC) (pp. 1-6). Khawaldeh, H. A., Aljarajreh, H., Al-Soeidat, M., Lu, D. D. C., & Li, L. (2018, December). Performance investigation of a PV emulator using current source and diode string. In 2018 26th IEEE International Conference on Systems Engineering (ICSEng) (pp. 1-5).
College Service including committee Membership:	- Preparing three different programs in Computer Engineering. (Artificial Intelligence, Cybersecurity, and Networking) - Computer Programming using Python curriculum design and development Spring 2024. - Participated in "Redefining Kuwait: A New Era of Energy Possibilities," event hosted by LONGI and Life Energy.
National Service:	-
College Committees:	- Member of Research & Faculty Development Committee - Member of Credit Transfer Committee - Member of Disciplinary Committee - Member of Students Appeals and Complaints Committee - Member of Curriculum committee - Member of Teaching Learning, Validation, and moderation Committee