

Ali Salam Kadhim Al-Khayyat

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## Objective:

Motivated and innovative electrical engineer with a strong background in sustainable and renewable energy systems. Seeking opportunities to leverage my academic expertise, research experience, and technical skills to contribute to the advancement and implementation of clean energy technologies.

## Current Position:

Assistant Professor

Department of Electrical and Electronics Engineering,

University of Thi-Qar, Iraq

- ❖ Teaching undergraduate courses in electrical engineering
- ❖ Supervising final year graduation projects
- ❖ Active member of several departmental committees, including:
  - Scientific Committee
  - Renewable Energy Conference Organizing Committee
  - Curriculum Development and Exam Review Panels

## Education:

- ❖ M.Sc. in Electrical Engineering for Sustainable and Renewable Energy Systems  
University of Nottingham, Nottingham, UK | 2013 – 2014
- ❖ B.Sc. in Electrical Engineering  
University of Kufa, Kufa, Iraq | 2004 – 2008

## Teaching Experience:

Taught the following modules at the undergraduate level:

- Mathematics II
- Mathematics III
- Electrical Circuits II
- Signal and System Analysis
- Power Electronics
- Renewable Energy
- Power Electronics Simulation Lab
- Supervised multiple final-year graduation projects in the areas of power electronics, renewable systems, and smart grids.

## Academic Background:

Specialized in the following areas during M.Sc. program:

- ❖ Renewable Energy Integration: Focused on grid stability, power quality, and control strategies for integrating solar, wind, and hydro sources.
- ❖ Power Electronics for Renewable Energy: Design, simulation, and optimization of converters, inverters, and controllers.
- ❖ Energy Storage Systems: Examined applications of batteries, supercapacitors, and pumped hydro in energy management.
- ❖ Sustainable Energy Policies: Studied global and regional energy policies, regulations, and markets for renewable deployment.

## Research Experience:

Research Project: Control of Back-to-Back HVDC System Using PLECS Software

University of Nottingham, UK | 2013 – 2014

- ❖ Developed advanced control algorithms for grid-connected photovoltaic inverters.
- ❖ Validated performance via MATLAB/Simulink and PLECS simulations.
- ❖ Collaborated with research teams to assess the impact of renewable energy integration on grid performance.

## Skills:

- ❖ Proficient in: MATLAB/Simulink, PLECS, PSIM
- ❖ Expertise in: Control of Power Electronics Converters, Multi-level Converter Systems, Energy management, Microgrid control, Renewable energy forecasting.
- ❖ Knowledgeable in: Sustainable energy policy, Environmental regulations, Energy market dynamics.
- ❖ Strong: Analytical thinking, Problem-solving, Communication, and Team collaboration.

## Publications:

1. A. S. Al-Khayyat, A. A. Ouda, and M. J. Hameed, "Airflow Rate Control of Oscillating Water Column for Maximising Wave Energy Capture," e-Prime - Advances in Electrical Engineering, Electronics and Energy, vol. 12, p. 100963, Mar. 2025, [doi: https://doi.org/10.1016/j.prime.2025.100963](https://doi.org/10.1016/j.prime.2025.100963).
2. W. A. Oraibi, A. S. Al-Khayyat, and A. K. Abbas, "A hybrid stochastic-robust optimal strategy of integrated electricity and gas grids in the presence of multi-energy hubs and responsible loads," Sustainable Energy, Grids and Networks, vol. 42, p. 101697, Mar. 2025, [doi: https://doi.org/10.1016/j.segan.2025.101697](https://doi.org/10.1016/j.segan.2025.101697).
3. Hassan, W.J., Abdulrahem, H.A. and Al-Khayyat, A.S. (2024) 'Reactive power control by STATCOM quasi linear asymmetrical multilevel-based photovoltaic system', e-Prime - Advances in Electrical Engineering, Electronics and Energy, 7, p. 100438. [doi:10.1016/j.prime.2024.100438](https://doi.org/10.1016/j.prime.2024.100438).
4. Ali Salam Al-Khayyat, Mustafa Jameel Hameed, and Amel Ahmed Ridha, "Optimized Power Flow Control for PV with Hybrid Energy Storage System HESS in Low Voltage DC Microgrid," e-Prime, advances in electrical engineering, electronics and energy, vol. 6, pp. 100388–100388, Dec. 2023, [doi: https://doi.org/10.1016/j.prime.2023.100388](https://doi.org/10.1016/j.prime.2023.100388).
5. A. S. Al-Khayyat, W. Abdulrazzaq Oraibi, M. J. Hameed, and A. M. Manati, "Virtual inertia extraction from a DC bus capacitor in a three-phase DC/AC inverter-based microgrid with seamless synchronisation operation modes," Measurement: Energy, vol. 4, p. 100024, Dec. 2024, doi: <https://doi.org/10.1016/j.meane.2024.100024>.
6. A. Al-Safi, A. Al-Khayyat, A. M. Manati and L. Alhafadhi, "Advances in FPGA Based PWM Generation for Power Electronics Applications: Literature Review," 2020 11th IEEE Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON), Vancouver, BC, Canada, 2020, pp. 0252-0259, [https://doi: 10.1109/IEMCON51383.2020.9284821](https://doi.org/10.1109/IEMCON51383.2020.9284821).
7. A. S. Al-Khayyat, H. Q. Kadhem, and M. J. Hameed, "Grid power control of direct matrix converter fed three-phase induction generator," International Journal of Power Electronics and Drive Systems

(IJPEDS), vol. 14, no. 4, p. 2240, Dec. 2023, [doi: https://doi.org/10.11591/ijped.v14.i4.pp2240-2253](https://doi.org/10.11591/ijped.v14.i4.pp2240-2253).

8. M. Al-Baghdadi, A. Ridha, and A. AL-Khayyat, "The effects of climate change on photovoltaic solar production in hot regions," *Diagnostyka*, pp. 1, Aug. 2022. Accessed: Jul. 26, 2023. [Online]. Available: <https://doi.org/10.29354/diag/152276>.
9. A. Al-Safi, A. Al-Khayyat and Z. Aklah, "FPGA-Based Implementation of MSPWM Utilizing 6-Input LUT for Reference Signal Generation," 2021 IEEE 11th Annual Computing and Communication Workshop and Conference (CCWC), NV, USA, 2021, pp. 0597-0602, [https://doi: 10.1109/CCWC51732.2021.9375926](https://doi.org/10.1109/CCWC51732.2021.9375926).
10. A. Salam Al-Khayyat, A. Al-Safi, and M. Jameel Hameed, "Single-phase grid-connected power control in dq synchronous reference frame with space vector modulation using FPGA," *Indonesian J. Elect. Eng. Comput. Sci.*, vol. 30, no. 1, pp. 57, Apr. 2023. Accessed: Jul. 26, 2023. [Online]. Available: <https://doi.org/10.11591/ijeecs.v30.i1.pp57-69>.
11. A. Muhsen, A. S. Al-Khayyat, and M. J. Hameed, "Control of Matrix Converter for AC Drives by Proposed Indirect Space Vector Modulation ISVM Strategy," *J. Southwest Jiaotong Univ.*, vol. 54, no. 5, 2019. Accessed: Jul. 26, 2023. [Online]. Available: <https://doi.org/10.35741/issn.0258-2724.54.5.11>.
12. A. S. Al-Khayyat, A. K. Abed, and A. A. Ridha, "Measured and estimated wind speed of a stand-alone energy system with controlled bi-directional DC-DC battery bank," *Bull. Elect. Eng. Inform.*, vol. 12, no. 5, p. 2651–2664, Oct. 2023. Accessed: Jul. 26, 2023. [Online]. Available: <https://doi.org/10.11591/eei.v12i5.4809>.
13. Hussien Al-Hmood, A. S. Al-Khayyat, and H. S. Al-Raweshidy, "On the Fluctuating Beckmann Shadowed Composite Fading Model and Its Applications to Wireless Communications," *IEEE Transactions on Vehicular Technology*, vol. 72, no. 10, pp. 12464–12479, May 2023, doi: <https://doi.org/10.1109/tvt.2023.3275920>.
14. A. S. Al-Khayyat, A. A. Ridha, and H. Fadel, "Performance analysis of capacitor voltage balancing in modular multilevel converter by sorting algorithm," *Int. J. Power Electron. Drive Syst. (IJPEDS)*, vol. 13, no. 3, pp. 1548, Sep. 2022. Accessed: Jul. 26, 2023. [Online]. Available: <https://doi.org/10.11591/ijped.v13.i3.pp1548-1557>.
15. A. Salam Al-Khayyat, M. Jameel Hameed, and A. Muhsen Manati, "Third harmonic injection by MMC-swiss rectifier for offshore HVDC wind turbine applications," *Periodicals Eng. Natural Sci. (PEN)*, vol. 7, no. 3, pp. 952, Aug. 2019. Accessed: Jul. 26, 2023. [Online]. Available: <https://doi.org/10.21533/pen.v7i3.616>.

16. Alyaa Muhsen Manati, A. Al-Khayyat, and Z. Hasan, "Performance of DQ and PQ Current Control Techniques in Shunt Active Power Filter for Harmonic Reduction in Three-Phase System with Non-Linear Loads," *Journal of Green Engineering*, vol. 10, no. 5, pp. 2389–2407, May 2020.
17. Alyaa Muhsen Manati and A. S. Al-Khayyat, "State Space Modelling and Disturbance Evaluation for Matrix Converter Drives," *Thi-Qar University Journal for Engineering Sciences*, vol. 13, no. 1, pp. 11–24, Dec. 2023, [doi: https://doi.org/10.31663/tqujes13.1.437\(2023\)](https://doi.org/10.31663/tqujes13.1.437(2023)).

### Languages:

- ❖ English (IELTS Overall Score: 7.0)
- ❖ Completed English Language Course at the Centre for English Language Education (CELE), University of Nottingham (Jan–Sept 2013)