

Mohammad AL-jamal

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EDUCATION

The Hashemite University (HU), Zarqa, Jordan

MS. in Mechanical Engineering/ Energy Systems, 2021 – Feb 2024, GPA=3.59/4.0 - Excellent

Thesis Topic: Prediction and Classification for Mechanical Properties of Green Composite Material Using Artificial Neural Network.

Al-Balqa' Applied University (BAU), Irbid, Jordan

B.Sc. in Mechanical engineering / Production and Machinery, 2014-2019,

RESEARCH & TEACHING INTERESTS

- Prediction and Classification of Mechanical Properties in Green Composite Materials: Focused on utilizing Artificial Neural Networks to predict and classify the mechanical properties of sustainable materials.
- Energy Systems and Sustainable Technologies: Researching innovations in energy systems, including renewable energy sources and energy-efficient technologies for mechanical systems.
- Application of AI in Mechanical Engineering: Interested in exploring the integration of machine learning techniques to enhance control systems, material selection, and system optimization.
- Mechanical Design and Thermodynamics: Specializing in the design and analysis of mechanical systems with a focus on thermodynamics and fluid mechanics.
- I have extensive teaching experience across various fields of Mechanical Engineering. I am committed to introducing new approaches to teaching existing courses, with the aim of empowering students to become leaders in their respective fields. In my teaching, I emphasize critical thinking, creativity, collaboration, and communication skills, alongside developing strong problem-solving abilities. I recognize the importance of student-mentor relationships in student development, and I seek to create research opportunities for undergraduates, encouraging their participation as early as the summer after their freshman year.

WORK EXPERIENCE

Assistant Dean for Accreditation and Quality Affairs | Jadara University, Technical Faculty

November 2025 - Present

- Overseeing quality assurance and accreditation processes in alignment with university strategy and national standards.
- Promoting a culture of quality and continuous improvement across academic and administrative units.
- Preparing and supervising institutional performance and accreditation reports.
- Identifying areas for program enhancement and coordinating development initiatives.
- Leading quality-related committees, workshops, and activities to foster academic excellence.

Head of Engineering Department | Jadara University, Technical Faculty

April 2025 - Present

- Supervising academic programs in Renewable Energy and Mechanical Engineering.
- Coordinating faculty members and ensuring the quality of teaching, research, and student development.
- Contributing to strategic planning, curriculum development, and industry collaboration.
- Representing the department in university committees and external partnerships.

Lecturer | Jadara University, Technical Faculty, Department of Renewable Energy

March 2025 – Present

- Teaching undergraduate courses in renewable energy, thermodynamics, and energy systems.
- Developing course materials and supervising lab experiments in renewable energy applications.
- Advising students on research projects related to sustainable energy and green technologies.
- Engaging in curriculum development and enhancing teaching methodologies.

Research Assistant | Jordan University of Science and Technology (JUST)

Supervisor: Prof. Mohammed T. Hayajneh

Jan 2025 – Present

- Conducting research on predicting the mechanical performance of green composite materials using artificial intelligence.
- Developing and applying AI-based models, such as Artificial Neural Networks (ANN) and Support Vector Machines (SVM), to analyze composite materials.
- Collecting, processing, and analyzing experimental data to enhance predictive accuracy.
- Assisting in writing research papers and preparing conference presentations.
- Collaborating with faculty members and research teams on sustainable material innovations.

BTEC International Curriculum Teacher | Ministry of Education, Jordan.

Feb 2024 – March 2025

- Curriculum Development: Develop and implement a practical and theoretical mechanical engineering curriculum for secondary students, emphasizing project-based learning.
- Lecturing: Deliver engaging mechanical engineering lectures and workshops, covering principles, design, thermodynamics, fluid mechanics, and materials science with varied teaching methods.
- Lab Management: Manage the mechanical engineering lab, maintaining equipment and enforcing safety, including student safety training.
- Industry Engagement: Foster industry links for student internships, guest lectures, and practical project exposure, bridging academia and real-world applications.
- Student Assessment: Create and use assessment tools to measure student progress, providing personalized feedback and support for academic and personal development.

Teaching Assistant | The Hashemite University, Zarqa, Jordan.

2021 – 2024

- Supporting the lead teacher with lesson planning.
- Assisting in grading and creating instructional materials.
- Help students with classwork, homework, and assignments.
- Providing individualized instruction and support to students requiring extra assistance.
- Conducting small group instruction and one-on-one tutoring sessions.
- Monitoring and supervising students in classroom settings.
- Providing feedback to the lead teacher on student progress.

Supervisor Engineer | Jordanian Ministry of Public Works Housing, Irbid, Jordan.

2022 – 2023

- Overseeing daily operations and maintenance activities of the garages.
- Managing a team of mechanics and technicians.
- Ensuring vehicles are repaired and maintained according to established standards and procedures.
- Maintaining records of repairs and maintenance activities.
- Ensuring compliance with all safety regulations and standards.
- Ensuring proper and effective use of equipment and tools.

PUBLICATIONS

- Al-Jamal, M. Q., Alsarhan, A., Aljamal, Q., AlJamal, M., Khassawneh, B. S., Al Nuaim, A., & Al Nuaim, A. (2026). AI-enabled system-of-systems decision support: BIM-integrated AI-LCA for resilient and sustainable fiber-reinforced façade design. *Information*, 17(2), Article 126. <https://doi.org/10.3390/info17020126>
- Al-Jamal, M. Q., Alsarhan, A., AlJamal, M., Aljamal, Q., Khassawneh, B. S., Salhi, A., & Hayat, H. (2026). Integrating generative design and artificial intelligence for optimized energy-efficient composite facades in next-generation smart buildings. *Sustainability*, 18(5), Article 2379. <https://doi.org/10.3390/su18052379>
- Al-Jamal, M. Q., Aljamal, Q., Al Sadi, J., Aljaidi, M., Al-Jamal, M., Hadi, W., Farhan, M., Alsarhan, A., & Alshammari, A. A. (2026). Artificial intelligence-driven prediction of mechanical and durability properties of hemp-fiber-reinforced concrete. In *Proceedings of the 2026 2nd International Conference on Computational Intelligence Approaches and Applications (ICCIAA)* (pp. 1–8). IEEE.
- Al-Tamimi, N. Y., AlJamal, M., Al-Jamal, M. Q., Alsarhan, A., Alshammari, S. A., Alshammari, N. H., Alnafisah, K. H., & Aleinzi, M. K. (2026). An energy-aware post-quantum Ascon–ML-KEM cryptographic framework for low-latency UAV remote sensing communications. *Cryptography*, 10(3), Article 39. <https://doi.org/10.3390/cryptography10030039>
- Aljamal, M., Louzi, N., Al-Jamal, M. Q., Tahat, L., Mughaid, A., & Aljamal, Q. (2026). An uncertainty-aware computational framework for dimensional error prediction in ceramic additive manufacturing under variable material and process conditions. *Computation*, 14(7), Article 144. <https://doi.org/10.3390/computation14070144>
- Aljamal, Q., Al-Jamal, M. Q., Al Sadi, J., Aljaidi, M., Al-Jamal, M., Alsarhan, A., Farhan, M., Hadi, W., & Alshammari, A. A. (2026). Generative AI for structural design of earthquake-resistant civil–mechanical systems. In *Proceedings of the 2026 2nd International Conference on Computational Intelligence Approaches and Applications (ICCIAA)* (pp. 1–8). IEEE.
- Aljamal, Q., AlJamal, M., Al-Jamal, M. Q., Jawasreh, Z., Alsarhan, A., Alshammari, S. A., Alshammari, N. H., & Alshammari, R. R. (2025). A novel deep hybrid learning framework for structural reliability under civil and mechanical constraints. *Mathematics*, 13(23), Article 3834. <https://doi.org/10.3390/math13233834>
- Alsarhan, A., Aljaidi, M., Hadi, W., Al-Jamal, M. Q., Al-Jamal, M., Khassawneh, B., & Alshammari, A. A. (2026). Artificial intelligence-driven optimization of renewable energy systems for sustainable power generation. In *Proceedings of the 2026 2nd International Conference on Computational Intelligence Approaches and Applications (ICCIAA)* (pp. 1–8). IEEE.
- Hayajneh, M. T., Al-Oqla, F. M., & Al-Jamal, M. Q. (2026). Statistical modeling and optimization of the mechanical performance of natural fiber-reinforced polyolefin composites by applying response surface methodology. *Journal of Composite Materials*. Advance online publication. <https://doi.org/10.1177/00219983261455138>
- Louzi, N., Al-Jamal, M. Q., & AlJamal, M. (2026a). A novel simulation-based framework for predicting lane-level pavement deterioration under freight loading and stop-and-go urban traffic. *Infrastructures*, 11(7), Article 219. <https://doi.org/10.3390/infrastructures11070219>
- Louzi, N., Al-Jamal, M. Q., & AlJamal, M. (2026b). A novel simulation-oriented thermo-hydro-mechanical artificial intelligence framework for reliability assessment of energy-

embedded pavement structures. *Inventions*, 11(3), Article 60.
<https://doi.org/10.3390/inventions11030060>

- Louzi, N., Al-Jamal, M. Q., AlJamal, M., Alsarhan, A., & Alshammari, S. A. (2026). A renewable-energy resource management framework for low-carbon network-level pavement maintenance using simulation-based pavement–energy modeling and multi-agent deep reinforcement learning. *Resources*, 15(7), Article 86.
<https://doi.org/10.3390/resources15070086>
- Louzi, N., AlJamal, M., & Al-Jamal, M. Q. (2026). Learning the city’s hidden danger: A continuous hazard field intelligence framework for traffic accident emergence and urban safety prediction. *Urban Science*, 10(6), Article 300.
<https://doi.org/10.3390/urbansci10060300>
- Mughaid, A., AlJamal, M., Issa, A.-A., AlJamal, M., Alquran, R., AlZu’bi, S., & Abutabanjeh, A. A. (2023). Enhancing cybersecurity in SCADA IoT systems: A novel machine learning-based approach for man-in-the-middle attack detection. In *Proceedings of the 2023 3rd Intelligent Cybersecurity Conference (ICSC)* (pp. 74–79). IEEE.

CERTIFICATIONS

- Fundamentals of Accelerated Computing with CUDA C/C++, NVIDIA.
- Fundamentals of Deep Learning, NVIDIA.

TECHNICAL & SOFT SKILLS

SOFTWARE

- MATLAB.
- Wide experience of using Microsoft Excel, PowerPoint and Word.
- AutoCAD.
- SOLIDWORKS.
- Minitab.

COMPUTER PROGRAMMING:

- MATLAB,
- Office Software.
- latex.
- Minitab.

PERSONAL SKILLS

- Excellent at organizing and leading research teams based on the most popular fields of study.
- Excellent in applying AI and Material Selection concepts to real-world research situations.
- Excellent in applying AI in Control Systems concepts to real-world research situations.

LANGUAGES

- English: proficient.
- Arabic: Native.

REFERENCES:

- Prof. Mohammed T. Hayajneh
Position: Professor, JUST
E-mail: hayajneh@just.edu.jo
- Dr. Rami Ahmad Al-jarrah
Position: Associate Professor, HU
E-mail: ramia@hu.edu.jo
- Prof. Faris AL-Oqla
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