



MAZEN J. AL-KHEETAN

ASSISTANT PROFESSOR IN CIVIL ENGINEERING

◦ DETAILS ◦

mazen.al-kheetan@mutah.edu.jo

Date of birth
19/04/1988

Nationality
Jordanian

◦ LINKS ◦

[SCOPUS](#)
[Google Scholar](#)

[ORCID](#)

[LinkedIn](#)

◦ SKILLS ◦

AutoCAD

Matlab

PRIMAVERA P3

SPSS

◦ LANGUAGES ◦

Arabic

English

👤 PROFILE

Assistant Professor with a PhD in Civil Engineering and over 5 years of academic teaching and research experience in the Civil and Environmental Engineering Department at Mutah University. Authored/co-authored over 50 peer-reviewed international journal and conference articles, with research interests that include low-carbon cementitious materials, additive manufacturing, sustainable material development, pavement and asphalt materials, and machine learning in construction. Supervised +10 BEng dissertations and three master's theses, and co-supervised (external supervisor) two PhD theses. An Associate Editor at Results in Engineering Journal (Elsevier) and the Proceedings of the Institution of Civil Engineers - Transport (ICE).

🎓 EDUCATION

PhD in Civil Engineering, Brunel University London, UK

March 2016 — July 2019

MSc. in Civil Engineering, The University of Nottingham, UK

September 2014 — September 2015

BEng in Civil Engineering, Mutah University, Jordan

September 2007 — August 2011

🔒 EMPLOYMENT HISTORY

Assistant Professor in Civil Engineering at College of Engineering, Mutah University, Jordan

August 2019 — Present

Assistant Dean of Quality Assurance at College of Engineering, Mutah University, Jordan

October 2023 — Present

Head of the Civil and Environmental Engineering Department at the College of Engineering, Mutah University, Jordan

September 2020 — September 2021

Research and Teaching Assistant at the Civil and Environmental Engineering Department, Brunel University London, UK

March 2016 — July 2019

Project Engineer at Habash-Deir Contracting Company, Jordan

September 2011 — August 2014

- Queen Alia International Airport Expansion Project

- Abdali Mall Project

Trainee Civil Engineer at Arabian Construction Company, Jordan

June 2011 — August 2011

Rotana Hotel Project

👤 INSTITUTIONAL SERVICES

Head of the E-learning committee of the College of Engineering

Member of the ABET accreditation preparatory committee of the College of Engineering

Member of the curriculum committee of the Civil and Environmental Engineering Department

Member of the tendering committee of the College of Engineering

Member of the quality assurance committee of the Civil and Environmental Engineering Department

👤 EDITORIAL ACTIVITIES

Associate Editor at Results in Engineering journal (Elsevier)

June 2023 — Present

Associate Editor at the Proceedings of the Institution of Civil Engineers - Transport (ICE)

August 2020 — Present

Editorial Board Member at the International Journal of Pavement Research and Technology (Springer)

September 2021 — Present

Journal Refereeing

Regular reviewer for the following selected journals: International Journal of Pavement Engineering (Taylor & Francis), ACI Materials Journal, Journal of Materials in Civil Engineering (ASCE), International Journal of Pavement Research and Technology (Springer), Scientific Reports (Nature), Journal of Building Engineering (Elsevier), Construction and Building Materials (Elsevier), Royal Society Open Science (The Royal Society), KSCE Journal of Civil Engineering (Springer), JOM The Journal of The Minerals, Metals & Materials Society (Springer), Structural Concrete (Wiley), Transportation Research Record (SAGE), ACS Applied Materials & Interfaces, ACS Omega, Building Research and Information (Taylor & Francis), SN Applied Sciences (Springer), Transactions of Nonferrous Metals Society of China (Elsevier), Iranian Journal of Science and Technology- Transactions of Civil Engineering (Springer), Advances in Materials Science and Engineering (Hindawi), Advances in Concrete Construction (Techno-Press), Computers and Concrete (Techno-Press), Nanomaterials (MDPI), Materials (MDPI), Buildings (MDPI), Applied Sciences (MDPI), Infrastructures (MDPI), Sustainability (MDPI), Symmetry (MDPI), Crystals (MDPI).

★ FUNDED PROJECTS

Recycling of Materials Industrial Waste into a New Composite Alloy Using Sintering Technique

June 2021 — June 2024

- Funder: Mutah University

- Project value: \$250,000

★ PUBLISHED RESEARCH

[Google Scholar](#) | Citations 1276; h-index:22 (Until July 2024)

[SCOPUS](#) | Citations 978; h-index:21 (Until July 2024)

Journal Articles

1. Albayati, A.H., Al-Ani, A.F., Byzyka, J., **Al-Kheetan, M.J.**, and Rahman, M. (2024). Enhancing Asphalt Performance and its Long-term Sustainability with Nano Calcium Carbonate and Nano Hydrated Lime. *Sustainability*, 16(4), p. 1507.
2. Byzyka, J., Davie, H., **Al-Kheetan, M.J.**, and Rahman, M. (2024). A Study on Cold Laid Microsurfacing Containing Water-Based Epoxy Modified Bitumen Emulsion. *International Journal of Pavement Research and Technology*, 17(4), pp. 1047-1058.
3. El-Seidy, E., Chougan, M., Al-Noaimat, Y.A., **Al-Kheetan, M.J.**, and Ghaffar, S.H. (2024). The impact of waste brick and geo-cement aggregates as sand replacement on the mechanical and durability properties of alkali-activated mortar composites. *Results in Engineering*, 21, p. 101797.
4. **Al-Kheetan, M.J.**, Jweihan, Y.S., Rabi, M., and Ghaffar, S.H. (2024). Durability Enhancement of Concrete with Recycled Concrete Aggregate: The Role of Nano-ZnO. *Buildings*, 14(2), p. 353.
5. Momani, Y., Alawadi, R., Jweihan, Y.S., Tarawneh, A.N., **Al-Kheetan, M.J.**, and Aldiabat, A. (2024). Machine learning-based evaluation of punching shear resistance for steel/FRP-RC slabs. *Ain Shams Engineering Journal*, 15(5), 102668.
6. Al Swalqah, R.A., **Al-Kheetan, M.J.**, Al-Hamaiedeh, H., and Jweihan, Y.S. (2023). Synergistic Effect of Treated Polypropylene-Based Disposable Face Masks on Durability and Mechanical Properties of Concrete. *Arabian Journal for Science and Engineering* (Published online, In-press).
7. El-Seidy, E., Sambucci, M., Chougan, M., Al-Noaimat, Y.A., **Al-Kheetan, M.J.**, Biblioteca, I., Valente, M., and Ghaffar, S.H. (2023). Alkali activated materials with recycled unplasticised polyvinyl chloride aggregates for sand replacement. *Construction and Building Materials*, 409, p. 134188.
8. Al-Jrajreh, S.S., Al-Hamaiedeh, H., **Al-Kheetan, M.J.**, Jweihan, Y.S., and Aljaafreh, T. (2023). Improvement of ornamental stone wastes as sand replacement in concrete using silane coupling agent. *Results in Engineering*, 20, p. 101580.
9. Al-Noaimat, Y.A., Chougan, M., Albar, A., Skibicki, S., Federowicz, K., Hoffman, M., Sibera, D., Cendrowski, K., Techman, M., Pacheco, J.N., Chung, S.Y., Sikora, P., **Al-Kheetan, M.J.**, and Ghaffar, S.H. (2023). Recycled brick aggregates in one-part alkali-activated materials: Impact on 3D printing performance and material properties. *Developments in the Built Environment*, 16, p. 100248.

10. Jweihan, Y.S., **Al-Kheetan, M.J.**, Rabi, M. (2023). Empirical Model for the Retained Stability Index of Asphalt Mixtures Using Hybrid Machine Learning Approach. *Applied System Innovation*, 6(5), p. 93.
11. Al-Noaimat, Y.A., Chougan, M., **Al-Kheetan, M.J.**, Yio, M.H.N., Wong, H.S., and Ghaffar, S.H. (2023). Upcycling end-of-life bricks in high-performance one-part alkali-activated materials. *Developments in the Built Environment*, 16, p. 100231.
12. **Al-Kheetan, M.J.** (2023). Waste Not, Want Not: Sustainable Use of Anti-Stripping-Treated Waste Ceramic in Superpave Asphalt Mixtures. *Sustainability*, 15(9), p. 7579.
13. Bayaidah, R.H., Habashneh, A.O., Al-Ma'aithah, S.H., Alfahajin, M.S., **Al-Kheetan, M.J.**, Jweihan, Y.S., Alrwashdeh, S.S., Al-Hamaiedeh, H., and Ghaffar, S.H. (2023). Utilisation of raw oil shale as fine aggregate to replace natural sand in concrete: Microstructure, surface chemistry and macro properties. *Results in Engineering*, 19, p. 101265.
14. Al-Noaimat, Y.A., Chougan, M., **Al-Kheetan, M.J.**, Al-Mandhari, O., Al-Saidi, W., Al-Maqbali, M., Al-Hosni, H., and Ghaffar, S.H. (2023). 3D printing of limestone-calcined clay cement: A review of its potential implementation in the construction industry. *Results in Engineering*, 18, p. e01818.
15. Lamastra, F.R., Montesperelli, G., Galvanetto, E., Chougan, M., Ghaffar, S.H., **Al-Kheetan, M.J.**, and Bianco, A. (2023). An Insight into Durability, Electrical Properties and Thermal Behavior of Cementitious Materials Engineered with Graphene Oxide: Does the Oxidation Degree Matter? *Nanomaterials*, 13(4), pp. 726.
16. El-Seidy, E., Chougan, M., Sambucci, M., **Al-Kheetan, M.J.**, Biblioteca, I., Valente, M., and Ghaffar, S.H. (2023). Lightweight alkali-activated materials and ordinary Portland cement composites using recycled polyvinyl chloride and waste glass aggregates to fully replace natural sand. *Construction and Building Materials*, 368, p. 130399.
17. **Al-Kheetan, M.J.** (2023). Performance improvement of hemp-shiv cementitious composites through hot water and steam treatment. *Construction and Building Materials*, 367, p. 130315.
18. Al-Noaimat, Y.A., Chougan, M., Ghaffar, S.H., and **Al-Kheetan, M.J.** (2023). A review of 3D printing low-carbon concrete with one-part geopolymer: Engineering, environmental and economic feasibility. *Case Studies in Construction Materials*, 18, p. e01818.
19. Chougan, M., Ghaffar, S.H., and **Al-Kheetan, M.J.** (2023). Graphene-based nano-functional materials for surface modification of wheat straw to enhance the performance of bio-based polylactic acid composites. *Materials Today Sustainability*, 21, p. 100308.
20. Chougan, M., Lamastra, F.R., Caschera, D., Kaciulis, S., Bolli, E., Mazzuca, C., Ghaffar, S.H., **Al-Kheetan, M.J.**, Montesperelli, G., and Bianco, A. (2023). Cementitious nanocomposites engineered with high-oxidized graphene oxide: Spotting the nano to macro correlation. *Ceramics International*, 49(1), pp. 964-973.

21. Jweihan, Y.S., Romanoschi, S.A., **Al-Kheetan, M.J.**, Tarawneh, A., Momani, Y., Alrwashdeh, S.S., and Grujicic, M.J. (2023). Improvements to the Duplicate Shear Test (DST) Device for Measuring the Fundamental Shear Properties of Asphalt Concrete Mixes. *International Journal of Pavement Research and Technology*, 16, pp. 1255-1266.
22. Al-Raqeb, H., Ghaffar, S.H., **Al-Kheetan, M.J.**, and Chougan, M. (2023). Understanding the Challenges of Construction Demolition Waste Management towards Circular Construction: Kuwait Stakeholder's Perspective. *Cleaner Waste Systems*, 4, p. 100075.
23. **Al-Kheetan, M.J.** (2022). Properties of lightweight pedestrian paving blocks incorporating wheat straw: Micro- to macro-scale investigation. *Results in Engineering*, 16, p. 100758.
24. Al-Awabdeh, F.W., **Al-Kheetan, M.J.**, Jweihan, Y.S., Al-Hamaiedeh, H., and Ghaffar, S.H. (2022). Comprehensive investigation of recycled waste glass in concrete using silane treatment for performance improvement. *Results in Engineering*, 16, p. 100790.
25. Alrwashdeh, S.S., Ammari, H., Jweihan, Y.S., Abu Qadourah, J., **Al-Kheetan, M.J.**, and Al-Falahat, A.M. (2022). Refurbishment of Existing Building toward a Surplus Energy Building in Jordan. *The Open Construction and Building Technology Journal*, 16, pp. 1-13.
26. Chougan, M., Ghaffar, S.H., Nematollahi, B., Sikora, P., Dorn, T., Stephan, D., Albar, A., and **Al-Kheetan, M.J.** (2022). Effect of natural and calcined halloysite clay minerals as low-cost additives on the performance of 3D-printed alkali-activated materials. *Materials & Design*, 223, p. 111183.
27. El-Seidy, E., Sambucci, M., Chougan, M., **Al-Kheetan, M.J.**, Biblioteca, I., Valente, M., and Ghaffar, S.H. (2022). Mechanical and physical characteristics of alkali-activated mortars incorporated with recycled polyvinyl chloride and rubber aggregates. *Journal of Building Engineering*, 60, p. 105043.
28. Yousuf, H., **Al-Kheetan, M.J.**, Rahman, M.M., Ghaffar, S.H., Braimah, N., and Chamberlain, D.A. (2022). Introducing a novel concept of wick drainage in masonry structures. *Journal of Building Engineering*, 51, p. 104332.
29. **Al-Kheetan, M.J.**, Azim, T., Byzyka, J., Ghaffar, S.H., and Rahman, M.M. (2022). Performance of magnetite-based stone mastic asphalt (SMA) as a superior surface course material. *Construction and Building Materials*, 322, p. 126463.
30. Jweihan, Y.S., Romanoschi, S.A., Grujicic, M.J., Talebsafa, M., Popescu, C., Coca, A.M., and **Al-Kheetan, M.J.** (2022). Development of Shear Tester with Normal Stress (STNS) for Asphalt Concrete Mixes. *International Journal of Pavement Research and Technology*, 15(5), pp. 1093-1105.
31. Chougan, M., Lamastra, F.R., Bolli, E., Caschera, D., Kaciulis, S., Mazzuca, C., Montesperelli, G., Ghaffar, S.H., **Al-Kheetan, M.J.**, and Bianco, A. (2021). Extra-low dosage graphene oxide cementitious nanocomposites: a nano- to macroscale approach. *Nanomaterials*, 11(12), p. 2378.

32. Al-Zu'bi, M., Fan, M., Al Rjoub, Y., Ashteyat, A., **Al-Kheetan, M.J.**, and Anguilano, L. (2021). The effect of length and inclination of carbon fiber reinforced polymer laminates on shear capacity of near-surface mounted retrofitted reinforced concrete beams. *Structural Concrete*, 22(6), pp. 3677-3691.
33. **Al-Kheetan, M.J.**, Ghaffar, S.H., Awad, S., Chougan, M., Byzyka, J., and Rahman, M.M. (2021). Microstructural, Mechanical and Physical Assessment of Portland Cement Concrete Pavement Modified by Sodium Acetate under Various Curing Conditions. *Infrastructures*, 6(8), p. 113.
34. **Al-Kheetan, M.J.**, Byzyka, J., and Ghaffar, S.H. (2021). Sustainable Valorisation of Silane-treated Waste Glass Powder in Concrete Pavement. *Sustainability*, 13(9), p. 4949.
35. Lamastra, F.R., Chougan, M., Marotta, E., Ciattini, S., Ghaffar, S.H., Caporali, S., Vivio, F., Montesperelli, G., Ianniruberto, U., **Al-Kheetan, M.J.**, and Bianco, A. (2021). Toward a better understanding of multifunctional cement-based materials: The impact of graphite nanoplatelets (GNPs). *Ceramics International*, 47(14), pp. 20019-20031.
36. **Al-Kheetan, M.J.**, Al-Tarawneh, M., Ghaffar, S.H., Chougan, M., Jweihan, Y.S., and Rahman, M.M. (2021). Resistance of Hydrophobic Concrete Pavement with Different Moisture Contents to Advanced Freeze-thaw Cycles. *Structural Concrete*, 22, pp. E1050-E1061.
37. **Al-Kheetan, M.J.**, Rahman, M.M., and Chamberlain, D.A., (2020). Moisture evaluation of concrete pavement treated with hydrophobic surface impregnants. *International Journal of Pavement Engineering*, 21(14), pp. 1746-1754.
38. Chougan, M., Ghaffar, S.H., **Al-Kheetan, M.J.**, and Gecevicius, M. (2020). Wheat straw pre-treatments using eco-friendly strategies for enhancing the tensile properties of bio-based polylactic acid composites. *Industrial Crops and Products*, 155, p. 112836.
39. Albar, A., Chougan, M., **Al-Kheetan, M.J.**, Swash, M.R. and Ghaffar, S.H., (2020). Effective extrusion-based 3D printing system design for cementitious-based materials. *Results in Engineering*, 6, p. 100135.
40. **Al-Kheetan, M.J.**, Rahman, M.M., Ghaffar, S.H., Al-Tarawneh, M. and Jweihan, Y.S., (2020). Comprehensive Investigation of the Long-term Performance of Internally Integrated Concrete Pavement with Sodium Acetate. *Results in Engineering*, 6, p. 100110.
41. Chougan, M., Marotta, E., Lamastra, F., Vivio, F., Montesperelli, G., Ianniruberto, U., Ghaffar, S.H., **Al-Kheetan, M.J.**, and Bianco A., (2020). High performance cementitious nanocomposites: the effectiveness of nano-Graphite (nG). *Construction and Building Materials*, 259, p. 119687.
42. Ghaffar, S.H., **Al-Kheetan, M.J.**, Ewens, P., Wang, T., and Zhuang, J., (2020). Investigation of the Interfacial Bonding Between Flax/wool twine and Various Cementitious Matrices in Mortar Composites. *Construction and Building Materials*, 239, p. 117833.

43. **Al-Kheetan, M.J.**, Ghaffar, S.H., Madyan, O.A., and Rahman, M.M., (2020). Development of Low Absorption and High-Resistant Sodium Acetate Concrete for Severe Environmental Conditions. *Construction and Building Materials*, 230, p. 117057.
44. **Al-Kheetan, M.J.**, Rahman, M.M., and Chamberlain, D.A., (2019). Optimum Mix Design for Internally Integrated Concrete with Crystallizing Protective Material. *ASCE Journal of Materials in Civil Engineering*, 31(7), p. 04019101.
45. **Al-Kheetan, M.J.**, and Rahman, M.M., (2019). Integration of Anhydrous Sodium Acetate (ASAc) into fresh concrete to improve resistance against harmful impact of de-icing salt in concrete pavement. *JOM Journal of the Minerals, Metals & Materials Society*, 71(12), pp. 4899-4909.
46. **Al-Kheetan, M.J.**, Rahman, M.M., and Chamberlain, D.A., (2019). Fundamental Interaction of Hydrophobic Materials with Concrete with Different Moisture Contents in Saline Environment. *Construction and Building Materials*, 207, pp. 122-135.
47. **Al-Kheetan, M.J.**, Rahman, M.M., Balakrishna, M.N., and Chamberlain, D.A., (2019). Performance Enhancement of Self-Compacting Concrete in Saline Environment by Hydrophobic Surface Protection. *Canadian Journal of Civil Engineering*, 46(8), pp. 677-686.
48. **Al-Kheetan, M.J.**, Rahman, M.M., and Chamberlain, D.A., (2018). Development of hydrophobic concrete by adding dual-crystalline admixture at mixing stage. *Structural Concrete*, 9(5), pp. 1504-1511.
49. **Al-Kheetan, M.J.**, Rahman, M.M., and Chamberlain, D.A., (2018). A Novel Approach of Introducing Crystalline Protection Material and Curing Agent in Fresh Concrete for Enhancing Hydrophobicity. *Construction and Building Materials*, 160, pp.644-652.
50. **Al-Kheetan, M.J.**, Rahman, M.M., and Chamberlain, D.A., (2018). Remediation and Protection of Masonry Structures with Crystallising Moisture Blocking Treatment. *International Journal of Building Pathology and Adaptation*, 36(1), pp. 77-92.
51. **Al-Kheetan, M.J.**, Rahman, M.M., and Chamberlain, D.A., (2017). Influence of Early Water Exposure on Modified Cementitious Coating. *Construction and Building Materials*, 141, pp.64-71.

Book Chapters

52. Ghaffar, S.H., Al-Noaimat, Y., Chougan, M., and **Al-Kheetan, M.J.** (2024). Emerging resources for the development of low-carbon cementitious composites for 3D printing applications. In: Ashour, A., Wang, X., Han, B. (eds) *Sustainable Concrete Materials and Structures*. Woodhead Publishing Series in Civil and Structural Engineering. Cambridge, MA. <https://doi.org/10.1016/B978-0-443-15672-4.00013-9>
53. Byzyka, J., **Al-Kheetan, M.J.**, and Rahman, M. (2024). A pilot laboratory study on hot mix micro surfacing. In: Nikolaidis, A.F., Manthos, E. (eds) *Bituminous Mixtures and Pavements VIII*. CRC Press. <https://doi.org/10.1201/9781003402541-29>

54. Chougan, M., **Al-Kheetan, M.J.**, Ghaffar, S.H. (2023). Additive Manufacturing and the Construction Industry. In: Lynn, T., Rosati, P., Kassem, M., Krinidis, S., Kennedy, J. (eds) *Disrupting Buildings*. Palgrave Studies in Digital Business & Enabling Technologies. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-32309-6_7

Conferences

55. **Al-Kheetan, M.J.**, Rahman, M.M, and Ghaffar, S.H., (2020). Advanced Freeze-Thaw Assessment of Internally Integrated Concrete Pavement with Sodium Acetate. *International Conference on Civil Infrastructure and Construction (CIC 2020)*. Doha, Qatar, 2-5 February, DOI: <https://doi.org/10.29117/cic.2020.0041>
56. **Al-Kheetan, M.J.**, Rahman, M.M., and Chamberlain, D.A., (2018). The Influence of Near-Surface Moisture and Specimen Thickness on Concrete Protection Treatment. *Transportation Research Board 97th Annual Meeting*, Washington, D.C., United States, 7-11 January.
57. **Al-Kheetan, M.J.**, Rahman, M.M., and Chamberlain, D.A., (2017). Comparative Study of Different Hydrophobic Materials in Concrete Pavement Protection. *The 8th International Conference on Water Repellent Treatment and Protective Surface Technology for Building Materials (Hydrophobe VIII)*. Hong Kong, China, 7-9 December, <http://www.hydrophobe.org/pdf/hongkong/A-2-4>
58. **Al-Kheetan, M.J.**, Rahman, M.M., and Chamberlain, D.A., (2017). Influence of Crystalline Admixture on Fresh Concrete to Develop Hydrophobicity. *Transportation Research Board 96th Annual Meeting*, Washington, D.C., United States, 8-12 January.
59. **Al-Kheetan, M.J.**, Rahman, M.M., and Chamberlain, D.A., (2017). Influence of Hydrophobic Admixture and Curing Agent on Water Resistant Concrete. *Transportation Research Board 96th Annual Meeting*, Washington, D.C., United States, 8-12 January.

★ TEACHING PROFILE

- Construction Materials and Concrete Properties
- Pavement Design
- Highway Engineering
- Surveying for Engineers
- Engineering Economy
- Engineering Drawing
- Engineering Drawing with Computer Aiding Programs
- Highway Engineering lab
- Construction Materials and Concrete Properties lab

★ HONORS

- Highly cited researchers' award, Mutah University (2019, 2020, 2021, and 2022)
- Emerald Literati 2019 Highly Commended Award

- One of the most-read papers in Structural Concrete Journal (2018 and 2019)
- Vice-Chancellor's travel prize – Brunel University London (Twice)
- Government Scholarship to complete PhD study
- Mutah University President's list
- Mutah University Dean's list (three times)

★ MEDIA INTEREST

Asharq Al-Awsat Newspaper

July 2019

[Scientists Create New Salt-Resistant Concrete](#)

Bridge Design & Engineering

July 2019

[Research team develops new salt-resistant concrete mix](#)

International Society for Concrete Pavements

August 2019

[Univ. of London Researchers Pave the Way to Salt-Resistant Concrete](#)

European Coatings

December 2017

[Enhancing the Hydrophobicity of Concrete in Harsh Conditions](#)

Phys.org

December 2017

[Novel Approach to Concrete Protection Slows Deterioration in Harsh Conditions](#)

📄 REFERENCES

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