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Aamar Danish

Ph.D. Candidate, Materials Science, Engineering, and Commercialization

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A. EDUCATION

- **Ph.D.** (2022-Present), Texas State University, USA, **Materials Science, Engineering, and Commercialization**. CGPA: 4.0/4.0 (Expected graduation: Fall 2024)
    - Dissertation topic: Extending aluminosilicate material horizons: Evaluating the impact of reclaimed fly ash on the performance, environmental impact, and economic viability of geopolymers using different curing regimes, waste materials, and fibers
- **MSc.** (2018-2020), Cyprus International University, Turkey, **Civil Engineering**. CGPA: 3.81/4.0
    - Dissertation topic: Influence of cenospheres on mechanical and durability properties of high-performance cement mortar under different curing regimes.
- **BSc.** (2014-2018), University of Engineering & Technology Taxila, Pakistan, **Civil Engineering**. CGPA: 3.85/4.0
    - Dissertation topic: Development of 1-D shake table and investigation of soil structure interaction under real earthquake waves.

Additional Courses

- Massachusetts Institute of Technology (MIT), Structure of Materials, Verified ID: 624cd635d11c4edea43a56d18579b07c
- The University of Tokyo, Sustainability Science – A Key Concept for Future Design, Verified ID: 155a8b211ab84eb290f269901f965646
- Duke University, Nano Technology: A maker's Course, Verified ID: https://coursera.org/share/d8cb6b47851475a4728d5884232f4b43
- Delft University of Technology, Waste Management and Critical Raw Materials, Verified ID: 010bc97916db4a30b0755c5809958317

B. EXPERIENCE

- **Doctoral Instructional Assistant** (2023-2024), Texas State University, USA.
    - Assisting my advisor with current research projects related to sustainable cementitious composites.
- **Doctoral Assistant** (2021-2023), Texas State University, USA.
    - Worked on preparing grant proposals for the National Science Foundation, American Concrete Institute, etc.

- **Lecturer** (2020-2021), National University of Modern Languages, Rawalpindi, Pakistan.
    - Teaching: (1) Taught different subjects (such as CE-310: Transportation Engineering I, CE-401: Environmental Engineering I, CE-407: Structural Engineering, and CE-409: Analysis and Design of Structures) to sophomore, junior, and senior students in the civil engineering program. (2) Supervised laboratory sessions for the mentioned subjects to provide hands-on experience to the students.
    - Final year project supervisor: Supervised final year project of undergraduate students related to mechanical and durability properties of electronic waste plastic-based concrete.
    - Outcome-based education (OBE) committee member: (1) Assessed the attainment of program learning outcomes (PLOs) at student and cohort levels at the end of every semester. (2) Ran continuous quality improvement (CQI) to implement corrective actions (if required). Prepared and compiled a self-assessment report (SAR) with other committee members for Pakistan Engineering Council (PEC) accreditation.
    - Student coordinator: (1) Provided guidance and support to students in solving their concerns and academic issues. (2) Organized events such as seminars, workshops, and industrial visits to promote student engagement and learning.
- **Research Assistant** (2018-2020), Cyprus International University, Turkey, Civil Engineering.
    - Assisted my advisor with research projects related to waste-based cementitious composites.
- **Student Intern** (July 2017- August 2017), Frontier Works Organization, Lahore, Pakistan.
    - Learned about the construction materials and practices involved in constructing a six-lane expressway in Lahore, Pakistan. Closely observed the construction of different infrastructure assets such as culverts, bridges, and service roads.

C. ACTIVITIES

i. Funded Proposals

- 2023-Present: "Artificial intelligence-based software package for end-to-end structural health monitoring of infrastructure systems" National Science Foundation (NSF) I-Corps, (Entrepreneurial Lead), USD 50,000.
- September-December 2022: "Artificial intelligence-based software package for end-to-end structural health monitoring of infrastructure systems" National Science Foundation (NSF) I-Corps, (Entrepreneurial Lead), USD 5,000.
- 2017-2018: "Manufacturing of an economical one-dimensional (1-D) shake table for academic and commercial use" University of Engineering & Technology Taxila, Pakistan (PI), PKR 300,000.

ii. Honors, Awards, and Acknowledgements

- **Best Poster Award**, American Concrete Institute (ACI) Convention (New Orleans). Poster Title: Extending aluminosilicate material horizons: Cleaner production and performance assessment of reclaimed fly ash-modified geopolymers.
- **Best Paper Award**, Second International Conference on Construction Materials and Structures. Paper title: Impact of nano-silica on the mechanical properties of mortar containing e-waste plastic as fine aggregates.
- **Media Coverage**, Texas State Newsroom (Research and Innovation), Research Identifies Obstacles to Construction Industry's Embrace of "Internet of Things".
- **Best Final Year Project**, BSc Project, To design/manufacture 1-D shake table and study earthquake response of different soil on residential buildings, University of Engineering & Technology Taxila, Pakistan.
- **Bronze Medal**, Appreciable performance in BSc Civil Engineering, University of Engineering & Technology Taxila, Pakistan.
- **Laptop**, Outstanding academic performance in BSc, Minister of Planning and Development, Pakistan.

iii. Memberships

- **Vice President** (2023-Present), Materials Research Society (MRS) Student Chapter at Texas State University.
- **Organizing Committee Member** (2023), 2nd International Conference on Advances in Civil and Environmental Engineering (ICACEE-2023), University of Engineering & Technology Taxila, Pakistan.

iv. Editorial Responsibilities

- **Editorial Member** (2022-Present), Sustainable Structures and Materials, An International Journal.

v. Invited Review Activities

- **Reviewer** for 12+ SCI journals, including Renewable and Sustainable Energy Reviews, Construction and Building Materials, Journal of Materials Science, World Journal of Engineering, Minerals, Buildings, Journal of Composites Science, Sustainability, Infrastructures, Cleaner Materials, Cleaner and Responsible Consumption, Biochar, Emergent Materials, etc.

D. PUBLICATIONS

i. Journal Articles

- Salim, M. U., **Danish, A**., Torres, A. S., & Moro, C. (2025). Environmental assessment of cenosphere and GGBFS-based geopolymers: A path to greener construction materials.

Environmental Impact Assessment Review, 110, 107711. https://doi.org/10.1016/j.eiar.2024.107711

- **Danish, A**., Torres, A. S., Moro, C., & Salim, M. U. (2024). Hope or hype? Evaluating the environmental footprint of reclaimed fly ash in geopolymer production. Resources, Conservation and Recycling, 205, 107564. https://doi.org/10.1016/j.resconrec.2024.107564

- **Danish, A**., & Torres, A. S. (2024). Geopolymerization of non-metallic fractions of electronic waste: A sustainable disposal strategy?. Current Opinion in Green and Sustainable Chemistry, 100930. https://doi.org/10.1016/j.cogsc.2024.100930

- Bayraktar, O. Y., **Danish, A**., Bodur, B., Kaplan, G., Aydın, A. C., & Ozbakkaloglu, T. (2024). Performance assessment of fiber-reinforced coral aggregate-based lightweight foam concrete for sustainable marine construction. Construction and Building Materials, 449, 138368. https://doi.org/10.1016/j.conbuildmat.2024.138368

- **Danish, A**., Çelebi, O., Bayrak, B., Kaplan, G., Aydın, A. C., & Ozbakkaloglu, T. (2024). Performance assessment of quaternary-blended geopolymers under different curing temperatures. Journal of Building Engineering, 95, 110115. https://doi.org/10.1016/j.jobe.2024.110115

- Sutcu, M., Faisal, M. S., **Danish, A**., Erdogmus, E., Gencel, O., & Ozbakkaloglu, T. (2024). Preparation and performance evaluation of waste tuff-modified bricks for sustainable built environment: Effect of firing temperature and molding pressure. Construction and Building Materials, 420, 135438. https://doi.org/10.1016/j.conbuildmat.2024.135438

- Gencel, O., **Danish, A**., Yilmaz, M., Erdogmus, E., Sutcu, M., Sadak, F., & Ozbakkaloglu, T. (2024). Performance evaluation of phosphor-based luminescent bricks using different coating methods. Renewable and Sustainable Energy Reviews, 191, 113868. https://doi.org/10.1016/j.rser.2023.113868

- Sarkaz, A. M. H., **Danish, A**., Memiş, S., Yaprak, H., Gencel, O., & Ozbakkaloglu, T. (2024). Performance assessment and economic and ecological analysis of carbon-negative recycled crumb rubber-based geopolymers. Journal of Cleaner Production, 434, 139842. https://doi.org/10.1016/j.jclepro.2023.139842

- **Danish, A**., Öz, A., Bayrak, B., Kaplan, G., Aydın, A. C., & Ozbakkaloglu, T. (2023). Performance evaluation and cost analysis of prepacked geopolymers containing waste marble powder under different curing temperatures for sustainable built environment. Resources, Conservation and Recycling, 192, 106910. https://doi.org/10.1016/j.resconrec.2023.106910

- Alnkaa, A. A., **Danish, A**., Yaprak, H., Memiş, S., Gencel, O., Amran, M., & Ozbakkaloglu, T. (2023). Performance evaluation and cost analysis of ternary blended geopolymers for sustainable built environment under different curing regimes. Construction and Building Materials, 409, 133842. https://doi.org/10.1016/j.conbuildmat.2023.133244

- Salim, M. U., Mosaberpanah, M. A., **Danish, A**., Ahmad, N., Khalid, R. A., & Moro, C. (2023). Role of bauxite residue as a binding material and its effect on engineering properties of cementitious Composites: A review. Construction and Building Materials, 409, 133844. https://doi.org/10.1016/j.conbuildmat.2023.133844

- Khurshid, K., **Danish, A**., Salim, M. U., Bayram, M., Ozbakkaloglu, T., & Mosaberpanah, M. A. (2023). An In-Depth Survey Demystifying the Internet of Things (IoT) in the Construction Industry: Unfolding New Dimensions. Sustainability, 15(2), 1275. https://doi.org/10.3390/su15021275

- **Danish, A**., Mosaberpanah, M. A., Ozbakkaloglu, T., Salim, M. U., Khurshid, K., Bayram, M., ... & Qader, D. N. (2023). A compendious review on the influence of e-waste aggregates on the properties of concrete. Case Studies in Construction Materials, 18, e01740. https://doi.org/10.1016/j.cscm.2022.e01740

- **Danish, A**., & Mosaberpanah, M. A. (2022). The potential of unperforated cenosphere as an internal curing agent in fly ash-cement mortar. Advances in Concrete Construction, 14(4), 241-251. https://doi.org/10.12989/acc.2022.14.4.241

- **Danish, A**., & Ozbakkaloglu, T. (2022). Greener cementitious composites incorporating sewage sludge ash as cement replacement: A review of progress, potentials, and future prospects. Journal of Cleaner Production, 133364. https://doi.org/10.1016/j.jclepro.2022.133364

- **Danish, A**., Totiç, E., Bayram, M., Sütçü, M., Gencel, O., Erdoğmuş, E., & Ozbakkaloglu, T. (2022). Assessment of Mineralogical Characteristics of Clays and the Effect of Waste Materials on Their Index Properties for the Production of Bricks. *Materials*, *15*(24), 8908. https://doi.org/10.3390/ma15248908

- **Danish, A**., Khurshid, K., Mosaberpanah, M. A., Ozbakkaloglu, T., & Salim, M. U. (2022). Microstructural characterization, driving mechanisms, and improvement strategies for interlayer bond strength of additive-manufactured cementitious composites: A review. Case Studies in Construction Materials, e01217. https://doi.org/10.1016/j.cscm.2022.e01217

- **Danish, A**., Ozbakkaloglu, T., Mosaberpanah, M. A., Salim, M. U., Bayram, M., Yeon, J. H., & Jafar, K. (2022). Sustainability benefits and commercialization challenges and

strategies of geopolymer concrete: A review. Journal of Building Engineering, 105005. https://doi.org/10.1016/j.jobe.2022.105005

- Gencel, O., Sarı, A., Subasi, S., Bayram, M., **Danish, A**., Marasli, M., ... & Ozbakkaloglu, T. (2022). Light transmitting glass fiber reinforced cementitious composite containing microencapsulated phase change material for thermal energy saving. Construction and Building Materials, 359, 129467. https://doi.org/10.1016/j.conbuildmat.2022.129467

- Gencel, O., **Danish, A**., Yilmaz, M., Erdogmus, E., Sutcu, M., Ozbakkaloglu, T., & Gholampour, A. (2022). Experimental evaluation of the luminescence performance of fired clay brick coated with SrAl2O4: Eu/Dy phosphor. Ceramics International, 48(22), 33167-33176. https://doi.org/10.1016/j.ceramint.2022.07.255

- **Danish, A**., Mosaberpanah, M. A., Salim, M. U., Amran, M., Fediuk, R., Ozbakkaloglu, T., & Rashid, M. F. (2022). Utilization of recycled carbon fiber reinforced polymer in cementitious composites: A critical review. Journal of Building Engineering, 53, 104583. https://doi.org/10.1016/j.jobe.2022.104583

- Gholampour, A., **Danish, A**., Ozbakkaloglu, T., Yeon, J. H., & Gencel, O. (2022). Mechanical and durability properties of natural fiber-reinforced geopolymers containing lead smelter slag and waste glass sand. Construction and Building Materials, 352, 129043. https://doi.org/10.1016/j.conbuildmat.2022.129043

- Sürücü, A. M., Subaşı, S., **Danish, A**., Gencel, O., Subaşı, A., & Ozbakkaloglu, T. (2022). Mechanical and radiation shielding properties of SWCNT reinforced polymer/glass fiber fabric-based nanocomposite containing different filler materials: A comparative study. Journal of Applied Polymer Science, e53483. https://doi.org/10.1002/app.53483

- **Danish, A.**, Mosaberpanah, M. A., Tuladhar, R., Salim, M. U., Yaqub, M. A., & Ahmad, N. (2022). Effect of cenospheres on the engineering properties of lightweight cementitious composites: A comprehensive review. Journal of Building Engineering, 104016. https://doi.org/10.1016/j.jobe.2022.104016

- **Danish, A.**, Mosaberpanah, M. A., Salim, M. U., Ahmad, N., Ahmad, F., & Ahmad, A. (2021). Reusing biochar as a filler or cement replacement material in cementitious composites: A review. Construction and Building Materials, 300, 124295. https://doi.org/10.1016/j.conbuildmat.2021.124295

- **Danish, A.**, & Mosaberpanah, M. A. (2021). A review on recycled concrete aggregates (RCA) characteristics to promote RCA utilization in developing sustainable recycled aggregate concrete (RAC). European Journal of Environmental and Civil Engineering, 1-35. https://doi.org/10.1080/19648189.2021.1946721

- Amran, M., Onaizi, A. M., Fediuk, R., **Danish, A**., Vatin, N. I., Murali, G., ... & Azevedo, A. (2022). An ultra-lightweight cellular concrete for geotechnical applications–A review. Case Studies in Construction Materials, 16, e01096. https://doi.org/10.1016/j.cscm.2022.e01096

- **Danish, A.**, & Mosaberpanah, M. A. (2021). Influence of cenospheres and fly ash on the mechanical and durability properties of high-performance cement mortar under different curing regimes. Construction and Building Materials, 279, 122458. https://doi.org/10.1016/j.conbuildmat.2021.122458

- Waqas, R. M., Butt, F., **Danish, A.**, Alqurashi, M., Mosaberpanah, M. A., Masood, B., & Hussein, E. E. (2021). Influence of Bentonite on Mechanical and Durability Properties of High- Calcium Fly Ash Geopolymer Concrete with Natural and Recycled Aggregates. Materials, 14(24), 7790. https://doi.org/10.3390/ma14247790

- **Danish, A**., Mosaberpanah, M. A., Salim, M. U., Fediuk, R., Rashid, M. F., & Waqas, R. M. (2021). Reusing marble and granite dust as cement replacement in cementitious composites: a review on sustainability benefits and critical challenges. *Journal of Building Engineering*, 102600. https://doi.org/10.1016/j.jobe.2021.102600

- **Danish, A**., Mosaberpanah, M.A. (2020). Formation mechanism and applications of cenospheres: a review. *Journal of Materials Science* 55, 4539–4557 https://doi.org/10.1007/s10853-019-04341-7

- **Danish, A**., Mosaberpanah, M.A.(2020). Past and present techniques of self-healing in cementitious materials: A critical review on efficiency of implemented treatments. *Journal of Materials Research and Technology.* https://doi.org/10.1016/j.jmrt.2020.04.053

- **Danish, A**., Tayyab, F & Salim, M. (2020). Health assessment based on dynamic characteristics of reinforced concrete beam using real-time wireless structural health monitoring sensor, *Journal of Structural Integrity and Maintenance*, 5:3, 204-210 https://doi.org/10.1080/24705314.2020.1765271

- Fediuk, R., Mugahed Amran, Y. H., Mosaberpanah, M. A., **Danish, A.**, El-Zeadani, M., Klyuev, S. V., & Vatin, N. (2020). A Critical Review on the Properties and Applications of Sulfur-Based Concrete. *Materials*, *13*(21), 4712. https://doi.org/10.3390/ma13214712

- **Danish, A**., Mosaberpanah, M. A., & Salim, M. U. (2020). Robust evaluation of superabsorbent polymers as an internal curing agent in cementitious composites. Journal of Materials Science, 1-37. https://doi.org/10.1007/s10853-020-05131-2

- **Danish, A**., Ahmad, N & Salim, M. (2019). Manufacturing and Performance of an Economical 1-D Shake Table. *Civil Engineering Journal*, 5(9): p. 2019-2028. http://dx.doi.org/10.28991/cej-2019-03091390

- **Danish, A**., Salim, M., & Ahmed, T. (2019). Trends and developments in green cement "A sustainable approach*". Sustainable Structures and Materials, An International Journal*, 2(1), 45-60. http://ssmij.org/index.php/ssm/article/view/38

***For more details, please check out the link.**

ii. Book chapters

- **Danish, A**., & Ozbakkaloglu, T. (2023). Fiber classifications and physical and mechanical properties of different fibers used in alkali-activated composites. Advanced Fiber-Reinforced Alkali-Activated Composites: Design, Mechanical Properties, and Durability, 23.

iii. Conference papers

- Rashid, M., Hassan, M. F., **Danish, A**., & Ahmed, A. (2020). The effect of using jute fiber on deformation resistance of asphalt concrete. 3rd Conference on Sustainability in Civil Engineering (CSCE-21).
- **Danish, A**., & Ozbakkaloglu, T. (2023). Impact of nano-silica on the mechanical properties of mortar containing e-waste plastic as fine aggregates. Second International Cementitious Materials and Sustainable Construction. Materials Today: Proceedings. https://doi.org/10.1016/j.matpr.2023.03.182

E. Computing Skills

- LaTEX, Microsoft Office, AutoCAD, RISA 2D, SAFE, ArcGIS, ETABS, Primavera P6, STAAD Pro, Autodesk Revit.