RAMEZ HAJJ

1201 Newmark Civil Engineering Building — 205 N. Mathews Ave. — Urbana, IL 61801
(217) 244-6107 ⋄ rhajj@illinois.edu ⋄ https://publish.illinois.edu/rhajj/

EDUCATION

Ph.D., Civil Engineering, **University of Texas**, Austin, TX 2019
Dissertation: *Origin and evolution of damage and healing in asphalt binders*
M.S., Civil Engineering, **University of Texas**, Austin, TX 2016
Master's Thesis: *Fatigue characterization of asphalt binders using a thin film poker chip test*
B.S., Civil Engineering, **Virginia Tech**, Blacksburg, VA 2014
Minor in Engineering Science and Mechanics

PROFESSIONAL EXPERIENCE

Assistant Professor, University of Illinois, Urbana, IL Jan. 2020 - Present
Graduate Research Assistant, University of Texas, Austin, TX May 2015 - Dec. 2019
Assistant Instructor, University of Texas, Austin, TX Jan. 2019 - May 2019
Graduate Teaching Assistant, University of Texas, Austin, TX May 2015 - Dec. 2016

PUBLICATIONS

Peer Reviewed Journal Articles

1. Tofighian, M. & **Hajj, R.** "Bio-asphalt from hydrothermal liquefaction as a partial replacement for asphalt binder." *In Review.*
2. Hu, Y., Pipintakos, G., Roberto, A., Adwani, D., Stuwe, S., Mirwald, J., Wang, Y., **Hajj, R.**, Cantot, J., Chailleux, E., Yin, X., Guo, M., Moreno, L., Caro, S., Si, W., Xu, S., Saboo, N., Verma, M., Airey, G., Bhasin, A., & Sreeram, A. "Mitigating Oxidative Ageing in Bitumen Using Zinc Diethyldithiocarbamate (ZDC) as Antioxidant: Evidence from a Global Interlaboratory Investigation." *In Review.*
3. Sallam, O., El-Rayes, K., Ignacio, E.J., **Hajj, R.**, Hassan, A., Almasry, O., & Al-Ghzawi, M. "Mitigating Roadside Noise While Maintaining Effectiveness of Shoulder and Centerline Rumble Strips." *In Review.*
4. Regmi, B., Maia, R.S., & **Hajj, R.** "Evaluating the Aging Effect of Fillers and Crumb Rubber on Asphalt Mastic Strength and Ductility Through the Poker Chip Test." *In Review.*
5. Mahala, N., Kong, T., Vyas, A., Wang, Y., Tutumluer, E., **Hajj, R.**, Ceylan, H., Senger, J., & Peters, T. "Performance Evaluation of Quarry By-Products in Otta Seal Surfacing of Local Roads." *In Review.*
6. Wang, Z.Z., Sun, Z., **Hajj, R.**, & Al-Tabbaa, A. "The Roles of Deflection Basins and Slopes in Bayesian Updating using Traffic Speed Deflectometer Measurements." *In Review.*
7. Sallam, O., El-Rayes, K., Ignacio, E.J., **Hajj, R.**, & Al-Ghzawi, M. "Mitigating External Noise of Transverse Rumble Strips and Complaints from Nearby Neighborhoods" *In Review.*
8. Sallam, O., El-Rayes, K., Ignacio, E.J., **Hajj, R.**, Al-Masry, O., Hassan, A., & Al-Ghzawi, M. "Analyzing the Effectiveness of Twenty Shoulder and Centerline Rumble Strip Designs in Minimizing Risk of Roadway Departure Crashes." *In Review.*
9. Sreeram, A., Palin, D., **Hajj, R.**, Wang, H., Ashish, P. (equal contribution), Hu., Y., Saxena, A. "Reimagining Road Pavements: Visionary Approaches to Future Functionality and Design." *In Review.*
10. Rodgers, C., Rahman, A., **Hajj, R.**, Halloran, K., Roesler, J., Schmidt, A., Sychterz, A., & Henschen, J. "Case Study: A Near Peer Mentoring Framework for a CEE Curriculum." *In Review.*
11. Sallam, O., El-Rayes, K., Ignacio, E.J., Al-Ghzawi, M., & **Hajj, R.** "Analyzing the Effectiveness and External Noise Levels of Sinusoidal and Traditional Shoulder Rumble Strips." *In Review.*

12. Wang, Y. & **Hajj, R.** "Chemo-mechanical characterization of rejuvenated asphalt binder using data-driven approach and micro-mechanical models." *In Review.*

13. Lu, Y., Doehring, J., Garg, N., & **Hajj, R.** "Multiscale study of encapsulated rejuvenators for self-healing asphalt system." *In Review.*

14. Adwani, D., Mirwald, J., Pipintakos, G., Sreeram, A., **Hajj, R.**, & Bhasin, A. "Historical insights on asphalt aging, mechanisms, and anti-aging technologies with evaluation of a potential antioxidant as the way forward" *Accepted for Publication in Construction and Building Materials.*

15. Vyas, A. & **Hajj, R.** "Exploring the use of reclaimed asphalt pavement in airfield asphalt mixes: insights from mixture and binder scale." *Accepted for Publication in Transportation Research Record: Journal of the Transportation Research Board.*

16. Asadi, B., Shah, V., Vyas, A., Golparvar-Fard, M., & **Hajj, R.** "Hybrid CNN-Transformer Model for Predicting Failure Properties of Asphalt Binder from Fracture Surface Images." *Computer-Aided Civil and Infrastructure Engineering.*

17. Vyas, A., Maia, R.S., & **Hajj, R.** (2024) "Cracking Performance Evaluation of Recycled Asphalt Materials Using the Poker Chip Test and I-FIT." *Road Materials and Pavement Design.* Published Online.

18. Lu, Y., Cui, B., Wang, H., & **Hajj, R.** "Experimental and simulation-based engineering of calcium alginate self-healing asphalt capsules." (2024) *Chemical Engineering Journal.* 499, 156212.

19. Maia, R.S., & **Hajj, R.** (2024) "Laboratory and Field Evaluation of Asphalt Concrete Modulus & Critical Strain Inputs for M-E Flexible Pavement Design in the State of Illinois." *Canadian Journal of Civil Engineering.* Published Online.

20. Lu, Y., Maia, R.S., & **Hajj, R.** (2024) "Backcalculation of Asphalt Concrete Poisson's Ratio using the Ultrasonic Pulse Velocity Test." *Materials & Structures,* 57(9), 202.

21. Maia, R.S., Lu, Y., & **Hajj, R.**. (2024) "Porous Asphalt Performance in Cold Regions: Case Study of Chicago, Illinois." *Case Studies in Civil Engineering Materials.* Published Online.

22. Maia, R.S., **Hajj, R.**, Cunto, F.J.C., & Castelo Branco, V.T.F. (2024) "Safety-focused Urban Pavement Design and Evaluation: Integrating Microscopic Simulation and Tire-Pavement Friction." *International Journal of Pavement Engineering,* 25(1), 2345138.

23. Adwani, D., Pipintakos, G., Mirwald, J., Wang, Y., **Hajj, R.**, Guo, M., Liang, M., Jing, R., Varveri, A., Zhang, Y., Pe, K., Xu, X., Leng, Z., Li, D., Caro, S., Chailleux, E., Cantot, J., Weigel, S., Skultecke, J., Tarsi, G., Wang, H., Hu, Y., Airey, G., Bhasin, A., & Sreeram, A. (2024)"Examining the Efficacy of Tailored Antioxidants to Mitigate Asphalt Binder Oxidation: Insights from a Worldwide Interlaboratory Investigation." *International Journal of Pavement Engineering,* 25(1), 2332363.

24. Asadi, B., & **Hajj, R.** (2023) "Prediction of asphalt binder elastic recovery using tree-based ensemble bagging and boosting models." *Construction and Building Materials*, 410, 134154.

25. Asadi, B., **Hajj, R.**, & Al-Qadi, I. (2023) "Asphalt concrete dynamic modulus prediction: Bayesian Neural Network approach." *International Journal of Pavement Engineering,* 24(2), 2270569.

26. Lu, Y., Maia, R.S., & **Hajj, R.** (2023) "Multiscale evaluation of asphalt binder rejuvenation dosing and efficacy." *Construction and Building Materials.*, 408, 133813.

27. Vyas, A., Wang, Y., **Hajj, R.**, & Jahns, E. (2023) "Investigation of factors affecting modified binder design and performance using the poker chip test." *Construction and Building Materials,* 403, 133037.

28. Husain, S., Qamhia, I., Vyas, A., Maia, R., Tutumluer, E., & **Hajj, R.** (2023) "Emulsion Mixtures of Fractionated Reclaimed Asphalt Pavement and Quarry By-Products: a Laboratory Evaluation." *Sustainability*, 15(13), 10735.

29. Lu, Y., Asadi, B., & **Hajj, R.** (2023). Rheological, Mechanical, Microscopic, and Chemical Characterization of Asphalt Binders at Extended Aging Levels. *Journal of Materials in Civil Engineering*, 35(8), 04023256.

30. Adwani, D., Sreeram, A., Pipintakos, G., Mirwald, J., Wang, Y., **Hajj, R.**, Jing, R., & Bhasin, A. (2023) "Interpreting the Effectiveness of Antioxidants to Increase the Resilience of Asphalt Binders: First of its Kind Global Interlaboratory Study." *Construction and Building Materials*, 366.

31. Filonzi, A., Komaragiri, S., **Hajj, R.**, Trevino, M., Hazlett, D., Mahmoud, E., & Bhasin, A. (2022). A method to evaluate the tensile strength and ductility of asphalt binders using a thin confined film. *International Journal of Pavement Engineering*, 1-12.

32. Sreeram, A., Leng, Z., **Hajj, R.**, Ferreira, W. L., Tan, Z., & Bhasin, A. (2022). Fundamental investigation of the interaction mechanism between new and aged binders in binder blends. *International Journal of Pavement Engineering*, 23(5), 1317-1327.

33. Lu, Y., & **Hajj, R.** (2021). Investigation of flexible pavement maintenance patching factors using a finite element model. *Journal of Infrastructure Preservation and Resilience*, 2(1), 1-16.

34. Asadi, B., Tabatabaee, N., & **Hajj, R.** (2021). Crack-based healing master curve derived from linear amplitude sweep tests: a cohesive healing indicator for asphalt binders. *Materials and Structures*, 54(4), 1-14.

35. Asadi, B., Tabatabaee, N., & **Hajj, R.** (2021). Use of linear amplitude sweep test as a damage tolerance or fracture test to determine the optimum content of asphalt rejuvenator. *Construction and Building Materials*, 300, 123983.

36. Ahmed, R. B., Hossain, K., Aurilio, M., & **Hajj, R.** (2021). Effect of rejuvenator type and dosage on rheological properties of short-term aged binders. *Materials and Structures*, 54(3), 1-18.

37. Gul, M. A., Khan, K., Islam, M. K., Shalabi, F. I., Ozer, H., **Hajj, R.**, & Bhasin, A. (2021). Evaluation of various factors affecting mix design of sulfur-extended asphalt mixes. *Construction and Building Materials*, 290, 123199.

38. **Hajj, R.**, & Young, S. (2021). An analysis of theoretical and empirical relationships between two asphalt binder cracking parameters. *Road Materials and Pavement Design*, 22(sup1), S180-S196.

39. Ahmed, R. B., Hossain, K., & **Hajj, R.** (2021). Chemical, Morphological, and Fundamental Properties of Rejuvenated Asphalt Binders. *Journal of Materials in Civil Engineering*, 33(2), 04020461.

40. Filonzi, A., **Hajj, R.**, Smit, A. D. F., & Bhasin, A. (2021). Validation of inverse stereology generation of two dimensional area gradations for computational modelling of asphalt mixtures. *Road Materials and Pavement Design*, 22(10), 2197-2211.

41. Filonzi, A., Lee, S. K., Ferreira, W., **Hajj, R.**, & Bhasin, A. (2020). A micro-extraction method for use with 4 mm plate geometry in the Dynamic Shear Rheometer to evaluate asphalt binder rheology. *Construction and Building Materials*, 252, 119024.

42. Sakib, N., **Hajj, R.**, Hure, R., Alomari, A., & Bhasin, A. (2020). Examining the relationship between bitumen polar fractions, rheological performance benchmarks, and tensile strength. *Journal of Materials in Civil Engineering*, 32(6), 04020143.

43. **Hajj, R.**, Ramm, A., Bhasin, A., & Downer, M. (2020). Real-time microscopic and rheometric observations of strain-driven cavitation instability underlying micro-crack formation in asphalt binders. *International Journal of Pavement Engineering*, 21(8), 977-989.

44. **Hajj, R.**, Filonzi, A., Rahman, S., & Bhasin, A. (2019). Considerations for using the 4 mm plate geometry in the dynamic shear rheometer for low temperature evaluation of asphalt binders. *Transportation Research Record: Journal of the Transportation Research Board*, 2673(11), 649-659.

45. Sreeram, A., Leng, Z., **Hajj, R.**, & Bhasin, A. (2019). Characterization of compatibility between aged and unaged binders in bituminous mixtures through an extended HSP model of solubility. *Fuel*, 254, 115578.

46. **Hajj, R.**, Filonzi, A., Smit, A., & Bhasin, A. (2019). Design and performance of mixes for use as ultrathin overlay. *Journal of Transportation Engineering, Part B: Pavements*, 145(3), 04019026.

47. Sabaraya, I. V., Filonzi, A., **Hajj, R.**, Das, D., Saleh, N. B., & Bhasin, A. (2018). Ability of nanomaterials to effectively disperse in asphalt binders for use as a modifier. *Journal of Materials in Civil Engineering*, 30(8), 04018166.

48. **Hajj, R.**, & Bhasin, A. (2018). The search for a measure of fatigue cracking in asphalt bindersa review of different approaches. *International Journal of Pavement Engineering*, 19(3), 205-219.

49. **Hajj, R.**, Hure, R., & Bhasin, A. (2017). Evaluation of stiffness, strength, and ductility of asphalt binders at an intermediate temperature. *Transportation Research Record: Journal of the Transportation Research Board*, 2632(1), 44-51.

Technical Reports

1. El-Rayes, K., Ignacio, E.J., **Hajj, R.,** Sallam, O., Al-Ghzawi, M., Hassan, A., Almasry, O. "Quantification of the Effectiveness and External Noise of Rumble Strip Designs." FHWA-ICT-24-020 (2024).

2. **Hajj, R.** & Lu, Y. "Assessment of the Impact of Unacceptable Hot-Mix Asphalt Test Parameters." FHWA-ICT-24-010 (2024).

3. **Hajj, R.**, Thompson, M., Maia, R.S., Lu, Y., Vyas, A., Asadi, B., & Regmi, B. "Updates to Mechanistic-Empirical Design Inputs for Illinois Flexible Pavements." FHWA-ICT-24-008 (2024).

4. **Hajj, R.** & Asadi, B. "Review of Illinois Multiple Stress Creep and Recovery Data for Future Implementation." FHWA-ICT-23-020 (2023).

5. Sayeh, W., Al-Qadi, I., & **Hajj, R.** "Utilizing Reclaimed Asphalt Pavement in Preservation Treatments." FHWA-ICT-23-016 (2023).

6. El-Rayes, K., Ignacio, E.J., **Hajj, R.**, Sallam, O., & Al-Ghzawi, MM. "Noise Measurements of US-41 Transverse Rumble Strips." FHWA-ICT-23-003 (2023).

7. **Hajj, R.**, Garg, N., Doehring, J., Vyas, A., Asadi, B., & Lu, Y. "Using Microcapsules and Bacteria for Self-Healing in Rigid and Flexible Pavements." I-ACT-21-03 (2023).

8. Thompson, M. & **Hajj, R**. "Flexible Pavement Recycling Techniques: A Summary of Activities." FHWA-ICT-21-017 (2021).

9. **Hajj, R.** & Lu, Y. "Current and Future Best Practices for Pothole Repair in Illinois." FHWA-ICT-21-003 (2021).

10. Filonzi, A., Lee, S.K., **Hajj, R.**, Hazlett, D., & Bhasin, A. "Implementing revisions to the allowable maximum Recycled Binder Ratio (RBR) specification." Technical Report No. FHWA/TX-20/0-6947-1. September 2020.

11. **Hajj, R.**, Filonzi, A., & Bhasin, A. "Improving the Performance Graded asphalt binder specification." Technical Report No. FHWA/TX-18/0-6925-1. May 2019.

12. Filonzi, A., Sabaraya, I.V. **Hajj, R.**, Das, D., Saleh, N.B., Bhasin, A., & Mahmoud, E. "Evaluating the use of nanomaterials to enhance properties of asphalt binders and mixtures." No. FHWA/TX-17/0-6854-1. September 2018.

13. **Hajj, R.**, Filonzi, A., Dormohammadi, A., Zhu, C., Tandon, V., & Bhasin, A. "Design and construction of ultra thin overlays as an alternative to seal coats." Technical Report No. FHWA/TX-18/0-6857-1. March 2018.

Conference Proceedings

1. Mann, J., Wright, A., Althaus, E. W., Chang, W. L., Ansari, A., Cvetkovic, C., **Hajj, R**,. & Golecki, H. M. (2025, February). Reflective Teaching Practices for Equity-Minded Engineering Instructors. In *2025 Collaborative Network for Engineering & Computing Diversity (CoNECD)*. San Antonio, TX.

2. Maia, R. S., Asadi, B., Vyas, A., Lu, Y., Thompson, M., & **Hajj, R.** (2024, June). Dynamic Modulus Prediction Models for Illinois Full-Depth Asphalt Pavement ME Design Considering Modern Materials. In *International Symposium on Asphalt Pavement & Environment*, Montreal, Canada.

3. Pipintakis, G., Mirwald, J., Camargo, I., Sreeram, A., Keuliyan, F., Margaritis, A., Sulaiman, A., Alhadidi, Y., Skultecke, J., **Hajj, R.**, & Elwardany, M. (2024, June). The Young Ageing Crew (YAC): Bringing fresh ideas to the scientific community. In *8th International Conference on Bituminous Mixtures and Pavements*, Thessaloniki, Greece.

4. Bond, M., **Hajj, R.**, Schmidt, A., Roesler, J., & Henschen, J. (2023, June). A Near-Peer Mentoring Framework for a Civil and Environmental Engineering Curriculum. In *American Society for Engineering Education (ASEE) 2023 Annual Conference and Exposition*, Baltimore, MD.

5. Asadi, B. & **Hajj, R.** (2023, May). Dynamic Modulus Prediction Tool based on Deep Neural Networks. In *Advances in Materials and Pavement Performance Prediction II: Contributions to the 3rd International Conference on Advances in Materials and Pavement Performance Prediction (AM3P 2023).* 23-25 May, Hong Kong.

6. Lu, Y., & **Hajj, R. M.** (2021, November). Viscoelastic finite element modeling of flexible pavement patching. In *Green and Intelligent Technologies for Sustainable and Smart Asphalt Pavements: Proceedings of the 5th International Symposium on Frontiers of Road and Airport Engineering*, 12-14 July, 2021, Delft, Netherlands (IFRAE) (p. 289). CRC Press.

7. Filonzi, A., **Hajj, R.**, Komaragiri, S., & Bhasin, A. (2020, December). Investigating the Use of a Binder Cohesion Test to Evaluate Cracking Resistance of Asphalt Mixtures. In *RILEM International Symposium on Bituminous Materials* (pp. 1167-1173). Springer, Cham.

8. **Hajj, R.**, Mohanraj, K., Bhasin, A., Ramm, A., & Downer, M. (2020). Micro-scale observations of fatigue damage mechanism in asphalt binder. In *Advances in Materials and Pavement Performance Prediction II: Contributions to the 2nd International Conference on Advances in Materials and Pavement Performance Prediction (AM3P 2020)* (pp. 449-453). CRC Press.

9. **Hajj, R.**, & Bhasin, A. (2020, December). Importance of triaxial stress state on asphalt binder tensile failure. In *Advances in Materials and Pavement Performance Prediction II: Contributions to the 2nd International Conference on Advances in Materials and Pavement Performance Prediction (AM3P 2020)*, 27-29 May, 2020, San Antonio, TX, USA (p. 445-448). CRC Press.

10. **Hajj, R.**, Sakib, N., Bhasin, A., Ramm, A. S., & Downer, M. C. (2018, July). Relation of modified bitumen microstructure to cracking indicators. *In Proc., Int. AM3P Conf., Advances in Materials and Pavement Performance Prediction* (pp. 189-192).

11. Komaragiri, S., Filonzi, A., **Hajj, R.**, Bhasin, A., & Motamed, A. (2018). Three-dimensional profiler for performance evaluation of chip seals. In *Advances in Materials and Pavement Performance Prediction* (pp. 579-582). CRC Press.

12. Sakib, N., **Hajj, R.**, Bhasin, A., Ramm, A. S., & Downer, M. C. (2018). Bulk microstructures in bitumen and its influence on rheology. In *Advances in Materials and Pavement Performance Prediction* (pp. 411-414). CRC Press.

13. Tehrani, M., Boroujeni, A. Y., **Hajj, R.**, & Al-Haik, M. (2013, November). Mechanical characterization of a hybrid carbon nanotube/carbon fiber reinforced composite. In *ASME International Mechanical Engineering Congress and Exposition* (Vol. 56383, p. V009T10A034). American Society of Mechanical Engineers.

Non-Peer Reviewed Articles

1. **Hajj, R**. "Finding thinner strength: ultra thin overlays can have more muscle." *Roads & Bridges* March 2018: 42-46.

SELECTED PRESENTATIONS

1. **Hajj, R.** & Regmi, B. "Effect of hydrated lime on delaying oxidation in asphalt mastics." In *62nd Petersen Asphalt Research Conference.* Laramie, WY, July 2024.
2. **Hajj, R.**. Next Generation Asphalt Materials and Pavements Research at UIUC. In *Ecole Technologie Superior (University of Quebec) Seminar Series.* Montreal, Canada, June 2025.
3. **Hajj, R.**. Development of the Asphalt Road-eo Student Competition. In *ASEE Annual Conference and Exposition 2025.* Montreal, Canada, June 2025.
4. **Hajj, R*** & Lu, Y. Self-Healing Asphalt Capsule Design Using Combined Experimental-Computational Approach. In *Cardiff University Seminar Series.* Cardiff, Wales, June 2025.
5. **Hajj, R.***, Thompson, M., & Maia, R.S. "Flexible Pavement Design: R27-233 Recommendations." In *Illinois Asphalt Pavement Association 88th Annual Conference.* Springfield, IL, March 2025.
6. **Hajj, R.*** & Wang, Y. "Alternative Solvents for Asphalt Extraction and Recovery." In *Illinois Asphalt Pavement Association 88th Annual Conference.* Springfield, IL, March 2025.
7. **Hajj, R.***, Tofighian, M., Li, Y., & Ahmed, A. "Bio-binder synthesis and feasibility toward adoption in flexible pavements." In *Transportation Research Board 104th Annual Meeting.* Washington, DC, January 2025.
8. Thompson, M., **Hajj, R.**, Wienrank, C., & Senger, J. "Perpetual Pavement Design in Illinois - Current and Future Practice." In *NAPA Perpetual Pavements Conference.* Louisville, KY, October 2024.
9. Hu, R., Asadi, B., **Hajj, R.**, Kohler, E., Ouyang, Y., Tobias, P., & Wang, H. "Development of a Pavement Friction Management Program." In *2024 AASHTO Safety Summit and Peer Exchange.* Houston, TX, October 2024.
10. **Hajj, R.** "Using Computer Vision to Better Understand Porous Asphalt Degradation and Other Pavement Challenges." In *Texas A&M Materials and Pavements Graduate Seminar Series.* College Station, TX, October 2024.
11. **Hajj, R.** "History and Future of Mechanistic-Empirical Flexible Pavement Design in Illinois." In *100th Annual Meeting of the Association of Asphalt Pavement Technologists.* Chicago, IL, September 2024.
12. **Hajj, R.** "Sustainable and Resilient Flexible Pavements Enabled Through Data-Driven Approaches." In *BiRmingham-Illinois Partnership for Discovery, EnGagement and Education (BRIDGE) Workshop on Autonomous and Resilient Transportation System.* Birmingham, United Kingdom, August 2024.
13. **Hajj, R.** & Tofighian, M. "Bio-binder and bio-rejuvenator synthesis from hydrothermal liquefaction." In *61st Petersen Asphalt Research Conference.* Laramie, WY, July 2024.
14. **Hajj, R.** "Effects of confinement condition on ductility of asphalt binders." In *Engineering Mechanics Institute Conference and Probabilistic Mechanics & Reliability Conference (EMI/PMC 2024).* Chicago, IL, May 2024.
15. **Hajj, R.***, Asadi, B., & Santos Maia, R. "Using AI to design the next generation of pavements." In *Morgan State University Seminar.* Baltimore, MD, May 2024.
16. **Hajj, R.*** & Lu, Y. "Connecting FAM-scale and molecular-scale fatigue models of self-healing capsules for asphalt mixtures." In *Transportation Research Board 103rd Annual Meeting.* Washington, DC, January 2024.
17. **Hajj, R.*** & Lu, Y. "Engineering porous self-healing capsules for asphalt mixtures using simulations and experiments." In *Transportation Research Board 103rd Annual Meeting.* Washington, DC, January 2024.
18. **Hajj, R.*** and Bhasin, A. "Poker chip ductility as a cracking indicator for asphalt binders." In *59th New Mexico Paving Conference.* Albuquerque, NM, January 2024.
19. **Hajj, R.** "Use of nonlinear tests and chemistry to understand anti-aging effect of an asphalt softener." In *IRF World Congress.* Phoenix, AZ, November 2023.

20. **Hajj, R.*** "Designing and building infrastructure to be more resilient to ever changing climatic conditions." In *Highways USA 2023.* Dallas, TX, October 2023.

21. **Hajj, R.*** "Leveraging materials science and machine learning to design the next generation of roads." In *University of Cambridge Digital Roads of the Future Program.* Cambridge, United Kingdom, August 2023.

22. **Hajj, R.** "Considerations for rejuvenating large amounts of asphalt binder." In *2023 International Conference on Resource Sustainability.* Surrey, United Kingdom, August 2023.

23. **Hajj, R.*** "Asphalt binder multi-scale studies and the future of pavement engineering and collaboration." In *University of Georgia EMI Workshop.*" Athens, GA, June 2023.

24. **Hajj, R.*** "Multiscale characterization of viscoelastic construction materials using microscopic experiments and machine learning." In *Northwestern University SPREE Seminar Series.*" Evanston, IL, February 2023.

25. **Hajj, R.*** "Toward a better understanding of the relationship between oxidative aging, rheology, and strength of asphalt." In *Kent Seminar, Illinois Center for Transportation.* Rantoul, IL, January 2023.

26. **Hajj, R.*** "Extended aging and intermediate temperature fatigue and fracture of asphalt binders." In *Transportation Research Board 102nd Annual Meeting.* Washington, DC, January 2023.

27. **Hajj, R.** "Durability and Maintenance Demand of Porous Asphalt Concrete in Cold Regions." In *National Center for Transportation Infrastructure Durability and Life Extension Center (TriDurLE) 2nd Annual Symposium.* Honolulu, HI, November 2022.

28. **Hajj, R.** and Asadi, B. "Data-driven generation of modulus and phase angle master curves." In *93rd Annual Meeting of The Society of Rheology.* Chicago, IL, October 2022.

29. **Hajj, R.***. "Extending the in-track performance and life of timber crossties using asphalt." In *104th Annual Railway Tie Association Symposium and Technical Conference.* Orlando, FL, October 2022.

30. **Hajj, R**, Lu, Y., and Maia, R.S. "Investigation of laboratory techniques for evaluating rejuvenator effectiveness and dosage." In *59th Petersen Asphalt Research Conference.* Laramie, WY, July 2022.

31. **Hajj, R**, Asadi, B., and Moorhead, W. "Using rubberized asphalt concrete as an alternative for Under Tie Pads." In *International Crosstie and Fastening Systemms Symposium.* Urbana, IL, May 2022.

32. **Hajj, R***. "A new ductility test for asphalt binders considering a realistic triaxial stress state." In *TRB Webinar: Innovations in Testing - Modified Binders Cracking Resistance.* May 2022.

33. **Hajj, R***. "The State of Pothole Patching." In *Transportation Research Board 101st Annual Meeting.* Washington, DC, January 2022.

34. **Hajj, R***. "Advances in self-healing infrastructure materials." *Kent Seminar, Illinois Center for Transportation.* Rantoul, IL, Dec. 2021.

35. **Hajj, R.** and Young, S. "An analysis of theoretical and empirical relationships between two asphalt binder cracking parameters." In *9th European Asphalt Technology Association (EATA) Conference.* Vienna, Austria, June 2021.

36. **Hajj, R***. "Connecting Asphalt Material Properties to Flexible Pavement Performance." In *Illinois Transportation and Highway Engineering Conference.* Urbana, IL, March 2021 (Held virtually due to COVID-19).

37. **Hajj, R***. "Sustainable asphalt paving solutions for the 21st century." In *International Student and Faculty Development Program on Role of Transportation Engineers Toward Sustainable Roads and Traffic Safety.* Shri Vishnu Engineering College for Women, Bhimavaram, India, February 2021 (Virtual Talk).

38. Filonzi, A., **Hajj, R.**, Komaragiri, S., and Bhasin, A. "Validation of intermediate and low temperature asphalt binder cracking indicators using asphalt mixture cracking tests." *RILEM International Symposium on Bituminous Materials.* Lyon, France, December 2020 (Held virtually due to COVID-19).

39. **Hajj, R.**, Ramm, A., Mohanraj, K., Bhasin, A., and Downer, M. "Micro-scale observations of fatigue damage mechanism in asphalt binder." *AM3P 2020: Advances in Materials, Pavement Performance, and Prediction.* San Antonio, TX, August 2020 (Held virtually due to COVID-19).

40. **Hajj, R.** and Bhasin, A. "Importance of triaxial stress state on asphalt binder tensile failure." *AM3P 2020: Advances in Materials, Pavement Performance, and Prediction.* San Antonio, TX, August 2020 (Held virtually due to COVID-19).

41. **Hajj, R.**. "Fundamental and empirical relationships between binder cracking indicators." *57th Petersen Asphalt Research Conference.* Laramie, WY, June 2020 (Held virtually due to COVID-19).

42. **Hajj, R.***. "Fundamental investigation of microstructural damage mechanism in asphalt materials." *Kent Seminar, Illinois Center for Transportation.* Rantoul, IL, Feb. 2020.

43. **Hajj, R.***. "Prediction and characterization of failure-inducing instabilities in asphalt materials." *Construction Materials Seminar, University of Illinois at Urbana-Champaign.* Urbana, IL, Feb. 2020.

44. **Hajj, R**. "Origins and evolution of instabilities and healing in asphalt binders." *The University of Illinois at Urbana-Champaign.* Urbana, IL, Feb. 2019.

45. **Hajj, R.**, Rahman, S., and Bhasin, A. "Three-dimensional finite element analysis to determine the stress state of bitumen in asphalt concrete mixes." In: *EMI 2018 Conference.* Cambridge, MA, June 2018.

46. **Hajj, R.**, Ramm, A., Sakib, N., Bhasin, A., and Downer, M. "Relation of modified bitumen microstructure to cracking indicators." In: *AM3P 2018: Advances in Materials, Pavement Performance, and Prediction.* Doha, Qatar, April 2018.

47. Sakib, N., Ramm, A., **Hajj, R.**, Bhasin, A., and Downer, M. "Bulk microstructures in bitumen and its influence on rheology." In: *AM3P 2018: Advances in Materials, Pavement Performance, and Prediction.* Doha, Qatar, April 2018.

48. **Hajj, R**. "Improvement of Senior design capstones by extending their lengths and scopes." In: *2018 ASEE Gulf-Southwest Section Annual Meeting.* Austin, TX, April 2018.

49. **Hajj, R.**, Filonzi, A., Smit, A., and Bhasin, A. "Design and performance of mixes for use as an ultra thin overlay." In: *Transportation Research Board 97th Annual Meeting.* Washington, DC, January 2018. (Awarded *Practice Ready Paper* at TRB Annual Meeting)

50. Filonzi, A., **Hajj, R.**, Smit, A., and Bhasin, A. "Validating inverse stereology methods to create two dimensional area gradations for computational modeling." In: *Transportation Research Board 97th Annual Meeting.* Washington, DC, January 2018.

51. Filonzi, A., **Hajj, R.**, Venu, I.V., Das, D., Saleh, N., and Bhasin, A. "Investigating the ability of nanomaterials to effectively disperse in asphalt binders for use as a modifier." In: *Transportation Research Board 97th Annual Meeting.* Washington, DC, January 2018.

52. **Hajj, R.**. "Connecting microstructure, composition, and rheology of asphalt binders." In: *6th International Transportation PhD Student Symposium.* Urbana, IL, October 2017.

53. **Hajj, R.**, Hure, R., and Bhasin, A. "Evaluation of stiffness, strength, and ductility of asphalt binders at intermediate temperature." In: *Transportation Research Board 96th Annual Meeting.* Washington, DC, January 2017.

54. **Hajj, R.** and Bhasin, A. "Stiffness, strength, and ductility-based evaluation of asphalt binders for intermediate temperature performance." In: *EMI 2016 International Conference.* Metz, France, October 2016.

*invited talk

EXTERNAL RESEARCH GRANTS

1. HMA pothole maintenance best practices. *Illinois Department of Transportation.* May 2020 - January 2021: $36,000.

2. Flexible pavement recycling techniques. (Co-PI with Marshall Thompson and David Lippert) *Illinois Department of Transportation.* August 2020 - July 2021: $125,220.

3. Flexible pavement design (full-depth and rubblization). (Co-PI with Marshall Thompson and David Lippert) *Illinois Department of Transportation.* August 2020 - July 2021: $125,220.

4. Mechanistic-Empirical (M-E) Design Procedures for Flexible Pavements. (Co-PI: Marshall Thompson) *Illinois Department of Transportation.* May 2021 - May 2024: $350,000.

5. Development of Freeze-Thaw Resistant Porous Asphalt Mixtures for Southern Lake Michigan Flexible Pavements. *Illinois-Indiana Sea Grant Faculty Scholars Program.* June 2021 - December 2022: $18,000.

6. Design of Rubberized Asphalt Cement Mix for Reduction of Ballast Damage at the Bottom of Concrete Ties - Phase I. *TRAMMCO, LLC.* August 2021 - December 2022: $45,000.

7. Bridge deck and pavement rapid-assessment using AI structural sensing and augmented reality. (Co-PI with Ann Sychterz, Lesley Sneed, and Eric Shaffer) *Discovery Partners Institute.* January 2022 - December 2022: $125,000.

8. Thin Film Testing for Characterization of Polymer-modified Bitumen - Phase I. *BASF Corporation.* November 2021 - November 2022: $75,000.

9. Quantification of the Effectiveness and External Noise of Rumble Strip Designs. (Co-PI with Khaled El-Rayes and EJ Ignacio) *Illinois Department of Transportation.* November 2021 - July 2024: $592,263.

10. Use of soybean oil in asphalt paving applications. *Illinois Soybean Association.* September 2022 - August 2024: $147,405.

11. Data Analysis and Review of Multiple Stress Creep and Recovery (MSCR) vs. Performance-graded High temperature Test Results, Including Binder Elastic Behavior/Response. *Illinois Department of Transportation.* April 2023 - December 2023: $36,000.

12. Field Performance of Unacceptable Hot Mix Asphalt Test Parameters. *Illinois Department of Transportation.* April 2023 - April 2024: $36,000.

13. Pave the way: From Organic waste to Renewable road With Advanced Resource recovery Delineation (FORWARD). (Co-PI with Yuanhui Zhang, Cody Allen, Paul Davidson, and Yalin Li) *United States Department of Agriculture National Institute of Food and Agriculture Bioproduct Pilot Program.* May 2023 - April 2026: $2,530,926.

14. Investigating the use of Reclaimed Asphalt Pavement in Pavement Preservation Treatments. (Co-PI with Imad Al-Qadi) *Illinois Department of Transportation.* May 2023 - January 2024: $36,000.

15. Graduate Research Award Program on Public-Sector Aviation Issues. *Airport Cooperative Research Program of the Transportation Research Board.* August 2023 - July 2024: $12,000.

16. Amount of Bituminous Surface Lost Each Year. *Minnesota Department of Transportation.* July 2024 - September 2026: $198,667.

17. Illinois Flexible Pavement Design and Monitoring. (Co-PI: Marshall Thompson) *Illinois Department of Transportation.* July 2024 - June 2027: $400,000.

18. Quarry By-product Fines for Otta Seal Surfacing of Local Roads. (Co-PI with Erol Tutumluer) *Illinois Department of Transportation.* July 2024 - June 2026: $367,000.

19. Investigation of Alternative Solvents for Asphalt Extraction and Recovery (Co-PI: Imad Al-Qadi) *Illinois Department of Transportation.* October 2024 - September 2026: $481,011.

20. Physics-Informed Viscoelastic/Viscoplastic Model of Prestressed Concrete Creep. *TRANS-IPIC University Transportation Center.* January 2025 - December 2025: $65,000.

21. AB-CLEAR: Addition of Biochar for Construction of Low Emission Asphalt Roads. *United States Department of Agriculture National Institute of Food and Agriculture.* January 2025 - December 2026: $300,000.

22. Designing the Low Carbon Asphalt Mixtures and Monitor Performance in the Field (PI: Oludare Owolabi). *Maryland State Highway Administration (subcontract from Morgan State University).* May 2025 - November 2026: $75,000.

23. The Influence of Rubber Modified Asphalt on Pavements Performance (PI: Oludare Owolabi). *Maryland State Highway Administration (subcontract from Morgan State University).* May 2025 - November 2026: $75,000.

INTERNAL RESEARCH GRANTS

1. Enabling self-healing in flexible and rigid pavement via advanced micro-capsules. *Smart Transportation Infrastructure Initiative.* March 2021 - March 2022: $50,000. (Co-PI: Nishant Garg)

2. Computer Vision-Based Vehicle Classification Framework. *New Frontiers Initiative.* May 2021 - September 2021: $16,670.

3. Introducing the Asphalt Road-eo at UIUC. *IDEA Institute Grassroots Initiatives to Address Needs Together (GIANT).* August 2024 - July 2026: $12,000.

4. Developing Transportation Infrastructure Engineering Research Collaborations with Cardiff University. *Cardiff-DPI Travel Grant.* February 2024 - June 2025: $4,000.

5. Advancing Sustainable Pavements through Biomaterial Innovations (BIO-PAVE). *Brasillinois Initiative.* August 2025 - Present: $20,000. (Co-PI: Kamilla Vasconcellos)

RESEARCH GIFTS

1. 2-Tie Test Bed Frame. *TRAMMCO, LLC.* August 2022. Estimated Value: $7,670.

GRADUATE STUDENTS SUPERVISED

Doctoral Students

1. Yujia Lu (May 2020 - May 2024); Dissertation Title: *Multi-scale studies of aging, rejuvenation and extrinsic self-healing in bituminous materials.* Current Position: Civil Engineer at HBM Engineering Group.

2. Renan Santos Maia (January 2021 - Present); Dissertation Title: *Fatigue cracking mechanisms of recycled asphalt mixtures under changing climate and loading configurations.*

3. Babak Asadi (August 2021 - Present); Dissertation Title: *Automated multiscale analysis of asphalt pavement cracking.*

4. Yudi Wang (May 2022 - Present); Dissertation Title: *TBA*

5. Abhilash Vyas (May 2023 - Present); Dissertation Title: *TBA*

6. Mahsa Tofighian (January 2024 - Present); Dissertation Title: *TBA*

Masters Students

1. Abhilash Vyas (August 2021 - May 2023); Thesis Title: *Investigation of factors affecting use of the poker chip test for asphalt binder and mixture performance.* Current Position: Ph.D. student, UIUC.

2. Bibek Regimi (August 2023 - August 2025); Thesis Title: *The Effect of Hydrated Lime on Moisture Susceptibility And Aging of Hot Mix Asphalt: Mastic to Mixture Scale*

3. Muhammad Fahad Ali (August 2024 - Present); Thesis Title: *TBA*

COURSES TAUGHT

Academic Courses

1. CEE 310 - Introduction to Transportation Engineering (Spring 2025)
2. CEE 405 - Asphalt Materials I (Fall 2024)
3. CEE 598IAM - Infrastructure Asset Management (Spring 2024)
4. CEE 405 - Asphalt Materials I (Fall 2023)*
5. CEE 310 - Introduction to Transportation Engineering (Fall 2023)
6. CEE 405 - Asphalt Materials I (Fall 2022)
7. CEE 598ABM - Advanced Bituminous Materials (Spring 2022)
8. CEE 405 - Asphalt Materials I (Fall 2021)**
9. CEE 506 - Pavement Design II (Spring 2021)**
10. CEE 310 - Introduction to Transportation Engineering (Spring 2021)*
11. CEE 405 - Asphalt Materials I (Fall 2020)*
12. CEE 310 - Introduction to Transportation Engineering (Spring 2020)
13. ME 210/302 - Engineering Design Graphics (Spring 2019, UT-Austin)

* Awarded "List of Teachers Ranked as Excellent By Their Students" ** The instructor rankings were outstanding

Other Courses Taught

1. A short course on chemo-mechanics of flexible pavement materials (co-taught with A. Bhasin, A. Sreeram, J. Mirwald, & P. Apostolidis). Academy of Pavement Science & Engineering School of Excellence. Austin, TX, July 2025.

ACTIVITIES AND SERVICE

Professional Committee Memberships

1. Member, AKN 11 - Standing Committee on Asphalt Pavement Materials, Transportation Research Board, 2025 - Present
2. Member and Committee Research Coordinator, AKM 20 - Standing Committee on Asphalt Binders, Transportation Research Board, 2020 - 2025
3. Member, AKM 40 - Standing Committee on Asphalt Mixture Evaluation and Performance, Transportation Research Board, 2022 - 2025
4. Member, Committee Research Coordinators Council, Transportation Research Board, 2025
5. Member, AKM 40(1) - Subcommittee on Advanced Models to Understand Behavior and Performance of Asphalt Mixtures, Transportation Research Board, 2021 - 2025
6. Member, Mechanics of Pavements Committee, Engineering Mechanics Institute of the American Society of Civil Engineers, 2021 - Present
7. Academic Representative, Pavements and Materials Technical Advisory Group, Illinois Department of Transportation, 2022 - 2025
8. Engineering Research Visioning Alliance Sustainable Transportation Networks Committee, National Science Foundation, 2022. Final Report: https://www.ervacommunity.org/visioning-report/sustainable-transportation-networks/
9. National Cooperative Highway Research Program (NCHRP) Technical Review Panel, Project 10-133: Pavement Marking Friction Levels and Testing Methods Needed for Road Users (vehicular and vulnerable users, i.e. motorcycles and bicycles), Transportation Research Board, National Academies of Science, Engineering, and Medicine.

10. National Cooperative Highway Research Program (NCHRP) Technical Review Panel, Project 10-134: Performance-Based Tests for Asphalt Emulsion Treatments as part of Agency Acceptance and Incentive Programs, Transportation Research Board, National Academies of Science, Engineering, and Medicine.

Grant Reviewer

1. Ad-hoc Reviewer, National Science Foundation (NSF) Environmental Engineering and Sustainability Program, 2024.
2. External Merit Reviewer, National Science Foundation (NSF) Small Business Innovation Research (SBIR) Program, 2022.
3. External Merit Reviewer, REMADE Institute, 2023.
4. External Merit Reviewer, Research Grants Council (RGC) of Hong Kong, 2020 - Present
5. External Merit Reviewer, Swiss National Science Foundation (SNSF), 2021.
6. External Merit Reviewer, University of Balamand Internal Research Fund, 2025.

Conference Committees

1. Scientific Committee, 3rd International Workshop on the Use of Biomaterials in Pavements, 2026. Nantes, France.
2. Planning Committee, 66th Illinois Bituminous Paving Conference, 2025. Champaign, IL.
3. Scientific Committee, 3rd International Symposium on Pavement Functional Design and Management, 2025. Delft, The Netherlands.
4. Scientific Committee, 11th European Asphalt Technology Association (EATA) Conference, 2025. Ancona, Italy.
5. Planning Committee, 65th Illinois Bituminous Paving Conference, 2024. Champaign, IL.
6. Local Organizing Committee, 100th Meeting of the Association of Asphalt Paving Technologists, 2024. Chicago, IL.
7. Local Organizing Committee, Engineering Mechanics Institute Conference and Probabilistic Mechanics & Reliability Conference (EMI/PMC 2024). Chicago, IL.
8. Planning Committee, 64th Illinois Bituminous Paving Conference, 2023. Champaign, IL.
9. Planning Committee, 63rd Illinois Bituminous Paving Conference, 2022. Champaign, IL.
10. Planning Committee, 62nd Illinois Bituminous Paving Conference, 2021. Champaign, IL.
11. Asphalt Materials and Pavements Committee, Transportation Consortium of South-Central States (Tran-SET) Conference, 2021. Jonesboro, AR.
12. Young Committee, International Symposium on Frontiers of Road and Airport Engineering, 2021. Delft, The Netherlands.
13. Planning Committee, 61st Illinois Bituminous Paving Conference, 2020. Champaign, IL.
14. Youth Committee, Transportation Research Congress, 2020. Hangzhou, China.

Conference Sessions Chaired

1. Mini-Symposium on Mechanics and Modeling of Sustainable Pavement Structures and Materials, Engineering Mechanics Institute Conference, 2025, Anaheim, CA.
2. Mini-Symposium on Mechanics and modeling of pavement structures and materials, Engineering Mechanics Institute Conference, 2024, Chicago, IL.

3. Mini-Symposium 809: Mechanics of Sustainable Alternative Pavement Materials, Modeling, Engineering Mechanics Institute Conference, 2023. Atlanta, GA.
4. Mini-Symposium 804: Chemo-Mechanics of Asphalt Materials: Experimental Characterization and Numerical Modeling, Engineering Mechanics Institute Conference, 2022. Baltimore, MD.
5. Asphalt Material Physical Evaluation: Mixture and Pavement Evaluation, 59th Petersen Asphalt Research Conference, 2022. Laramie, WY.
6. Session 4: Crosscutting Areas, 2nd National Center for Transportation Infrastructure Durability and Life Extension Center (TriDurLE) Symposium, 2022. Honolulu, HI.

Editorial Board for Academic Journals

1. Associate Editor, *Road Materials and Pavement Design* (Taylor & Francis). 2025 - Present.
2. Editorial Board Member, *Road Materials and Pavement Design* (Taylor & Francis). 2021 - 2025.
3. Junior Editorial Board Member, *Journal of Infrastructure Preservation and Resilience* (Springer Nature). 2021 - Present.

Technical Reviewer for Academic Journals

1. Construction and Building Materials (Elsevier)
2. Mechanics of Materials (Elsevier)
3. International Journal of Pavement Engineering (Taylor & Francis)
4. Molecular Simulation (Taylor & Francis)
5. Road Materials and Pavement Design (Taylor & Francis)
6. Journal of Engineering Mechanics (ASCE)
7. Journal of Materials in Civil Engineering (ASCE)
8. Journal of Transportation Engineering Part B: Pavements (ASCE)
9. Journal of Cold Regions Engineering (ASCE)
10. Materials and Structures (Springer)
11. ACS Omega (ACS Publications)
12. ACS Sustainable Resource Management (ACS Publications)
13. Energy & Fuels (ACS Publications)
14. Journal of Risk and Uncertainty in Engineering Systems Part B: Mechanical Engineering (ASME)
15. Journal of Testing and Evaluation (ASTM)
16. Reviews on Advanced Materials Science (Degruyter)
17. Composites and Advanced Materials (Sage Publishing)
18. Transportation Research Record: Journal of the Transportation Research Board (SAGE Publishing)
19. International Journal of Pavement Research and Technology (Springer Nature)
20. Polymer Engineering and Science (Wiley)
21. Buildings (MDPI)
22. Coatings (MDPI)
23. Materials (MDPI)

24. Sustainability (MDPI)

Professional Society Memberships

1. Academic Member, Academy of Pavement Science and Engineering (APSE).
2. Associate Member, American Society of Civil Engineers (ASCE)
3. Member, Association of Asphalt Paving Technologists (AAPT)
4. Member, Engineering Mechanics Institute (EMI), ASCE
5. Member, Transportation & Development Institute (T&DI), ASCE
6. Member, International Union of Laboratories and Experts in Construction Materials, Systems, and Structures (RILEM)
7. Member, Society of Rheology

Ph.D. Committee Member

1. Xiuyu Liu, Ph.D. Civil Engineering (2022). University of Illinois, Urbana, IL. Dissertation title: *Influence of Road Roughness on Vehicle Fuel Consumption and Dynamic Loading.* Advisor: Imad Al-Qadi.
2. Qingqing Cao, Ph.D. Civil Engineering (2022). University of Illinois, Urbana, IL. Dissertation title: *Algorithms for Asphalt Concrete Density and Moisture Content Prediction Using Ground Penetrating Radar Data.* Advisor: Imad Al-Qadi.
3. Punit Singvhi, Ph.D. Civil Engienering (2022). University of Illinois, Urbana, IL. Dissertation title: *Engineered bio-based additives for asphalt binder modification to improve the long-term cracking performance of asphalt concrete.* Advisor: Imad Al-Qadi.
4. Jose Rivera, Ph.D. Civil Engineering (2022). University of Illinois, Urbana, IL. Dissertation title: *Optimizing Superpave Mix Design for Cracking and Rutting Performance.* Advisor: Imad Al-Qadi.
5. Zehui Zhu, Ph.D. Civil Engineering (2023). University of Illinois, Urbana, IL. Dissertation title: *Practical and continuous crack development measurements of asphalt concrete specimens.* Advisor: Imad Al-Qadi.
6. Mamdouh Al-Ghzawi, Ph.D. Civil Engineering (2023). University of Illinois, Urbana, IL. Dissertation title: *Optimizing the construction planning of airport expansion projects.* Advisor: Khaled El-Reyes.
7. Omar Jadallah, Ph.D. Civil Engineering (2023). University of Illinois, Urbana, IL. Dissertation title: *Tapered plate dowels for jointed concrete slabs.* Advisor: Jeff Roesler.
8. Mingu Kang, Ph.D. Civil Engineering (2023). University of Illinois, Urbana, IL. Dissertation title: *Development and Application of Advanced Sensor Technologies for the Pavement Base/Subbase Layer Characterization and Geogrid Effectiveness Evaluation.* Advisor: Erol Tutumluer.
9. Kiran Mohanraj, Ph.D. Civil Engineering (2024). University of Texas, Austin, TX. Dissertation title: *Real-time observations and practical measurements of cracking in asphalt binders.* Advisor: Amit Bhasin.
10. Javier Garcia Mainieri, Ph.D. Civil Engineering (Expected 2025). University of Illinois, Urbana, IL. Dissertation title: *Optimizing Stone-Matrix Asphalt Using Marginal Quality Aggregates.* Advisor: Imad Al-Qadi.
11. Yusra Alhadidi, Ph.D. Civil Engineering (Expected 2025). University of Illinois, Urbana, IL. Dissertation title: *Evaluation of the options for optiing nonrecyclable plastics in asphalt pavement.* Advisor: Imad Al-Qadi.
12. Wenjing Li, Ph.D. Civil Engineering (Expected 2025). University of Illinois, Urbana, IL. Dissertation title: *Integrated Simulation and Prediction Approach for Railway Track Dynamic Responses.* Advisor: Erol Tutumluer.
13. Abdulgafar Sulaiman, Ph.D. Civil Engineering (Expected 2025). University of Illinois, Urbana, IL. Dissertation title: *Polymer softener-modified binder optimization for resilient, economic, and sustainable asphalt concrete.* Advisor: Imad Al-Qadi.

14. Dheeraj Adwani, Ph.D. Civil Engineering (Expected 2025). University of Texas, Austin, TX. Dissertation title: *Development of mechanics-based rapid and simple testing methods for asphalt binder and RAP quality assessment.* Advisor: Amit Bhasin.

15. Syed Faizan Husain, Ph.D. Civil Engineering (Expected 2025). University of Illinois, Urbana, IL. Dissertation title: *Quantifying improvements in geogrid stabilized pavement unbound aggregate layers.* Advisor: Erol Tutumluer.

16. Han Wang, Ph.D. Civil Engineering (Expected 2026). University of Illinois, Urbana, IL. Dissertation title: *Evaluation of Geosynthetics Effectiveness in Aggregate Stabilization and Advanced Analysis Tool for Shear Waves.* Advisor: Erol Tutumluer.

17. Kelin Ding, Ph.D. Civil Engineering (Expected 2026). University of Illinois, Urbana, IL. Dissertation title: *TBA.* Advisor: Erol Tutumluer.

18. Omar Sallam, Ph.D. Civil Engineering (Expected 2026). University of Illinois, Urbana, IL. Dissertation title: *Optimizing selection of rumble strip design and construction.* Advisor: Khaled El-Rayes.

M.S. Committee Member

1. Renan Maia, M.S. Civil Engineering (2020). Universidade Federal do Ceara, Fortaleza, Brazil. Thesis title: *Contributions for a safety-based approach for asphalt mixtures evaluation using digital image processing and traffic microsimulation.* Advisor: Veronica Teixeira Franco Castelo Branco.

2. Mohammed Fakhreddine, M.S. Civil Engineering (2021). American University of Beirut, Beirut, Lebanon. Thesis title: *Eavluation of the moisture susceptibility of asphalt mixtures using the direct tension test at the binder and mastic scales.* Advisor: Ghassan Chehab.

UIUC Service

1. Diversity Committee, Grainger College of Engineering (2020 - 2021)
2. CEE THRIVES Committee, Department of Civil and Environmental Engineering (2022 - Present)
3. Chair, Scholarship Committee, Transportation Group (2022 - Present)
4. Faculty Affiliate, IDEA Institute, (2020 - Present)- served as faculty lead for Anti-Racism Task Force
5. Chair, Search Committee, Research Engineer, Illinois Center for Transportation (2021) (successful search)
6. Search Committee, Senior Research Scientist, Illinois Center for Transportation (2020) (successful search)
7. Grainger College of Engineering Ombudsmen Position Development Committee (2020)

AWARDS

1. Outstanding Reviewer, Journal of Transportation Engineering Part B: Pavements, *American Society of Civil Engineers (ASCE)* (2022).
2. Outstanding Reviewer, Journal of Materials in Civil Engineering, *American Society of Civil Engineers (ASCE)* (2021).
3. Faculty Fellow, *Illinois-Indiana Sea Grant* (2021).
4. Levenick Teaching Sustainability Fellowship, *Institute for Sustainability, Energy, and Environment, University of Illinois at Urbana-Champaign* (2021).
5. Professional Development Grant, *European Union Center, University of Illinois at Urbana-Champaign* (2021).