

RAMEZ HAJJ

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EDUCATION

Ph.D., Civil Engineering, University of Texas , Austin, TX	Dec. 2019
Dissertation: <i>Origin and evolution of damage and healing in asphalt binders</i>	
M.S., Civil Engineering, University of Texas , Austin, TX	May 2016
Master's Thesis: <i>Fatigue characterization of asphalt binders using a thin film poker chip test</i>	
B.S., Civil Engineering, Virginia Tech , Blacksburg, VA	May 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. **Hajj, Ramez** and Scott Young. “An analysis of theoretical and empirical relationships between two asphalt binder cracking parameters.” In review.
2. Gul, Muhammad Aniq, Kaffayatullah Khan, Md. Kamrul Islam, Faisal I Shalabi, Hasan Ozer, **Ramez Hajj**, and Amit Bhasin. “Developing a performance based mix design and evaluating the influence of various factors on sulfur-extended asphalt.” In review.
3. Ahmed, Rayhan B., Kamal Hossain, and **Ramez Hajj**. “Chemical, morphological, and fundamental properties of rejuvenated asphalt binders.” *Journal of Materials in Civil Engineering*. In Press.
4. Sreeram, Anand, Zhen Leng, **Ramez Hajj**, Wellington Lorrán Gaia Ferreira, Zhifei Tan, and Amit Bhasin. “Fundamental investigation of the interaction mechanism between new and aged binders in binder blends.” *International Journal of Pavement Engineering*. Published Online (2020).
5. Filonzi, Angelo, Sang Ki Lee, Wellington Ferreira, **Ramez Hajj**, and Amit Bhasin. “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*. 242 (2020).
6. Sakib, Nazmus, **Ramez Hajj**, Rachel Hure, Ayah Alomari, and Amit Bhasin. “Examining the relationship between bitumen polar fractions, rheological performance benchmarks, and tensile strength.” *Journal of Materials in Civil Engineering*. 32 (6) (2020).
7. Filonzi, Angelo, **Ramez Hajj**, Andre Smit, and Amit Bhasin. “Validation of inverse stereology generation of two dimensional area gradations for computational modeling of asphalt mixtures.” *Road Materials and Pavement Design*. Published Online (2020).
8. **Hajj, Ramez**, Adam Ramm, Amit Bhasin, and Michael Downer. “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) (2020).
9. **Hajj, Ramez**, Angelo Filonzi, Syeda Rahman, and Amit Bhasin. “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) (2019): 649-659.

10. Sreeram, Anand, Zhen Leng, **Ramez Hajj**, and Amit Bhasin. "Compatibility between aged and unaged binders in bituminous mixtures." *Fuel*. 254 (2019).
11. **Hajj, Ramez**, Angelo Filonzi, Andre Smit, and Amit Bhasin. "Design and performance of mixes for use as an ultra thin overlay." *Journal of Transportation Engineering Part B: Pavements*. 145(3) (2019).
12. Sabaraya, Indu Venu, Angelo Filonzi, **Ramez Hajj**, Dipesh Das, Navid Saleh, and Amit Bhasin. "Investigating the ability of nanomaterials to effectively disperse in asphalt binders for use as a modifier." *Journal of Materials in Civil Engineering*. 30(8) (2018).
13. **Hajj, Ramez** and Amit Bhasin. "The search for a measure of fatigue cracking in asphalt binders- a review of different approaches." *International Journal of Pavement Engineering* 19(3) (2018): 205-219.
14. **Hajj, Ramez**, Rachel Hure, and Amit Bhasin. "Evaluation of stiffness, strength, and ductility of asphalt binders at an intermediate temperature." *Transportation Research Record: Journal of the Transportation Research Board* 2632 (2017): 44-51.

Technical Reports

1. Filonzi, Angelo, Sang Ki Lee, **Ramez Hajj**, Darren Hazlett, and Amit Bhasin. "Revised allowable maximum recycled binder ratio (RBR) specification." Final report submitted to Texas Department of Transportation.
2. **Hajj, Ramez**, Angelo Filonzi, and Amit Bhasin. "Improving the Performance Graded asphalt binder specification." Technical Report No. FHWA/TX-18/0-6925-1. May 2019.
3. Filonzi, Angelo, Indu Venu Sabaraya, **Ramez Hajj**, Dipesh Das, Navid B. Saleh, Amit Bhasin, and Enad Mahmoud. "Evaluating the use of nanomaterials to enhance properties of asphalt binders and mixtures." No. FHWA/TX-17/0-6854-1. September 2018.
4. **Hajj, Ramez**, Angelo Filonzi, Aliasghar Dormohammadi, Cheng Zhu, Vivek Tandon, and Amit Bhasin. "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. **Hajj, Ramez**, Adam Ramm, Kiran Mohanraj, Amit Bhasin, and Michael Downer. "Micro-scale observations of fatigue damage mechanism in asphalt binder." Accepted in *AM3P 2020: Advances in Materials, Pavement Performance, and Prediction*. San Antonio, TX. 2020.
2. **Hajj, Ramez** and Amit Bhasin. "Importance of triaxial stress state on asphalt binder tensile failure." Accepted in *AM3P 2020: Advances in Materials, Pavement Performance, and Prediction*. San Antonio, TX. 2020.
3. Filonzi, Angelo, **Ramez Hajj**, Satyavati Komaragiri, and Amit Bhasin. "Validation of intermediate and low temperature asphalt binder cracking indicators using asphalt mixture cracking tests." Accepted in *RILEM International Symposium on Bituminous Materials*. Lyon, France 2020.
4. **Hajj, Ramez**, Adam Ramm, Nazmus Sakib, Amit Bhasin, and Michael Downer. "Relation of modified bitumen microstructure to cracking indicators." *Proceedings of AM3P 2018: Advances in Materials, Pavement Performance, and Prediction*. Accepted for publication and presentation. Doha, Qatar, 2018.
5. Komaragiri, Satyavati, Angelo Filonzi, **Ramez Hajj**, Arash Motamed, and Amit Bhasin. "Three-dimensional profiler for performance evaluation of chip seals." *Proceedings of AM3P 2018: Advances in Materials, Pavement Performance, and Prediction*. Accepted for publication and presentation. Doha, Qatar, 2018.
6. Sakib, Nazmus, Adam Ramm, **Ramez Hajj**, Amit Bhasin, and Michael Downer. "Bulk microstructures in bitumen and its influence on rheology." *Proceedings of AM3P 2018: Advances in Materials, Pavement Performance, and Prediction*. Accepted for publication and presentation. Doha, Qatar, 2018.
7. Tehrani, Mehran, Ayoub Y. Boroujeni, **Ramez Hajj**, and Marwan Al-Haik. "Mechanical characterization of a hybrid carbon nanotube/carbon fiber reinforced composite." *Proceedings of the ASME 2013 International*

Non-Peer Reviewed Articles

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

SELECTED PRESENTATIONS

1. **Hajj, Ramez.** “Fundamental and empirical relationships between binder cracking indicators.” *57th Petersen Asphalt Research Conference*. Laramie, WY, June 2020.
2. **Hajj, Ramez***. “Fundamental investigation of microstructural damage mechanism in asphalt materials.” *Kent Seminar, Illinois Center for Transportation*. Rantoul, IL, Feb. 2020.
3. **Hajj, Ramez***. “Prediction and characterization of failure-inducing instabilities in asphalt materials.” *Construction Materials Seminar, University of Illinois at Urbana-Champaign*. Urbana, IL, Feb. 2020.
4. **Hajj, Ramez.** “Origins and evolution of instabilities and healing in asphalt binders.” *The University of Illinois at Urbana-Champaign*. Urbana, IL, Feb. 2019.
5. **Hajj, Ramez**, Syeda Rahman, and Amit Bhasin. “Three-dimensional finite element analysis to determine the stress state of bitumen in asphalt concrete mixes.” In: *EMI 2018 Conference*. Cambridge, MA, June 2018.
6. **Hajj, Ramez**, Adam Ramm, Nazmus Sakib, Amit Bhasin, and Michael Downer. “Relation of modified bitumen microstructure to cracking indicators.” In: *AM3P 2018: Advances in Materials, Pavement Performance, and Prediction*. Doha, Qatar, April 2018.
7. Sakib, Nazmus, Adam Ramm, **Ramez Hajj**, Amit Bhasin, and Michael Downer. “Bulk microstructures in bitumen and its influence on rheology.” In: *AM3P 2018: Advances in Materials, Pavement Performance, and Prediction*. Doha, Qatar, April 2018.
8. **Hajj, Ramez.** “Improvement of Senior design capstones by extending their lengths and scopes.” In: *2018 ASEE Gulf-Southwest Section Annual Meeting*. Austin, TX, April 2018.
9. **Hajj, Ramez**, Angelo Filonzi, Andre Smit, and Amit Bhasin. “Design and performance of mixes for use as an ultra thin overlay.” In: *Transportation Research Board 97th Annual Meeting*. Washington, DC, January 2018.
10. Filonzi, Angelo, **Ramez Hajj**, Andre Smit, and Amit Bhasin. “Validating inverse stereology methods to create two dimensional area gradations for computational modeling.” In: *Transportation Research Board 97th Annual Meeting*. Washington, DC, January 2018.
11. Filonzi, Angelo, **Ramez Hajj**, Indu Venu Sabaraya, Dipesh Das, Navid Saleh, and Amit Bhasin. “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.
12. **Hajj, Ramez.** “Connecting microstructure, composition, and rheology of asphalt binders.” In: *6th International Transportation PhD Student Symposium*. Urbana, IL, October 2017.
13. **Hajj, Ramez**, Rachel Hure, and Amit Bhasin. “Evaluation of stiffness, strength, and ductility of asphalt binders at intermediate temperature.” In: *Transportation Research Board 96th Annual Meeting*. Washington, DC, January 2017.
14. **Hajj, Ramez** and Amit Bhasin. “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.

GRADUATE STUDENTS ADVISED

Doctoral Students

1. Yujia Lu (May 2020 - Present); Dissertation Title: *TBA*.

COURSES TAUGHT

1. CEE 405 - Asphalt Materials I (Fall 2020)
2. CEE 310 - Introduction to Transportation Engineering (Spring 2020)
3. ME 210/302 - Engineering Design Graphics (Spring 2019, UT-Austin)

ACTIVITIES AND SERVICE

Professional Committee Memberships

1. Member and Committee Research Coordinator, AKM 20 - Standing Committee on Asphalt Binders, Transportation Research Board, 2020 - Present

Grant Reviewer

1. External Reviewer, Research Grants Council (RGC) of Hong Kong, 2020 - Present

Conference Committees

1. Young Committee, International Symposium on Frontiers of Road and Airport Engineering, 2021. Delft, The Netherlands.
2. Planning Committee, 61st Illinois Bituminous Paving Conference, 2020. Champaign, IL.
3. Youth Committee, Transportation Research Congress, 2020. Hangzhou, China.

Technical Reviewer for Academic Journals

1. Advances in Civil Engineering (Hindawi)
2. Construction and Building Materials (Elsevier)
3. Energy & Fuels (ACS Publications)
4. International Journal of Pavement Engineering (Taylor & Francis)
5. International Journal of Pavement Research and Technology (Springer Nature)
6. Journal of Engineering Mechanics (ASCE)
7. Journal of Materials in Civil Engineering (ASCE)
8. Journal of Testing and Evaluation (ASTM)
9. Journal of Transportation Engineering Part B: Pavements (ASCE)

10. Materials and Structures (Springer)
11. Road Materials and Pavement Design (Taylor & Francis)
12. Science Progress (SAGE Publishing)
13. Sustainability (MDPI)
14. Transportation in Developing Economies (Springer Nature)
15. Transportation Research Record: Journal of the Transportation Research Board (SAGE Publishing)

Professional Society Memberships

1. Academic Member, Academy of Pavement Science and Engineering (APSE).
2. Associate Member, American Society of Civil Engineers (ASCE)
3. Member, Engineering Mechanics Institute (EMI), ASCE

Ph.D. Committee Member

1. Punit Singvhi, Ph.D. Civil Engineering (2020). 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.
2. Kiran Mohanraj, Ph.D. Civil Engineering (2021). University of Texas, Austin, TX. Dissertation title: *TBA*. Advisor: Amit Bhasin.

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.

AWARDS AND HONORS

University Graduate Continuing Fellowship	Aug. 2019 - July 2020
· \$ 30,000 fellowship for academic study during 2019-2020 academic year	
CAEE Best Poster Award, GAIN 2019 Conference	Feb. 2019
· \$250 award for outstanding poster:	
UT Austin Libraries OpenCon Travel Scholarship	Nov. 2018
· Travel Scholarship awarded to travel to OpenCon 2018 in Toronto, ON	
Kolodzey Travel Grant	April 2018
· \$1000 award for travel to 2018 AM3P Conference in Doha, Qatar	
Graduate School Professional Development Award	Jan. 2018
· \$350 award for travel to 2018 TRB Annual Meeting from the University of Texas Graduate School	
Intel Excellence in Research Award, GAIN 2017 Conference	Feb. 2017
· \$250 award for outstanding poster: "Evaluation of Stiffness, Strength, and Ductility of Asphalt Binders at Intermediate Temperature"	
Advanced Institute for Transportation Infrastructure Engineering and Management Professional Development Grant	Jan. 2016
· \$500 award for travel to 2016 TRB Annual Meeting	
Keton and Liliana Meland Scholarship	Jan. 2014
· \$2100 merit scholarship awarded to a high-achieving civil engineering undergraduate student	