

Curriculum Vitae
Kamal Hossain, Ph.D., P.Eng.

(Updated as of April 2024)

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1. Rank and Status

Associate Professor of Pavement Engineering, Department of Civil and Environmental Engineering
Carleton University, Ottawa, Canada

2. Address and Contact

Office 3370 Mackenzie, 1125 Colonel By Drive, Ottawa, Canada
Phone: 613-520-2600 x 5789, Email: kamal.hossain@carleton.ca

Lab Minto Centre for Advanced Studies in Engineering (Minto CASE)

Research Group <https://carleton.ca/artel/>
Website

3. Personal Information

Home 302 Cloyne Crescent, Ottawa, ON, Canada

Citizenship Canadian

4. Educations and Trainings

- **University of Illinois at Urbana-Champaign, USA**
Postdoc (Civil Engineering - Transportation), 2016 - 2017
- **University of Waterloo, Canada**
Postdoc (Civil Engineering - Transportation), 2015 - 2016
- **University of Waterloo, Canada**
Doctor of Philosophy (Civil Engineering - Transportation), 2013 - 2015
- **University of Waterloo, Canada**
Master of Applied Science (Civil Engineering - Transportation) (transferred to PhD), 2011 - 2013
- **Bangladesh University of Engineering & Technology (BUET)**
Bachelor of Science in Engineering (Civil Engineering - Structure & Transportation), 1999 - 2005

5. Professional Services and Practices

- **Associate Professor (Tenured)**, Carleton University, Ottawa, ON, Canada, 2022 - Present
- **Assistant Professor**, Carleton University (2020 –2022), Memorial University (2017 – 2020)
- **Consultant**, Multi-Materials Stewardship Board (MMSB) of Government of Newfoundland and Labrador, St. John's, NL, Canada, 2018 - 2019

- **Lecturer**, University of Waterloo, Waterloo, ON, Canada, 1/2016 - 8/2016
- **Graduate Researcher/Postdoctoral Researcher**, University of Waterloo, ON, Canada and University of Illinois at Urbana-Champaign, Urbana, IL, USA, 2011 - 2017
- **Project Engineering/Construction Engineering Services** in the position of Project Coordinator, Assistant Manager, Deputy Manager and Assistant Vice President in Construction Industry, Dhaka, Bangladesh, 2005 - 2011

6. Teaching Practices

- **Pavement and Highway Engineering**, MUN, Carleton University, 2017 - Present
- **Infrastructure and Pavement Management**, MUN, Carleton University, 2017 - Present
- **Mechanics of Materials**, MUN, 2018
- **GIS, Surveying, BIM**, MUN, Carleton University, 2017 - Present
- **Engineering and Sustainability**, University of Waterloo, MUN, 2016, 2019, 2020
- **Transportation Engineering**, University of Waterloo, 2016

7. Service to Professional Communities

- **Standing Committee Member**, United States Transportation Research Board (TRB) Committee on Asphalt Binder (AKM20), 2020 - Present
- **Standing Committee Member and Committee Research Coordinator (CRC)**, United States Transportation Research Board (TRB) Committee on Pavement Maintenance (AKT30), 2018 - Present
- **Technical Committee Member**, American Society of Civil Engineers (ASCE) Construction Institute Bituminous Materials Committee (BMC), 2018 - Present
- **Academic Member** (2018 - Present), **Task Force Lead – Research** (2018-2019); Academy of Pavement Science and Engineering (APSE), USA
- **Board Member**, Junior Editorial Board of Journal of Infrastructure Preservation and Resilience, Springer Nature, 2021 - 2022
- **Member**, Canadian Society for Civil Engineering (CSCE), 2018 - Present
- **Member**, Canadian Technical Asphalt Association (CTAA), 2017 - Present

8. Research Interests

- Pavement Performance and Sustainability; Recycled and Alternative Materials for Highways
- Climate Change Impact Assessment and Adaptation for Roads and Highways
- Pavement Design Adaptation for Connected, Autonomous and Electric Vehicles
- Performance-based Asphalt Mix Design; Balanced Mix Design (BMD)
- Mechanics-based Pavement Design Analysis for Enhanced Pavement Design Solution for Autonomous and Connected Vehicles and Changing Climates; Tire-Pavement Interaction
- Pavement Asset Management; Pavement Distress Evaluation, Performance and Distress Prediction Modelling
- Highway Maintenance and Pavement Preservation Technologies
- Transportation Asset Management (TAM)
- Transportation Infrastructure Resiliency; Transportation Sustainability
- Life Cycle Assessment (LCA) and Life Cycle Cost Analysis (LCCA) of Municipal and Transportation Infrastructure Design Alternatives
- Winter Road Operation; De-icing and Anti-icing Technologies; Snow and Ice Control on Walkways, Sidewalks and Parking lots; Road Safety
- Cold Region Pavement Design and Climate Change Impacts on Transportation Infrastructure
- Development of Energy Harvesting and Smart Pavement
- Pavement Recycling Technologies including WMA, CIR, HIR, FDR
- Advanced Characterization and Performance Modeling of Asphalt and Mastic using AFM, ESEM, FTIR, DSC, GPC, TLC-FID

9. Research Projects

Total Internal and External Funding Supports: Approx. \$1.2M

| Year | Grantor/Research Supports/Institute; Program Type; Project Title | Role | Status |
|-------------|---|------|---------|
| 2024 - 2026 | National Research Council of Canada (NRC), Local calibration of the Pavement Mechanistic Empirical Design (PMED) comprehensive tool to develop a revised methodology for design/analysis of flexible pavement roads (Student Researchers: S. Khan) | PI | Ongoing |
| 2024 - 2026 | Ministry of Transportation Ontario (MTO), HIIIFP, Effect of Concrete Drying Period Conditions and Moisture Content of Concrete Surface on the Effectiveness of Hot-Applied Rubberized Asphalt Waterproofing (HRA) (Student Researchers: S. Khan) | PI | Ongoing |
| 2024 - 2026 | Ministry of Transportation Ontario (MTO), HIIIFP, Evaluations of Environmentally Friendly De-icing | PI | Ongoing |

| | | | |
|----------------|---|----|----------|
| | Salts Through Laboratory and Field Tests (Student Researchers: M. Lawlor, J. Berzegaran) | | |
| 2018 - 2025 | NSERC; Discovery Grant; <i>Sustainable Road Pavement for Harsh Canadian Climates</i> (Student Researchers: S. Khan, A. Beriner, M. Lawlor, K. Oates, S. Chowdhury, S. Guha) | PI | Ongoing |
| 2022 - 2023 | Last20 Inc. and Mitacs, Sustainable Pothole Patching Materials for Ontario Roads (Student researcher: S. Khan) | PI | Complete |
| 2021 - 2023 | Starstech Grant; Investigation of environmentally friendly alternative anti-icing materials for Canadian roads (Student Researchers: M. Lawlor, F. Zawad, K. Oates) | PI | Ongoing |
| 2018 - 2023 | NSERC; Early Career Researcher Grant Supplement | PI | Ongoing |
| 2020 - Present | Carleton University Startup Fund; Data Science Application in Pavement Management, Heatwave Impacts on Pavement Performance, Sidewalk Management Guide for Ottawa (Student Researchers: S. Khan; A. Bernier; K. Oates) | PI | Ongoing |
| 2021 - 2023 | Rut resistant asphalt mixture for City of St. John's City of St. John's and Mitacs. Co-PI: C. Bazan (Student researchers: T. Islam, S. Feroz) | PI | Complete |
| 2019 - 2023 | City of St. John's; Research Contract; Improved Asphalt Mixture for the City of St. John's (Student Researchers: T. Islam, S. Feroz, S. Swarna, S. Guha) | PI | Complete |
| 2022 - 2022 | ELITE Program; Noise Reducing Pavement Design for Woodroffe Ave, Ottawa, Funding to student at Carleton (UG Student Researcher: R. Allaw) | PI | Complete |

| | | | |
|-------------|--|----|----------|
| 2019 - 2020 | Multi-materials Stewardship Board (MMSB) of Government of Newfoundland and Labrador; Engineering Outreach Contract; <i>Tire Derived Aggregates (TDA) for Newfoundland Road Construction</i> (Research Assistant: S. Swarna) | PI | Complete |
| 2019 | Memorial University; Co-op Funding Program; a) <i>Effect of autonomous vehicles and connected traffic system on pavement and highway designs – literature review</i> b) <i>Main factors affect road safety in St. John's area</i> ; Funding support to two students (Student Researchers: R. Alam, C. Potter, O. Malisa) | PI | Complete |
| 2018 - 2019 | Memorial University; Seed, Bridge and Multidisciplinary Fund; <i>Solar Reflective Additives for Pavement Mixture Design</i> | PI | Complete |
| 2018 | Memorial University; Co-op Funding Program; a) <i>Life Cycle Environmental Impact Assessment of Various Pavement Maintenance Technologies – A Case Study for City of St. John's</i> b) <i>Development of Pavement Damage Cost Using Long Term Pavement Performance (LTPP) Data: Canadian Test Section vs. US Test Sections</i> ; c) <i>Innovative Use of Nano-Materials for Improving Asphalt Performance</i> ; Funding support to students (Student Researchers: R. Alam, T. Caudle, S. Soliman, M. Collins) | PI | Complete |
| 2018 - 2022 | President's Doctoral Student Investment Fund (PDSIF); <i>Climate change impacts on pavement performance</i> ; Funding support to student (Student Researcher: S. Swarna) | PI | Complete |
| 2017 - 2019 | Harris Center and Multi-materials Stewardship Board (MMSB) of Government of Newfoundland and Labrador, Stantec, Pardy's Waste Management; Waste Management Applied Research Fund; <i>Application of Waste Cooking Oil in Construction of Asphalt Pavements</i> (Student Researcher: R. Ahmed) | PI | Complete |

| | | | |
|-------------|---|---------------------------|----------|
| 2018 | Multi-Materials Stewardship Board (MMSB) of Government of Newfoundland and Labrador, <i>Application of Tire Derived Aggregates (TDA) in Civil Engineering Projects</i> | Consultant | Complete |
| 2018 | Totalpave Inc., and FEAS, Memorial University, <i>Field Inspection of Pavement Distresses in the Streets of City of St John's, In-kind support for Software</i> (Student Researcher: A. Ali) | PI | Complete |
| 2017 - 2021 | Memorial University; Faculty of Applied Science and Engineering Start-up Funding Program; <i>Pavement Damage Analysis for Various Pavement Design variables for Canadian Roads</i> (Student Researcher: S. Swarna, M. Rana) | PI | Complete |
| 2017 - 2017 | University of Illinois at Urbana – Champaign, Illinois Center for Transportation, USA, <i>Development of Long-Term Aging Protocol for Implementation of Illinois Flexibility Index (I-FIT)</i> . ICT R27-175. | Visiting Research Scholar | Complete |
| 2016 - 2017 | University of Illinois at Urbana – Champaign, Illinois Center for Transportation, USA, <i>Construction and Performance Monitoring of Various Asphalt Mixes</i> . ICT R27-161. | Visiting Research Scholar | Complete |
| 2016 - 2018 | NSERC; PDF; <i>Effect of Pavement Materials and Compositions on Optimal Winter Road Maintenance</i> | PI | Complete |
| 2015 - 2016 | <i>Field Assessment of Three-Dimensional Surface Texture and Frictional Properties of Experimental Canadian Road Pavements</i> at Center for Pavement and Transportation Technology (CPATT); <i>Sustainable Snow and Ice Control for Improving Pedestrian Safety in Parking Lots and Sidewalks</i> at Intelligent Transportation System Solution Laboratory, University of Waterloo | Postdoctoral Researcher | Complete |

10. Awards and Honours

10.1 Awards/Honours

- Editor's Choice Paper Award from Canadian Journal of Civil Engineering, 2022; "*Climate*

Change Impact and Adaptation for Highway Asphalt Pavements: A Literature Review”

- Editor’s Choice Paper Award from ASCE Journal of Cold Regions Engineering, 2022; *“Determination of Optimum Salting Rates for Asphalt Pavements in a Canadian Climate”*
- Best Paper of Pavements Award, American Society of Civil Engineers (ASCE) T&DI, 2019 *“Impact of Asphalt Modifier Dosage on Modified Binder Rheology and Chemistry with Long-Term Aging”*
- Invited Speaker, CICM, Military Institute of Science and Technology, Dhaka, July 2023
- Invited Speaker, Climate Change Impact on Pavement Performance at the 13th Annual Meeting of International Association of Chinese Infrastructure Professionals (IACIP), Jan 2023
- Invited Speaker, Climate Change Impact on Pavement, UKZN, South Africa, 2022
- Starstech Research Award (South Korea), 2021
- Keynote speaker at the ICPACE 2021, RUET, Bangladesh, 2021
- Invited speaker at International Webinar, NHEC, Bangalore, India, 2020
- Invited presentation on NL road issues to the Minister of Transportation, Govt. of NL, 2019
- Board Member, Junior Editorial Board of Journal of Infrastructure Preservation and Resilience, Springer Nature, 2021 - 2022
- Visiting Research Scholar, University of Illinois at Urbana-Champaign, 2016
- NSERC- Canada Postdoctoral Fellowship, 2016 - 2017
- University of Waterloo, Faculty of Engineering Scholarship for Scholarly Contributions, 3 times, 2011 – 2014
- Employee of the Year Award for Outstanding Performance, Bay Development Ltd, 2010

10.2 Students’ Awards

- Ata Khan Sustainable Transportation Award, Mitchell Lawlor, 2024
- A. O. Abd El Halim Transportation Award, Jalal Berzegaran, 2024
- Medal Nomination for Outstanding Graduate Thesis, Alyssa Bernier, 2023
- Medal Nomination for Outstanding Graduate Thesis, Mitchell Lawlor, 2023
- 2nd Prize in 3MT Thesis Competition, MUN, Award to Master’s Student Shahrul Feroz, 2023
- 3rd Prize in Poster Competition, MUN Research Day, Award to Master’s Student Shahrul Feroz, Memorial University, *“Influence of fillers on creep recovery performance of aged asphalt mastic containing modifiers and liquid anti-stripping agent”* 2022
- Best Poster Award, Groupe de Recherche en Ingénierie des Chaussées (GRINCH) Conference, Montreal, 2022; *“Climate Change Adaptation Strategies for Canadian Asphalt Pavements”*
- Research Excellence Award to Master’s Student, Shahrul Feroz, Memorial University, 2023
- Best Technical Paper Presentation Award to A. Bernier, 66th Annual Conference of Canadian Technical Asphalt Association (CTAA), Paper Title: *“Selection of Appropriate Binder Grade for Changing Climate and Its Influence on Pavement Performance”*, 2022
- John Braaksma Transportation Award to Master’s Student Alyssa Bernier, Carleton University, 2022
- Ontario Graduate Scholarship to Master’s Student Alyssa Bernier, Carleton University, 2022
- Canadian Technical Asphalt Association (CTAA) Graduate Scholarship Award to Master’s Student Alyssa Bernier, Carleton University, 2021
- GSU Teaching Excellence Award to Master’s Student Shahrul Feroz, Memorial University, 2022

- GSU Award in Community Service to Master's Student Towhidul Islam, Memorial University, 2022
- Fellow of School of Graduate Studies Award to Master's Student Towhidul Islam, Memorial University, 2021
- TAUMUN Award for Outstanding Contribution in Teaching to Master's Student Shajib Guha, Memorial University, 2021
- Fellow of School of Graduate Studies Award to Master's Student Masud Rana, Memorial University, 2020
- Research Excellence Award to PhD Student Surya Swarna, Memorial University Graduate Student Union, 2020
- Fellow of School of Graduate Studies Award to Master's Student Rakibul Alam, Memorial University, 2020
- Fellow of School of Graduate Studies Award to Master's Student Rayhan Ahmed, Memorial University, 2020
- Fellow of School of Graduate Studies Award to PhD Student Surya Swarna, Memorial University, 2020
- Transport Canada Travel Grant to PhD Student Surya Swarna, Government of Canada, 2018
- NSERC Canada Graduate Scholarship Master's Award to Co-op Student Thomas Donnely, University of Waterloo, 2018

11. Courses Taught

| Year | Course No. | Level and Medium | Course Name | Students (Approx.) | Course evaluation | Institution |
|-----------|------------|---------------------------------------|--|--------------------|-------------------|---------------------|
| 2023/2024 | CIVE 5608 | Graduate | Advanced Pavement Engineering and Management | 15 | 4.42 | Carleton University |
| 2022/2023 | CIVE 5303 | Graduate | Pavements and Materials | 20 | 4.15 | Carleton University |
| 2022/2023 | CIVE 4209 | Undergraduate | Highway Engineering | 40 | N/A | Carleton University |
| 2022/2023 | CIVE 2004 | Undergraduate | GIS, Surveying, CAD | 45 | 4.35 | Carleton University |
| 2021/2022 | CIVE 2004 | Undergraduate In person and Online | GIS, Surveying, CAD | 70 | 4.19 | Carleton University |
| 2021/2022 | CIVE 5303 | Graduate In person | Pavements and Materials | 12 | 4.59 | Carleton University |

| | | | | | | |
|-----------|-----------|-----------------|--|-----|--|---------------------|
| 2021/2022 | CIVE 5303 | Graduate Online | Pavements and Materials | 12 | 4.15 | Carleton University |
| 2020/2021 | CIVE 5806 | Graduate | Advanced Pavement Engineering and Management | 10 | 4.56 | Carleton University |
| 2020/2021 | CIVE 2004 | Undergraduate | GIS, Surveying, CAD | 125 | 4.10 | Carleton University |
| 2020/2021 | CIVE 5303 | Graduate | Pavements and Materials | 30 | 3.97 | Carleton University |
| 2022/2023 | CIVE 4918 | Undergraduate | Capstone Project | 12 | 4 th year Group design project supervisor | Carleton University |
| 2021/2022 | CIVE 4918 | Undergraduate | Capstone Project | 6 | 4 th year Group design project supervisor | Carleton University |
| 2019/2020 | ENGI 7745 | Undergraduate | Highway Engineering | 55 | 4.37 | Memorial University |
| 2019/2020 | ENGI 9799 | Graduate | Sustainable Infrastructure Management | 10 | COVID-19 started, so evaluation was not conducted | Memorial University |
| 2019/2020 | ENGI 3703 | Undergraduate | Surveying and Geomatics | 30 | 4.86 | Memorial University |
| 2018/2019 | ENGI 7745 | Undergraduate | Highway Engineering | 55 | 3.61 | Memorial University |
| 2018/2019 | ENGI 3703 | Undergraduate | Surveying and Geomatics | 60 | 4.31 | Memorial University |
| 2017/2018 | ENGI 7745 | Undergraduate | Highway Engineering | 55 | 4.42 | Memorial University |

| | | | | | | |
|-----------|-----------|---------------|---|-----|----------------------|------------------------|
| 2017/2018 | ENGI 4312 | Undergraduate | Mechanics of Materials (Solids - I) | 90 | 4.10 | Memorial University |
| 2015/2016 | CIVE 240 | Undergraduate | Engineering and Sustainable Development | 110 | Q8: 96%; Q10: 88% | University of Waterloo |
| 2015/2016 | CIVE 440 | Undergraduate | Transit Planning and Operations | 60 | Q8: 94%; Q10: 70% | University of Waterloo |

12. Research Student Supervision

12.1 PhD Students (7 PhD Students)

| Year | Role | Status | Student |
|-------------|---|---|------------------|
| 2023 - 2027 | Principal Supervisor Co-supervisor Dr. Jennifer Drake | In progress, Carleton | Mitch Lawlor |
| 2022 - 2026 | Principal Supervisor | In progress, Carleton | Sajib Khan |
| 2022 - 2026 | Principal Supervisor | In progress, Carleton | Jalal Barzegaran |
| 2018 - 2022 | Principal Supervisor | Graduated at MUN Current Position – Postdoc, Rowan University, New Jersey, USA | Surya Swarna |
| 2018 - 2022 | Supervising Committee Member Supervisor: Dr. A. Dhar | Graduated at MUN Assistant Professor, University of Mount Union, Ohio, USA | Auchib Reza |
| 2018 - 2022 | Co-supervisor Supervisor: Dr. S. Imtiaz | Graduated at MUN | Farhana Akter |
| 2017 - 2021 | Principal Supervisor Co-supervisor: Dr. A. Hussein | Graduated at MUN Professor, Libya | Abdualmtlab Ali |

12.2 Master's Students Thesis based (16 MASc Students)

| Year | Role | Status | Student |
|-------------|--|--|-------------------|
| 2022 - 2024 | Principal Supervisor | In progress, Carleton | Showaib Chowdhury |
| 2022 - 2024 | Principal Supervisor | In progress, Carleton | Madhuri Biswas |
| 2022 - 2024 | Principal Supervisor | In progress, Carleton | Fahad Zawad |
| 2021 - 2023 | Principal Supervisor | In progress, Carleton | Keaton Oates |
| 2022 - 2024 | Principal Supervisor | In progress, Carleton | Snahashish Paul |
| 2021 - 2023 | Principal Supervisor | Complete, Carleton Current position – PhD Student, Canada | Mitch Lawlor |
| 2021 - 2023 | Principal Supervisor | Complete, Carleton Current position – GEMTEC, Canada | Alyssa Bernier |
| 2021 - 2023 | Principal Supervisor Co-Supervisor: Dr. Bazan | Complete, MUN Current position –WSP, Canada | Shahrul Feroz |
| 2019 - 2022 | Principal Supervisor Co-Supervisor: Dr. Bazan | Graduated at MUN Current position –Ministry of Transportation, SK, Canada | Towhidul Islam |
| 2019 - 2021 | Principal Supervisor Co-Supervisor: Dr. Bazan | Graduated at MUN Current position – Postdoc, University of Florida, USA | Shahbaz Khan |
| 2019 - 2021 | Principal Supervisor | Graduated at MUN Current position – City of Toronto, Canada | Shajib Guha |
| 2019 - 2020 | Principal Supervisor | Graduated at MUN Current position – Assistant Professor, RUET | Masud Rana |

| | | | |
|-------------|--|--|--------------|
| 2018 - 2020 | Principal Supervisor Co-Supervisor: Dr. Bazan | Graduated at MUN Current position – PhD Candidate, University of Central Florida, USA | Rakibul Alam |
| 2018 - 2020 | Principal Supervisor | Graduated at MUN Current position – Pavement Engineer, City of Regina, SK, Canada | Rayhan Ahmed |

12.3 Undergraduate Research Students

| Year | Role | Status | Student |
|-------------|--|--------------------------|---|
| 2023 - 2024 | Capstone Project Supervisor | Complete Carleton | 6 students |
| 2022 - 2023 | Capstone Project Supervisor | In progress, Carleton | Group 1: Muneek Tatla, Alex Mcauley Jason Te Grotenhuis; Carson Cappuccitti, Justin Trinh; Group 2: 5 students |
| 2022 | Supervisor, ELITE Funded Intern Project | Complete, Carleton | R. Allaw |
| 2021 - 2022 | Capstone Project Supervisor | Complete, Carleton | P. Witalis, M. Calwell, A. Tabbaa, M. Burton, C. Breedy, R. Stewert |
| 2019 | Supervisor | Complete | O. Malisa |
| 2019 | Supervisor | Complete | C. Potter |
| 2018 | Supervisor | Complete | S. Soliman |
| 2018 | Supervisor | Complete | T. Caudle |
| 2018 | Supervisor | Complete | M. Collins |

13. Reviews and Examinations

13.1 Grant Reviews and Expert Duties

| Role | Organization | Year(s) |
|------------------------------|--|---------|
| Expert Duty | Supreme Court of British Columbia legal matter on slip and fall incident on a sidewalk pavement in Prince George, BC | 2022 |
| Expert Duty | Ontario Superior Court of Justice legal matter on slip and fall incident on a parking lot in Waterloo, ON | 2022 |
| Expert Duty | Ontario Superior Court of Justice legal matter on slip and fall incident on a parking lot in Stratford, ON | 2018 |
| International Grant Reviewer | Swiss National Science Foundation (SNSF); Swiss Programme for International Research by Scientific Investigation Teams (SPIRIT), Bern, Switzerland | 2021 |
| International Grant Reviewer | Dutch Research Council (NWO), Delft University of Technology (TU Delft) Grant Project Review, The Netherlands | 2020 |
| Grant reviewer | NSERC-Canada, DG, ETS, University of Windsor, University of Manitoba: 3 DG grants | 2024 |
| Grant reviewer | NSERC- Canada, Discovery Grant, University of Waterloo and ETS, Montreal; 2 DG Grants | 2022 |
| Grant reviewer | Mitacs, Accelerate Research Grant Project, University of Calgary | 2022 |
| Grant reviewer | NSERC- Canada, Discovery Grant, University of Waterloo Invitation Declined | 2021 |
| Grant reviewer | Mitacs, Accelerate Research Grant Project, Dalhousie University | 2021 |
| Grant reviewer | Mitacs, Accelerate Research Grant Project, University of Waterloo, Invitation Declined | 2020 |
| Grant reviewer | Mitacs, Grant Project, Ryerson University | 2019 |
| Grant reviewer | University of Sharjah Grant Project, UAE | 2018 |
| Book proposal reviewer | Taylor and Francis; Book Proposal Review; Advanced Highway Materials Testing and Characterization – Flexible Pavements | 2020 |

| | | |
|------------------------|--|------|
| Book proposal reviewer | Taylor & Francis; Book Proposal Review; Smart Cement | 2018 |
|------------------------|--|------|

13.2 Graduate Thesis Examination

| Date | Examination Activity | Thesis Area/Sub-discipline | Role | Level | Student |
|------------------------|--------------------------------|---|--------------------------|-------|---|
| PhD Examination | | | | | |
| 2023 | Thesis proposal examination | Pavement structural design and climate change | <u>External examiner</u> | PhD | Lei Yin Michigan Technological University, USA |
| 2022 | Thesis examination | Pavement Engineering: Bituminous materials characterization | <u>External examiner</u> | PhD | M. Jamal RMIT University, Australia |
| 2022 | Thesis examination | Pavement Engineering: Bituminous materials characterization | <u>External examiner</u> | PhD | M. Ishaq RMIT University, Australia |
| 2018 | Thesis and defense examination | Asphalt mix characterization, full-depth reclamation, cold-in-place recycling | <u>External examiner</u> | PhD | A. Gandi École de technologie supérieure (ETS), Quebec |
| 2023 - 2024 | Thesis proposal/final defence | Faculty of Engineering and Design | Examiner/Chair | PhD | 3 Students of Dr. K. Ismail, Dr. Y. Hassan, Dr. A. Kabir |
| 2022 | Thesis defense | Highway Engineering | Examiner | PhD | M. Alyamani Carleton |
| 2021 | Thesis defense proposal | Highway Engineering | Chair and Examiner | PhD | M. Alyamani Carleton |
| 2021 | Comprehensive examination | Highway Engineering | Examiner | PhD | S. Fakhoury |

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|---|--------------------------------|--|----------------------------|------|-----------------------|
| | | | | | Carleton |
| 2021 | Thesis and defense examination | Asphalt compaction quality, permeability | Department Member Examiner | PhD | C. Igboke Carleton |
| 2020 | Thesis and defense examination | Geotechnical engineering, sand properties | Internal examiner | PhD | M. Tarhouni |
| 2019 | Thesis and defense examination | Finite element modeling, ice mechanics | Internal examiner | PhD | I. Gribanov |
| 2019 | Comprehensive examination | Geotechnical engineering | Chair | PhD | R. Subedi |
| 2019 | Thesis proposal | Geotechnical engineering, finite element analysis, large deformation, slope failure analysis | Chair | PhD | J. Chen |
| 2019 | Thesis proposal | Geotechnical engineering, sandy soil, stress-strain behavior | Chair | PhD | M. Tarhouni |
| 2018 | Thesis proposal | Materials, crumb rubber, synthetic fiber, dynamic loading effect | Chair | PhD | B. Aleem |
| 2018 | Thesis and defense examination | Mechanics, modeling structural capacity | Internal examiner | PhD | B. Mondal |
| 2017 | Comprehensive examination | Mechanics, numerical analysis | Chair | PhD | A. Elruby |
| Master's Examination (MEng program in MUN is thesis based) | | | | | |
| 2022 | Thesis defense | Transportation engineering | Internal examiner | MASc | S. Gatien Carleton |
| 2022 | Thesis defense | Environmental engineering | Chair | MASc | T. Erdem Carleton |

| | | | | | |
|------|--------------------|---|-------------------|------|-------------------------|
| 2021 | Thesis defense | Transportation engineering | Chair | MASc | C. Sentengo Carleton |
| 2019 | Thesis examination | Geotechnical engineering | Internal examiner | MEng | P. Murugathasan |
| 2019 | Thesis examination | Geotechnical engineering, pipe-soil interaction, sandy soil, experimental works | Internal examiner | MEng | M. Esmaeilzadeh |
| 2018 | Thesis examination | Mechanics, numerical modeling, statistical modeling | Internal examiner | MEng | M. Said |
| 2018 | Thesis examination | Geotechnical engineering, numerical modeling | Internal examiner | MEng | A. Riyadul |
| 2018 | Thesis examination | Asphalt characterization | Internal examiner | MEng | H. Geneve |
| 2017 | Thesis examination | Asphalt characterization | Internal examiner | MEng | H. Seddig |
| 2017 | Thesis examination | Phase change materials | Internal examiner | MEng | A. Lasmar |
| 2017 | Thesis examination | Asphalt characterization | Internal examiner | MEng | I. Futheiz |

13.3 Technical and Scientific Reviewer of Journals

- Transportation Research Record - Journal of Transportation Research Board (TRB) of National Academies of Sciences and Engineering
- Journal of Materials in Civil Engineering, ASCE
- Canadian Journal of Civil Engineering (CJCE), National Research Press
- International Journal of Pavement Engineering, Taylor & Francis
- Road Materials and Pavement Design, Taylor & Francis
- Construction and Building Materials, Elsevier
- Transportation Research Part D: Transport and Environment, Elsevier
- Fuel, Elsevier
- Journal of Testing and Evaluation, ASTM
- Wiley and Blackwell Publications
- Conference Proceeding of Canadian Society for Civil Engineering (CSCE)
- Conference Proceeding of American Society of Civil Engineers (ASCE)

- Conference Proceeding of Transportation Association of Canada (TAC)
- Conference Proceeding of World Conference on Transport Research (WCTR)

14. Service to Professional Events and Committees

14.1 Role in Conferences

| Conference | Date | Role |
|--|--------------------------------------|---|
| 14th ISAP International Conference on Asphalt Pavement, Montreal, Canada | 2024 (June 2-7) | Scientific Committee Member |
| 102 nd Annual Meeting of Transportation Research Board (TRB) and Conference, Asphalt Rejuvenator (AKM20) poster session and Pavement maintenance (AKT30) poster session | 2023 (Jan. 8-11) | Presiding/Session Chair |
| 2 nd International Conference on Advances in Civil Infrastructure and Construction Materials (CICM), Dhaka, Bangladesh | 2023 (July 26-28) | Invited Speaker |
| 2022 Innovation Challenge of Professional Engineers Ontario, PEO Ottawa Chapter | 2022, 2023 | Judge Panel Member |
| 101 st Annual Meeting of Transportation Research Board (TRB) and Conference, Innovations in Pavement Maintenance, Lectern Session 1361 | 2022 (Jan. 9-13) | Presiding/Session Chair |
| 101 st Annual Meeting of Transportation Research Board (TRB) and Conference, Recycling and Innovative Material Advances in Asphalt Binder Technology, Event No: 1274 | 2022 (Jan. 9-13) | Presiding/Session Chair |
| ICPACE 2021, RUET, Bangladesh | 2021 (Sept. 9-11) | Keynote Speech |
| CSCE Annual Conference | 2022 (May 25-28) 2021 (May 26-29) | Materials Speciality Technical Committee Member |
| ASCE Transportation and Development Institute Highway and Airfield Conference, Virtual Event | 2021 (June 8-10) | Scientific Committee Member |
| 99th Annual Meeting of Transportation Research Board (TRB) and Conference, Asphalt Binders: Rejuvenation, Non-Specification Testing, and Investigations, Event No: 1556 | 2020 (Jan. 12-16) | Presiding/Session Chair |
| 99th Annual Meeting of Transportation Research Board (TRB) and Conference, Recent | 2020 (Jan. 12-16) | Presiding/Session Chair |

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|--|---|---|
| Developments in Pavement Surface Treatments, Event No: 1734 | | |
| 98 th Annual Meeting of Transportation Research Board (TRB) and Conference, Pothole Repairs and Patch Performance Lectern Session, Event No: 1529 | 2019 (Jan. 13-17) | Presiding/Session Chair |
| 98 th Annual Meeting of Transportation Research Board (TRB) and Conference; AFK 20 Technical Session on Asphalt Binder: Modifiers, Recycling, and Rejuvenation Event No: 1623 | 2019 (Jan. 13-17) | Presiding/Session Chair |
| 15th World Conference on Transport Research (WCTR); SIG: I1: Highway Design and Materials. Mumbai, India | 2019 (May 26-31) | Conference Technical Reviewer |
| ASCE Transportation and Development Institute Highway and Airfield Conference, Chicago, IL, USA | 2019 (July 21-24) | Scientific Committee Member |
| TRB AKM 20 PhD Student Research Workshop | 2020 (Jan. 12-16) 2019 (Jan. 13-17) 2021 (Jan. 11-16) | Workshop Abstract Review Group Member |
| CSCE Annual Conference, Fredericton, NB, Canada | 2018 (June 13-16) | Chair for Bituminous, Pavement and Geotechnical Materials Session (declined) and Technical Reviewer |
| Transportation Association of Canada (TAC) Foundation Scholarship Program | 2019 (June) 2018 (May) | Award Applications Reviewer |

14.2 Service to Internal Academic Committees

| Committee | Year | Role |
|--|-------------|--------|
| DCEE, Committee, External Research Funding and Collaboration, Carleton | 2022 - 2023 | Member |
| DCEE Graduate Learning Outcomes Assessment Committee, Carleton | 2022 - 2023 | Member |
| DCEE Graduate Learning Outcomes Assessment Committee, Carleton | 2021 - 2022 | Member |
| DCEE Scholarship Selection Committee, Carleton | 2021 - 2022 | Member |

| | | |
|--|-------------|---------------------------|
| Hiring Committee for Faculty Position in DCEE, Carleton | 2021 | Member |
| DCEE Undergraduate Program Committee, Pathway Option, Carleton | 2021 | Member |
| Graduate Student Admission Sub-Committee, FEAS, MUN | 2019 - 2020 | Member |
| Search Committee for the Faculty Position in Environmental Engineering at the Department of Civil Engineering, MUN | 2020 | Member |
| Faculty of Engineering and Applied Science Graduate Study Scholarships and Awards Sub-Committee, MUN | 2019 - 2020 | Member |
| Departmental Head Search Committee, Civil, MUN | 2019 | Member |
| Faculty of Engineering Graduate Studies Committee, MUN | 2019 | Standing Committee Member |
| Faculty of Engineering Research Advisory Committee, MUN | 2019 - 2020 | Standing Committee Member |
| Departmental Head Search Committee, ECE, MUN | 2019 | Member (Appointed) |
| Departmental Head Search Committee, ONAE, MUN | 2018 | Member (Appointed) |
| Standing Committee on Graduate Studies, FEAS, MUN | 2018 - 2020 | Member At Large |
| Outstanding Teaching Assistants Selection Committee, FEAS, MUN | 2018 | Member |
| Memorial University Transportation Committee, MUN | 2018 - 2020 | MUNFA Representative |

14.3 Professional Memberships

| Organization | Year | Role |
|---|----------------|----------------------------------|
| Springer Nature – Journal of Infrastructure Preservation and Resilience | 2021 - Present | Member of Junior Editorial Board |

| | | |
|--|---|---|
| Transportation Research Board (TRB) | 2020 - Present | Standing Committee Member (AKM20 - Asphalt Binder) |
| Transportation Research Board (TRB) | 2018 - Present | Standing Committee Member (AHD20/AKT30 – Pavement Maintenance) |
| American Society of Civil Engineers (ASCE) Construction Institute (CI) Committee on Bituminous Materials | 2018 - Present | Member of Bituminous Materials Committee (BMC) |
| Academy for Pavement Science and Engineering (APSE) | 2017 - Present | Academic Member (Membership ID: 40868853) |
| Canadian Society for Civil Engineering | 2018 - Present | Member (Membership ID: 093492) |
| Canadian Technical Asphalt Association (CTAA) | 2017 - Present | Member (Membership ID: G4307) |
| Transportation Research Board (TRB) | 2018 - 2020 | Standing Committee Member (AHD25 – Asphalt Sealants) |
| Transportation Association of Canada (TAC) | 2017 - 2018 | Member (Membership ID: 38233; Inactive) |
| Professional Engineers Ontario | 2018 - Present | P.Eng. Member (Membership ID: 100177326) |
| Project Management Institute (PMI) and NL-PMI Chapter | 2015 - Present (PMI) 2018 - Present (NL-PMI) | PMP Member (Membership ID: 1802887) |

15. Media Appearances and Features

| | |
|---|-----------|
| Total Media Appearances/Features | 32 |
|---|-----------|

1. CityNews TV Channel, City of Winnipeg on track for road work so far this year
<https://winnipeg.citynews.ca/2024/07/23/city-of-winnipeg-on-track-for-road-work-so-far-this-year/> CityNews, Winnipeg, July 24, 2024
2. CBC, why are potholes so bad in Saskatchewan, CBC Radio, April 30, 2024.
<https://www.cbc.ca/listen/cbc-podcasts/1416-good-question-saskatchewan/episode/16059844-why-are-potholes-so-bad-here>
3. Construct Connect, Daily Commercial News: Paving pitfalls: Roadway asphalt mixes need to be reviewed to pace climate change, February 21, 2024
<https://canada.constructconnect.com/dcn/news/infrastructure/2024/02/paving-pitfalls-roadway-asphalt-mixes-need-to-be->

- [reviewed-to-pace-climate-change](#)
4. CBC, Interview with Nicole Williams, Climate change and the rising cost of potholes, March 10, 2023. <https://www.cbc.ca/news/canada/ottawa/ottawa-potholes-cost-climate-change-1.6773170>
 5. CBC News Ottawa, Climate change and the rising cost of potholes, March 10, 2023. <https://www.cbc.ca/player/play/2181016131744>
 6. Carleton University Media Channel; Road cracks, climate change impact, 2023, https://twitter.com/Carleton_U/status/1674482410967146519
 7. The Vancouver Sun, Interview with Daphne Bramham, Highway Issues in B. C., Nov. 26, 2021. <https://vancouversun.com/news/daphne-bramham-highways-must-be-built-to-higher-standards-with-climate-change-in-mind>
 8. TV Interview for Rideau Street Sinkhole Science Documentary, MintoCASE, Carleton University, Producer- Britespark Films, London, UK, August 13, 2021
 9. The Telegram, Interview with Rosie Mullaely, Pavement potholes, April 23, 2021. <https://www.saltwire.com/newfoundland-labrador/news/less-traffic-mild-winter-has-meant-fewer-potholes-in-st-johns-100579833/>
 10. City of St. John's Media Release, City Partners with Memorial University to Improve Asphalt, March 18, 2021; <http://www.stjohns.ca/media-release/city-partners-memorial-university-improve-asphalt>
 11. Gazette News, Paving the Way - Collaborative asphalt project to improve roads in N.L., February 3, 2021; <https://gazette.mun.ca/research/paving-the-way-2/>
 12. The Telegram, Interview with Juantia Mercer, A need for speed? Not so, say St. John's residents. December 14, 2020; <https://www.thetelegram.com/news/local/a-need-for-speed-not-so-say-st-johns-residents-530611/>
 13. Global News, Interview with Julia Wong, Winter road maintenance issues in the City of Edmonton, February 24, 2020.
 14. CBC Interview with Jamie Fitzpatrick, St. John's Morning Show. The State of the Asphalt, November 20, 2019; <https://www.cbc.ca/listen/live-radio/1-56-st-johns-morning-show/clip/15747482-the-state-of-the-asphalt>
 15. Feature in "Speaking of Engineering Lecture". Sponsored by Faculty of Engineering and Professional Engineers & Geoscientists Newfoundland and Labrador (PEGNL). Have you ever wondered how road conditions in N.L. can be improved? November 20, 2019; <https://www.mun.ca/engineering/community/programs/lectures/roadconditions.php>
 16. Speaking of Engineering Lecture of Faculty of Engineering and Professional Engineers & Geoscientists Newfoundland and Labrador (PEGNL). How road conditions in NL can be improved? November 20, 2019; <https://www.youtube.com/watch?v=dhMfbDDE5fo>
 17. Gazette News, Public Lecture on N.L. Road Issues, November 14, 2019; <https://gazette.mun.ca/public-engagement/ruts-and-potholes/>
 18. CHMR FM93.5 Radio, Interview on Pavement Pothole, Weekly Roundup Program, November 15, 2019
 19. The Asphalt Institute, Interview for the Asphalt Magazine – Asphalt Academic, Fall 2019, Vol 34, No 3; https://asphalt.mydigitalpublication.com/publication/?m=21825&i=625789&view=articleBrowser&article_id=3501439
 20. The Telegram, Letter to the Editor, A better option for asphalt testing? March 20, 2019; <https://www.thetelegram.com/opinion/letter-to-the-editor/letter-a-better-option-for-asphalt-testing-293504/>

21. The Telegram, Text Interview, It's pothole season and a Memorial University professor says Newfoundland's roads can be better, March 15, 2019; <https://www.thetelegram.com/news/local/its-pothole-season-and-a-memorial-university-professor-says-newfoundlands-roads-can-be-better-292262/>
22. The Western Star, Text Interview, Bob Byrnes and paving expert say Hansen Highway pavement cracking too soon, January 22, 2019; <https://www.thewesternstar.com/news/local/bob-byrnes-and-paving-expert-say-hansen-highway-pavement-cracking-too-soon-277736/>
23. CBC Interview with Ted Blades, Radio Broadcast, Pothole issue, On the Go, March 14, 2019
24. CBC Interview with Lindsay Bird, Radio Broadcast, Morning Show, and Text Interview, why line paint just won't stick to Newfoundland streets, June 18, 2018; **Error! Hyperlink reference not valid.**<https://www.theweathernetwork.com/news/articles/road-line-painting-problems-newfoundland-labrador-noreaster-maritimes-atlantic-canada-roads-winter-storms/104871>
25. VOCM News, MUN Civil Engineer Tackles Driving Conditions Across the Province. November 18, 2019; <https://vocm.com/2019/11/18/mun-civil-engineer-tackles-driving-conditions-across-the-province/>
26. VOCM, Openline with Paddy Daly, Road Conditions of NL and Memorial University's efforts, The citation is from 1:33:00 to 1:35:00 and 1:51:00 to 1:54:00 in the audio clip. May 17, 2019; <https://soundcloud.com/vocm/openline-friday-may-17th>
27. VOCM News, Interview with Darrell Power, Sunday Drive show, Pavement Talk (First 15 minutes), May 5, 2019; https://soundcloud.com/vocm/may-5-heather-rankin-mallory-johnson-rachel-cousins-kamal-hossain-inder-veer-singh-and-more?utm_source=soundcloud&utm_campaign=wtshare&utm_medium=Twitter&utm_content=https%3A//soundcloud.com/vocm/may-5-heather-rankin-mallory-johnson-rachel-cousins-kamal-hossain-inder-veer-singh-and-more
28. VOCM Interview with Paddy Daly, MUN Civil Engineering Prof Takes On 'The Pothole Problem', March 12, 2019; <http://vocm.com/news/mun-civil-engineering-prof-takes-on-the-pothole-problem/>
29. The Academy of Pavement Science and Engineering, Fall Newsletter 2018; APSE Task Forces continue working on achieving APSE's goals.
30. The Benchmarks, Engineering professor received federal investment on harsh climate research, Spring 2019 Issue; https://issuu.com/memorialu/docs/benchmarks_spring_2019_issuu_fa/10?ff
31. The Gazette, Text Interview, Infusion for innovation: impact of harsh climate on pavement performance and sustainability, NSERC Discovery Grant project, October 18, 2018; <https://gazette.mun.ca/research/infusion-for-innovation/>
32. CPATT Newsletter, The Centre for Pavement and Transportation Technology, University of Waterloo, Issue 11, Spring 2014; https://uwaterloo.ca/centre-pavement-transportation-technology/sites/ca.centre-pavement-transportation-technology/files/uploads/files/cpatt_newsletter_spring_2014.pdf
33. Ontario's Landscape Trade Publication, Safer sidewalks and parking lots, Special Issue for Canada's Snow Fighters, July-Aug 2013; <https://horttrades.com/safer-sidewalks-and-parking-lots>

16. Publications, Technical Reports, Presentations, Software

| Research Product Type | Total |
|------------------------------|-------|
| Thesis Supervision Completed | 13 |

| | |
|---|----|
| Software/Apps/Tools | 2 |
| Peer-reviewed Journal Articles | 36 |
| Peer-reviewed Full-length Conference Papers | 53 |
| Peer-reviewed Extended Abstracts/ Posters | 9 |
| Contribution to Books | 3 |
| Technical Reports | 7 |
| Presentations/Talks | 26 |

16.1 Thesis Supervision Completed

- [1]. Feroz, S. I. (2023). Influence of Modifiers, Anti-stripping Agents and Fillers on Rheological and Mechanical Performance of Asphalt Mastic and Asphalt Mixture. Master's thesis. <https://research.library.mun.ca/15996/>
- [2]. Bernier, A. T. (2023). The Impact of Historical Climate Change Induced Heat Waves on the Predicted Performance of Canadian Flexible Pavements. Master's thesis. <https://doi.org/10.22215/etd/2023-15621>
- [3]. Lawlor, M. D. (2023). Evaluating Performance of Alternative Deicers for Winter Road Maintenance: Deicing and Corrosivity. Master's thesis. <https://doi.org/10.22215/etd/2023-15592>
- [4]. Swarna, S. (2022). Influence of Climate Change on Pavement Design and Materials in Canada. Ph. D. thesis. <https://research.library.mun.ca/15688/1/thesis.pdf>
- [5]. Islam, T. (2022). Rheological and Fundamental Properties of Modified Asphalt Binders Containing Anti-Stripping Additives. <https://research.library.mun.ca/15526/1/thesis.pdf>
- [6]. Guha, S. (2021). Towards Development of a Pavement Management System for Low Volume Road Networks in Canada. Master's thesis. <https://research.library.mun.ca/15483/1/thesis.pdf>
- [7]. Khan, S. (2021). Performance of Pavements with Cement Stabilized Layer Using MEPDG Program and LTPP Data. Master's thesis. <https://research.library.mun.ca/15692/1/thesis.pdf>
- [8]. Rana, M. (2021). Effect of Autonomous Vehicles on Pavement Distress & Road Safety and Pavement Distress Optimization. Master's thesis. <https://research.library.mun.ca/15029/1/thesis.pdf>
- [9]. Ahmed, R. (2020). Chemical, Rheological and Morphological Properties of Various Rejuvenated Asphalt Binders. Master's thesis; <https://research.library.mun.ca/14678/1/thesis.pdf>
- [10]. Alam, R. (2020). Pavement Life Cycle Assessment: From Case Study to Machine Learning Modeling. Master's thesis: <https://research.library.mun.ca/14652/1/thesis.pdf>
(Thesis of some students yet to be published online)

16.2 Software/Apps/Tools

- [1]. *Guha, S; **Hossain, K.** (2021). MUNPave- A Pavement Condition Evaluation App. <https://carleton.ca/artel/2021/munpave-a-pavement-condition-evaluation-app/>
- [2]. *Swarna, S; **Hossain, K;** **Bernier, A. (2021). MUN-CABS – A Canadian Asphalt Binder Selection Tool. <https://carleton.ca/artel/2021/mun-cabs-a-canadian-asphalt-binder-selection-tool/>

16.3 Peer-reviewed Journal Articles

- [1]. *Lawlor, M; **Hossain, K.** (2024). An investigation on the deicing potential of road salt and alternative deicers. *Canadian Journal of Civil Engineering* <https://doi.org/10.1139/cjce-2023-0404>
- [2]. *Swarna, S; **Hossain, K;** **Bernier, A. (2023). Pavement Temperature Model for Canadian Asphalt Binder Selection: Introduction to The CPT Model. *Road Materials and Pavement Design*. Taylor & Francis. Q1, IF: 3.62. <https://doi.org/10.1080/14680629.2022.2044892>
- [3]. *Swarna, S; **Hossain, K.** (2023). Asphalt binder selection for future Canadian climatic conditions using various pavement temperature prediction models. *Road Materials and Pavement Design*. Taylor & Francis. Q1, IF:3.62. <https://www.tandfonline.com/doi/abs/10.1080/14680629.2021.2019093>
- [4]. *Rana, M; Swarna, Su.; Mehta, Y.; **Hossain, K.** (2023). Collective influence of autonomous trucks and climate change on asphalt concrete pavement performance. *International Journal of Pavement Engineering*. Taylor & Francis. Q1, IF:3.62. <https://doi.org/10.1080/10298436.2023.2268792>
- [5]. *Khan, S; **Hossain, K;** Bazan, C. (2023). Factors Influencing the Design of Semirigid Pavement in Different Climatic Regions Using LTPP Data, MEPDG Software, and the Design of the Experiment Method. *Journal of Transportation Engineering, Part B: Pavements*. Vol.148. Issue 2. ASCE. Q2, IF:1.92 <https://doi.org/10.1061/JPEODX.PVENG-120>
- [6]. *Swarna, S; **Hossain, K.** (2022). Climate Change Impact and Adaptation for Highway Asphalt Pavements: A Literature Review. *Canadian Journal of Civil Engineering*. Q2, IF:1.43. **Selected as Editor's Choice Paper.** <https://doi.org/10.1139/cjce-2021-0209>
- [7]. *Swarna, S; **Hossain, K;** Mehta, Y; **Bernier, A. (2022). Climate Change Adaptation Strategies for Canadian Asphalt Pavements; Part 1: Adaptation strategies. *Journal of Cleaner Production*. Elsevier. Q1, IF: 9.2. <https://www.sciencedirect.com/science/article/pii/S0959652622019175>
- [8]. *Swarna, S; **Hossain, K;** **Bernier, A. (2022). Climate Change Adaptation Strategies for Canadian Asphalt Pavements; Part 2: Life Cycle Assessment and Life Cycle Cost Analysis. *Journal of Cleaner Production*. Elsevier. Q1, IF: 9.2. <https://www.sciencedirect.com/science/article/abs/pii/S0959652622029407>
- [9]. *Swarna S; Rana, M; **Hossain K.** (2022). Impact of Climate Change on Pavement Performance in Canada's Newfoundland Island. *International Journal of Pavement Research and Technology*. Springer. Q1, IF: 4.20. <https://link.springer.com/article/10.1007/s42947-022-00198-3>

- [10]. *Guha, S; **Hossain, K.** (2022). An economic approach to road condition assessment using road user feedback: A new model and its application. *International Journal of Pavement Engineering*. Taylor & Francis. Q1, IF: 3.2.
<https://www.tandfonline.com/doi/abs/10.1080/10298436.2021.2022673>
- [11]. *Guha, S; **Hossain, K;** **Lawlor, M. (2022). An Economic Pavement Management Framework for Extremely Budget- and Resource-Constrained Agencies in Canada. *Transportation Research Record: Journal of the Transportation Research Board*. Vol. 2676(8) 554-570. Q2, IF: 2.0.
<https://doi.org/10.1177%2F03611981221084687>
- [12]. **Hossain K,** Fu L, El-Hakim M. (2022). Determination of Optimum Salting Rates for Asphalt Pavements in a Canadian Climate. *ASCE Journal of Cold Regions Engineering*. ASCE. Q2, IF: 1.75. **Selected as Editor's Choice Paper.**
<https://ascelibrary.org/doi/abs/10.1061/%28ASCE%29CR.1943-5495.0000279>
- [13]. *Khan, S; Nagabhushana, M; **Hossain, K;** Tiwari, D; Guruvittal, U; Bazan, C. (2022). Performance Evaluation of Fly Ash-based Inverted Pavement System. *Journal of Transportation Engineering, Part B: Pavements*. Vol.148. Issue 2. ASCE. Q2, IF:1.92
<https://ascelibrary.org/doi/abs/10.1061/JPEODX.0000363>
- [14]. *Khan, S; Ashish, P; Kanneli, V; **Hossain, K;** Nagabhushana, M; Tiwari, D. (2022). Potential application of over-burnt brick and fly ash for sustainable inverted pavement structure. *Construction and Building Materials*, Vol.345. 128298. Elsevier. Q1, IF:7.62
<https://doi.org/10.1016/j.conbuildmat.2022.128298>
- [15]. *Rana, M; **Hossain, K.** (2021). Impact of Autonomous Truck Implementation: Rutting and Highway Safety Perspectives. *Road Materials and Pavement Design*. Taylor & Francis. Q1. IF:3.62.
<https://www.tandfonline.com/doi/full/10.1080/14680629.2021.1963815>
- [16]. *Rana, M; **Hossain, K.** (2021). Simulation of Autonomous Truck for Minimizing Asphalt Pavement Distresses. *Road Materials and Pavement Design*. Taylor & Francis. Q1, IF:3.62.
<https://www.tandfonline.com/doi/full/10.1080/14680629.2021.1883469>
- [17]. *Rana, M; **Hossain, K.** (2021). Connected & Autonomous Vehicles and Infrastructures: A Literature Review. *International Journal of Pavement Research and Technology*. Springer. Q1, IF:3.28
<https://link.springer.com/article/10.1007%2Fs42947-021-00130-1>
- [18]. *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*. Vol. 54. 109. Springer Nature. Q1. IF: 4.02.
<https://link.springer.com/article/10.1617%2Fs11527-021-01711-z>
- [19]. *Ali, A; Dhasmana, H.; **Hossain, K;** Hussein, A. (2021). Modeling Pavement Performance Indices for Harsh Climate Regions. *Journal of Transportation Engineering, Part B: Pavements*. Vol.147. Issue 4. ASCE. Q2, IF:1.92.
<https://ascelibrary.org/doi/abs/10.1061/JPEODX.0000305>
- [20]. *Swarna, S T; **Hossain, K;** Pandya, H; Mehta, Y A. (2021). Assessing Climate Change Impact on Asphalt Binder Grade: Selection and its Implications. *Transportation Research Record - Journal of the Transportation Research Board (TRB) of National Academies of Science and Engineering*. Q2, IF:1.81.
<https://doi.org/10.1177/03611981211013026>
- [21]. *Alam, R; **Hossain, K;** Bazan C. (2021). Life Cycle Analysis for Asphalt Pavement in

- Canadian Context: Modeling and Application. *International Journal of Pavement Engineering*. Taylor & Francis. Q1, IF: 3.2.
<https://www.tandfonline.com/doi/full/10.1080/10298436.2020.1866759>
- [22]. *Alam, R; **Hossain, K**; Bazan C. (2020). A Systematic Approach to Estimate GWP from Pavement Vehicle Interaction Using Canadian LTPP Data. *International Journal of Cleaner Production*. Vol. 273, 123106, Elsevier. Q1, IF: 9.2.
<https://www.sciencedirect.com/science/article/abs/pii/S0959652620331516>
- [23]. *Abdelazim, S; El-Hakim, M; **Hossain, K**, Volovski; M. (2020). Pavement damage costs by truck class and economy of scale relative to increased loading. *International Journal of Pavement Engineering*. Taylor & Francis. Q1, IF: 3.2.
<https://www.tandfonline.com/doi/full/10.1080/10298436.2020.1832221>
- [24]. *Ahmed, R. B; **Hossain, K**; Hajj, R. (2020). Chemical, Morphological, and Fundamental Properties of Rejuvenated Asphalt Binders. *Journal of Materials in Civil Engineering*. Vol. 33, Issue 2. ASCE. Q1, IF: 3.44.
[https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0003564](https://doi.org/10.1061/(ASCE)MT.1943-5533.0003564)
- [25]. *Ahmed, R. B; **Hossain, K**. (2019). Waste cooking oil as an asphalt rejuvenator: A state-of-the-art review. *Construction and Building Materials*. Vol. 230, 116985. Elsevier. Q1, IF:7.02.
<https://doi.org/10.1016/j.conbuildmat.2019.116985>
- [26]. *Alam, R; **Hossain K**; Butt, A; *Caudle T. (2019). Life Cycle Environmental Impact Assessment (LCIA) for Various Pavement Maintenance Options using Athena LCA Program. *Canadian Journal of Civil Engineering*. Vol. 47. No. 12.Q2, IF: 1.40.
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- [27]. *Swarna S T, **Hossain K**, Reddy M A, Pandey B B. (2019). A Mechanistic and Economical Analysis of Two-Lift Concrete Pavements. *Road Materials and Pavement Design*. Vol: 22, Issue 2. Taylor & Francis. Q1, IF:3.62.
<https://www.tandfonline.com/doi/full/10.1080/14680629.2019.1620843>
- [28]. Safi F; Al-Qadi I; **Hossain K**; Ozer H. (2019). Total Recycled Asphalt (TRA) Mixes' Characteristics and Field Performance. *Transportation Research Record: Journal of the Transportation Research Board of National Academies of Sciences and Engineering*. Vol. 2673, Issue 12. Q2, IF:1.81.
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- [29]. Dashmana, H; **Hossain, K**; Karakas, A. (2019). Effect of Long-Term Aging on the Rheological Properties of Rejuvenated Asphalt Binder. *Road Materials and Pavement Design*. Taylor & Francis. Q1, IF:3.62.
<https://www.tandfonline.com/doi/full/10.1080/14680629.2019.1686051>
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16.4 Contribution to Books

- [1]. **Hossain, K.** (2021). Chapter No. 10176, Roadway Pavement Conditions, Safety Risks and Summer and Winter Maintenance Strategies. *International Encyclopedia of Transportation*, Elsevier. In Press. ISBN: 9780081026724. Invited.
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- [2]. Liu, Q.; **Hossain, K.**; Tighe, S.; Shalaby, A. (2019). Field Assessment of Three-Dimensional Surface Texture and Frictional Properties of Experimental Canadian Road Pavements. In *Pavement and Asset Management* (pp. 73-80). Taylor and Francis, CRC Press. ISBN 978-0-367-20989-6. <https://www.taylorfrancis.com/chapters/field-assessment-three-dimensional-surface-texture-frictional-properties-experimental-canadian-road-pavements-qingfan-liu-kamal-hossain-susan-tighe-ahmed-shalaby/e/10.1201/9780429264702-10>
- [3]. **Hossain, K.**; Muresan, M.; Fu, L. (2018). Chapter 20-Application Guideline for Optimal Deicing and Anti-icing. In *Sustainable Winter Road Operations* (pp. 443-471). Wiley-Blackwell. ISBN: 978-1-119-18506-2. Invited.

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16.5 Peer-reviewed Conference Papers

- [1]. *Guha, S., **Hossain, K.** (2024). A New Pavement Condition Assessment System for Local Roads and It's Application. 103rd Annual Meeting of the Transportation Research Board (TRB) of National Academies of Science and Engineering. Washington DC, USA
- [2]. *Barzegaran, J; *Khan, S; *Swarna, S; **Hossain, K.** (2024) Development of International Roughness Index Model for Canadian Conditions using Artificial Neural Networks. International Society for Asphalt Pavements (ISAP) Conference, Montreal, QC, Canada.
- [3]. *Chowdhury, S; **Hossain, K;** *Barzegaran, J. (2024) Insights into GHG Emissions from Asphalt Pavement Structures in Ontario. CSCE 2024 Annual Conference, Niagara Falls, ON, Canada.
- [4]. *Zawad, F; *Barzegaran, J; **Hossain, K.** (2024) Infrastructures for Autonomous Vehicle (SAE Level 4): An Academia Expert Survey. TAC 2024 Conference, Vancouver, BC, Canada.
- [5]. *Barzegaran, J; Fakhri, M; Dezfoulian, R; Hossain, K. (2023) A New Approach in Estimating the Overall Condition of Asphalt Pavements Using a Combined Index: An Iranian Case Study. TAC 2023 Conference, Ottawa, ON, Canada.
- [6]. *Bernier, A; **Hossain, K;** Varamini, S.; Shafiee, M. (2023). Extreme Heat Events: Defining the Critical Scenario for Ontario's Flexible Pavements. 68th Annual Conference of Canadian Technical Asphalt Association (CTAA). Charlottetown, PEI, Canada
- [7]. *Swarna, S.; **Hossain, K.** (2023). New Asphalt Binder Grade to Mitigate Climate Change Impacts on Canadian Asphalt Pavements. 68th Annual Conference of Canadian Technical Asphalt Association (CTAA). Charlottetown, PEI, Canada
- [8]. *Feroz, S.; Mohajan, A.; Mitra, D.; Kabir, SK F.; **Hossain, K** (2023). Investigating the Combined Effect of Active and Inert Filler on Rheological and Mechanical Performance of Asphalt Mastic and Asphalt Mixture. 68th Annual Conference of Canadian Technical Asphalt Association (CTAA). Charlottetown, PEI, Canada
- [9]. *Khan, S.; *Swarna, S.; **Hossain, K.;** Mehta, Y. (2023). Systematic Evaluation of Impact of Pavement Design Parameters on Mechanical Responses that Cause Bottom-Up Cracking in Asphalt Concrete Overlay. 102nd Annual Meeting of the Transportation Research Board (TRB) of National Academies of Science and Engineering, Washington DC, USA.
- [10]. *Lawlor, M.; **Hossain, K.;** *Rana, M. (2023). A Field Investigation on Ice-Melting Capacities of Road Salt in Extreme Cold Weather Conditions in Ottawa, Canada. CSCE Conference, Moncton, NB, Canada
- [11]. *Lawlor, M.; *Rana, M.; **Hossain, K.** (2023). An Investigation on Corrosivity of Road Salt and Alternatives on Steel. Transportation Association of Canada (TAC) Conference, Ottawa, Canada
- [12]. *Guha, S., **Hossain, K.** (2023). An Overview of Canadian Pavement Management Practices at Regional Level. 102nd Annual Meeting of the Transportation Research Board (TRB) of National Academies of Science and Engineering. Washington DC, USA.
- [13]. *Bernier, A; *Swarna, S; **Hossain, K;** Mehta, Y. (2023). The Impact of the 2021 Heat Wave on Flexible Pavement Performance in Canada. *102nd Annual Meeting of the Transportation Research Board (TRB) of National Academies of Science and Engineering,*

- Washington DC, USA.
- [14]. *Rana, M M; Swarna, S T; **Hossain, K**; Hakim, M A; Mujib, H I. (2023). Utilizing Tax-Payer Funds Efficiently: Selection of Superpave Bituminous Binder for Highway Construction in Bangladesh. Second International Conference on Advances in Civil Infrastructure and Construction Materials' at the Military Institute of Science and Technology (MIST), Dhaka, Bangladesh.
- [15]. *Bernier, A; *Swarna, S; **Hossain, K**; Mehta, Y. (2022). A History of North American Heat Waves and Their Impact on Rutting and IRI in Canadian Flexible Pavements. *67th Annual Conference of Canadian Technical Asphalt Association (CTAA)*. Kelowna, BC, Canada
- [16]. *Swarna S T; **Hossain K**; *Bernier A. (2022). Pavement Temperature Model for Canadian Asphalt Binder Selection: Introduction to The CPT Model. *101st Annual Meeting of the Transportation Research Board (TRB) of National Academies of Science and Engineering*, Washington DC, USA.
- [17]. *Swarna S T; **Hossain K**; Mehta Y.; **Bernier A. (2022). Climate Change Adaptation Strategies for Canadian Asphalt Pavements. *101st Annual Meeting of the Transportation Research Board (TRB) of National Academies of Science and Engineering*, Washington DC, USA.
- [18]. *Guha S; **Hossain K**; *Lawlor M.; (2022). An Economic Pavement Management Framework for Extremely Budget and Resource-Constrained Agencies in Canada. *101st Annual Meeting of the Transportation Research Board (TRB) of National Academies of Science and Engineering*, Washington DC, USA.
- [19]. *Guha S; **Hossain K**; *Oates K.; (2022). Development of a Novel Pavement Performance Index for Low-Volume Roads of Newfoundland and Labrador. *101st Annual Meeting of the Transportation Research Board (TRB) of National Academies of Science and Engineering*, Washington DC, USA.
- [20]. *Guha S K; **Hossain K**, *Bernier A. (2021). Our Efforts to Understand Roadway Assets Conditions and Management Techniques in Small Communities of Newfoundland and Labrador, Canada. *Transportation Association of Canada (TAC) Conference*. Virtual Meeting.
- [21]. *Swarna S T; **Hossain K**; **Bernier A. (2021). Selection of Appropriate Binder Grade for Changing Climate and Its Influence on Pavement Performance. *66th Annual Conference of Canadian Technical Asphalt Association (CTAA)*. Charlottetown, PEI, Canada. **[Selected for Early Kee Best Technical Presentation Award, CTAA, 2022]**
- [22]. *Islam T; **Hossain K**; Aurilio M; Bazan C; Caul G. (2022). Laboratory Investigation on Rheological Properties of Gilsonite Modified Binders with Different Anti-Stripping Agents. *Transportation Association of Canada (TAC) Conference*. Virtual Meeting.
- [23]. *Guha S; **Hossain K**. (2021). A Country-wide Survey to Understand Pavement Management Practices in Canada. *66th Annual Conference of Canadian Technical Asphalt Association (CTAA)*. Charlottetown, PEI, Canada.
- [24]. *Islam T; Aurilio, M; **Hossain, K**; Bazan, C; Caul, G. (2022). Evaluation of Rheological Properties of SBS and Gilsonite Modified Asphalt Binders Containing Liquid Anti-Strip Additives. *101st Annual Meeting of the Transportation Research Board (TRB) of National Academies of Science and Engineering*, Washington DC, USA.
- [25]. *Swarna S T; **Hossain K**. (2021). An Experimental Design Approach for The Design of

- Two-Lift Concrete Pavements. *10th International General Specialty Conference, Canadian Society for Civil Engineering*. Niagara Falls, Canada, Virtual Meeting.
- [26]. *Swarna, S T; **Hossain, K**; Pandya, H; Mehta, Y A. (2021). Assessing Climate Change Impact on Asphalt Binder Grade: Selection and its Implications. *100th Annual Meeting of the Transportation Research Board (TRB) of National Academies of Science and Engineering*, Washington DC, USA.
- [27]. *Reza, A; **Hossain, K**; Dhar, A. (2021). Compressibility Assessment of Roadway Embankments Using Tire Derived Aggregates (TDA). *100th Annual Meeting of the Transportation Research Board (TRB) of National Academies for Science and Engineering*. Washington DC, USA.
- [28]. *Ahmed, R; **Hossain, K**. (2020). Characterization of Rejuvenated Asphalt Binders Using FTIR and AFM Techniques. *RILEM International Symposium on Bituminous Materials*. Lyon, France
- [29]. *Ahmed, R; Aurilio, V; **Hossain K**. (2020). Using Rejuvenating Agents to Improve Hot Mix Asphalt Incorporating Reclaimed Asphalt Pavement (RAP). *65th Annual Conference of Canadian Technical Asphalt Association (CTAA)*. Kelowna, BC, Canada
- [30]. *Swarna, S; **Hossain, K**. (2020). Changes in Asphalt Binder Grade Due to Climate Change in Canada. *Transportation Association of Canada (TAC) Conference*. Virtual, Vancouver, BC, Canada
- [31]. *Rana, M; *Swarna, S T; **Hossain, K**. (2020). Climate Change Impact on Pavement Performance in Newfoundland, Canada. *99th Annual Meeting of the Transportation Research Board (TRB) of National Academies for Science and Engineering*. Washington DC, USA.
- [32]. *Ahmed, R; **Hossain, K**; Aurilio, M. (2020). Rheological Characterization of Rejuvenated Asphalt Binders. *99th Annual Meeting of the Transportation Research Board (TRB) of National Academies for Science and Engineering*. Washington DC, USA.
- [33]. *Alam, R; **Hossain, K**; Bazan C. (2020). A Systematic Approach to Estimate GWP from Pavement Vehicle Interaction Using Canadian LTPP Data. *99th Annual Meeting of the Transportation Research Board (TRB) of National Academies for Science and Engineering*. Washington DC, USA.
- [34]. *Khan, S; Nagabhushana, M N; **Hossain, K**; Tiwari, D. (2020). Investigation of Pavement Responses Using Multi-Depth Deflectometer. *99th Annual Meeting of the Transportation Research Board (TRB) of National Academies for Science and Engineering*. Washington DC, USA.
- [35]. Dashmana, H; **Hossain, K**; Karakas, A; *Swarna, S. (2019). Laboratory Investigation of the Characteristics of Rejuvenated Asphalt Binder. *64th Annual Conference of Canadian Technical Asphalt Association (CTAA)*. Montreal, QC, Canada.
- [36]. Singhvi, P; Karakas, A; Ozer, H; Al-Qadi, I L; **Hossain K**. (2019). Impact of Asphalt Modifier Dosage on Modified Binder Rheology and Chemistry with Long-Term Aging. *ASCE-T&DI International Airfield and Highway Pavement Conference*. Chicago, Illinois, USA. [**Best Paper of Pavements 2019 Award, ASCE Pavement Conference, Chicago, IL**]
- [37]. Safi, F; Al-Qadi, I; **Hossain, K**; Ozer, H. (2019). Total Recycled Asphalt (TRA) Mixes' Characteristics and Field Performance. *98th Annual Meeting of Transportation Research Board (TRB) of National Academies of Science and Engineering*. Washington DC, USA.

- [38]. *Swarna, S T; **Hossain, K**; Reddy, M A; Pandey, B B. (2019). A Mechanistic Study of Two-Lift Concrete Pavements: Design & Economics. *98th Annual Meeting of the Transportation Research Board (TRB) of National Academics for Science and Engineering*. Washington DC, USA.
- [39]. *Ali, A; **Hossain, K**; Hussein, A; Dashmana, H. (2019). Towards Development of PCI and IRI models for road networks in the City of St. John's, Newfoundland Canada. *ASCE-T&DI International Airfield & Highway Pavements Conference*, Chicago, IL, USA.
- [40]. **Hossain, K**; Das, P; Karakas, A. (2018). Effect of Ultraviolet Aging on Rheological Properties of Asphalt Cement. *63rd Annual Conference of Canadian Technical Asphalt Association (CTAA)*. Regina, SK, Canada.
- [41]. *Swarna, S.T; **Hossain, K**. (2018). Effect of Interface Bonds on Pavement Performance. Innovation and Technology: Evolving Transportation. *Transportation Association of Canada (TAC) Annual Conference*. Saskatoon, SK, Canada.
- [42]. Safiuddin, Md; **Hossain, K**; *Collins, C. M. (2018). Potential Applications of Self-Cleansing Nano Lotus Leaf Bio-mimicked Coating in Different Construction Sectors. *7th International Materials Specialty Conference, Canadian Society for Civil Engineering*. Fredericton, NB, Canada
- [43]. *Ali, A; **Hossain, K**; Dhasmana, H; Safiuddin, M; Bazan, C; Hussein, A. (2018). Field Inspection and Classification of Pavement Distresses of St. John's City in Newfoundland Canada. *7th International Materials Specialty Conference, Canadian Society for Civil Engineering*. Fredericton, NB, Canada
- [44]. **Hossain, K**; Karakas, A; Singhvi, P; Ozer, H; Al-Qadi I. (2018). Effect of Aging and Rejuvenation on Surface Free Energy Measurements and Adhesive Property of Asphalt Binder. *97th Annual Conference of Transportation Research Board (TRB) of National Academies of Science and Engineering*. Washington DC, USA.
- [45]. Safi, F; **Hossain, K**; Wu, S; Ozer, H; Al-Qadi, I. (2018). A Model to Predict Creep Compliance of Asphalt Mixtures. *97th Annual Conference of Transportation Research Board (TRB) of National Academics of Sciences and Engineering*, Washington, DC, USA
- [46]. Usman, T; Fu, L; **Hossain, K**. (2018). Field Validation of Road Salt Model". *97th Annual Conference of Transportation Research Board (TRB) of National Academies of Science and Engineering*. Washington DC, USA
- [47]. Liu, Q; **Hossain, K**; Tighe, L; Shalaby, A. (2017). Field Assessment of Three-Dimensional Surface Texture and Frictional Properties of Experimental Canadian Road Pavements. *World Conference on Pavement and Asset Management*, June 12-16, Baveno, Italy
- [48]. Muresan, M; **Hossain, K**; Fu, L; Xie, R. (2017). Survey of Current Winter Maintenance of Parking Lots and Sidewalks in Municipals of Canada and the United States *Transportation Research Board 96th Annual General Meeting*, Jan 8-12, Washington DC, USA
- [49]. Moghaddam, T; Baaj, H; **Hossain, K**. (2016). Adoption of Statistical Analysis to Evaluate the Permanent Deformation of Polyethylene Terephthalate (PET) Modified Asphalt Mixtures. *Transportation Association of Canada Conference*, Sept. 24, Toronto, ON, Canada
- [50]. Hosseini, F; **Hossain, K**; Fu, L; Li, D. S. (2016). Effect of Granularity of Materials and Pre-treatment on Deicing Performance. *Proceeding of Transportation Research Board Conference. 95th Annual Conference of Transportation Research Board (TRB) of National*

Academies of Sciences and Engineering, Washington DC, USA

- [51]. Muresan, M., **Hossain, K.**, Fu, L., Law, B. (2016). Survey of End-Users' Level of Service Requirements for Snow Control for Parking Lots and Sidewalks at Different Establishments in Canada. Proceeding of Transportation Research Board Conference. *95th Annual Conference of Transportation Research Board (TRB) of National Academies of Sciences and Engineering, Washington DC, USA*
- [52]. Muresan, M., **Hossain, K.**, Fu, L., Jiang, C. (2016). A Trajectory-Clustering Based Method for Integrating Microscopic Traffic Simulation and Emission Estimation Models. Proceeding of Transportation Research Board Conference. *95th Annual Conference of Transportation Research Board (TRB) of National Academies of Sciences and Engineering, Washington DC, USA*
- [53]. Hosseini, F., **Hossain, K.**, Fu, L., Johnson, Fei. Y. (2015). Prediction of Pavement Surface Temperature Using Meteorological Data. *American Society of Civil Engineers (ASCE) Cold Region Engineering. 16th International Conference on Cold Regions Engineering, Salt Lake City, Utah, USA*
- [54]. Hosseini, F., **Hossain, K.**, Fu, L., Paolo, S. G., Seters, T. V. (2015). Field Evaluation of Organic Materials for Snow and Ice Control on Road Pavements. Proceeding of Transportation Research Board Conference. *94th Annual Conference of Transportation Research Board (TRB) of National Academies of Sciences and Engineering, Washington DC, USA*
- [55]. **Hossain, K.**, Fu, L., Li, D. T., Kabir, S. (2015). Effect of Pavement Types on Snow Melting Performances of Road Salts. Proceeding of Transportation Research Board Conference. *94th Annual Conference of Transportation Research Board (TRB) of National Academics of Sciences and Engineering, Washington DC, USA*
- [56]. **Hossain, K.**, Fu, L., Li, D. S., Donnelly, T. (2015). Modeling the Snow Melting Performance of Road Salt: A Mechanistic-Empirical Approach. *American Society of Civil Engineers (ASCE) Cold Region Engineering. 16th International Conference on Cold Regions Engineering, Salt Lake City, UT, USA*
- [57]. Muresan, M, **Hossain, K.**, & Fu, L. (2015). A Model-Based Evaluation of an ECO-Driving System Using Connected Vehicle Technologies. *CSCE Annual Conference. May 27-30, Regina, SK, Canada*
- [58]. **Hossain, K.**, Fu, L., & Hosseini, F. (2015). A Large Scale Field Test for Snow and Ice Control in Parking Lots. *CSCE Annual Conference. May 27-30, Regina, SK, Canada*
- [59]. **Hossain, K.**, Fu, L., & Li, S.D. (2015). Modeling the Effect of Traffic on the Snow Melting Performance of Salts'. *Proceedings of the 94th Annual Conference of the Transportation Research Board. Jan 11-15, Washington DC, USA*
- [60]. **Hossain, K.**, Fu, L., Li, Donnelly, T., & Lamb, Z. (2015). To Pre-wet, or Not to Pre-wet: a Field Investigation. *Proceedings of the 94th Annual Conference of the Transportation Research Board. Jan 11-15, Washington DC, USA*
- [61]. **Hossain, K.**, Fu, L., Law, B. (2014). Winter Contaminants in Parking Lots and Sidewalks: Classification, Friction Characteristics, and Slipping Risk. Proceeding of Transportation Research Board Conference. *93rd Annual Conference of Transportation Research Board (TRB) of the National Academics of Sciences and Engineering, Washington DC, USA*
- [62]. **Hossain, K.**, Fu, L. & Lake, R. (2014). A Comparison of Alternative Chemicals for Deicing Operations. *Proceedings of the 93rd Annual Conference of Transportation*

Research Board. Jan 12-16, Washington DC, USA

- [63]. **Hossain, K.**, Fu, L., & Law, B. (2014). Parking Lots and Sidewalks under Winter Snow Events: Classification, Friction Characteristics, and Slipping Risk. *Proceedings of the 93rd Annual Conference of Transportation Research Board*. Jan 12-16, Washington DC, USA
- [64]. Fu, L., Omer, R., **Hossain, K.**, Jiang, C. (2013). An Experimental Study of Snow-Melting Performance of Salt for Snow and Ice Control of Parking Lots. Proceeding of Transportation Research Board Conference. *92nd Annual Conference of Transportation Research Board (TRB) of National Academies of Sciences and Engineering*, Washington DC, USA
- [65]. Kwon, T., Fu, L., & **Hossain, K.** (2012). Effect of Inclement Weather Conditions on Macroscopic Traffic Behavior. *Proceedings of the 9th International Transportation Specialty Conference*. Canadian Society of Civil Engineering. June 6-9, Edmonton, Alberta, Canada

16.6 Extended Abstracts/Posters

- [1]. *Bernier, A, *Swarna, S, **Hossain, K.**, Mehta, Y. (2022). Climate Change Adaptation Strategies for Canadian Asphalt Pavements. *Groupe de Recherche en Ingénierie des Chaussées (GRINCH) Conference*. Montreal, Canada. (Poster). **Best Poster Award.**
- [2]. **Hossain, K.**, Karakas, A., Singhvi, P., Ozer, H., Al-Qadi, I. (2018). Effect of Aging and Rejuvenation on Surface Free Energy Measurements and Adhesive Property of Asphalt Binder. *97th Annual Conference of Transportation Research Board (TRB) of National Academies of Science and Engineering*. Washington DC, USA. (Extended Abstract).
- [3]. *Rana M, *Swarna S T, **Hossain K.** (2019). Climate Change Impact on Pavement Performance in Newfoundland, Canada. *64th Annual Conference of Canadian Technical Asphalt Association*, Montreal, QC, Canada. (Poster).
- [4]. Safi, F., **Hossain, K.**, Wu, S., Ozer, H., Al-Qadi, I. (2018). A Model to Predict Creep Compliance of Asphalt Mixtures. *97th Annual Conference of Transportation Research Board (TRB) of National Academies of Science and Engineering*. Washington DC, USA. (Extended Abstract).
- [5]. *Swarna, S.T., **Hossain, K.** (2018). Effect of Interface Bonds on Pavement Performance. Innovation and Technology: Evolving Transportation. *Transportation Association of Canada (TAC) Annual Conference*. Saskatoon, SK, Canada. (Poster).
- [6]. Singhvi, P., **Hossain, K.**, Karakas, A., Ozer, H., Al-Qadi, I. (2017). Impact of Rejuvenators on the Binder Rheological and Chemical Characterization of Recycled AC Mixtures. *American Society of Civil Engineers (ASCE) International Conference on Highway Pavements and Airfield Technology*, Philadelphia, PA, USA. (Poster).
- [7]. **Hossain, K.**, Al-Qadi, I., Ozer, H. (2017). Pros and Cons of New Technologies Employed in Asphalt Binder Study. *American Society of Civil Engineers, International Conference on Highway Pavements & Airfield Technology*, August 27-30, Philadelphia, PA, USA. (Poster).
- [8]. **Hossain, K.**, Al-Qadi, I., Ozer, H. (2017). Effect of Heat Types on Asphalt Binder Morphology. *American Society of Civil Engineers, International Conference on Highway Pavements & Airfield Technology*, August 27-30, Philadelphia, PA, USA. (Abstract).
- [9]. **Hossain, K.**, Al-Qadi, I., Ozer, H. (2017). Effect of Thermal Aging on Asphalt Binder Using Environmental Scanning Electron Microscopy (ESEM). *American Society of Civil*

Engineers (ASCE) International Conference on Highway Pavements and Airfield Technology, Philadelphia, PA, USA. (Abstract).

- [10]. Espinoza, A., **Hossain, K.**, Safi, F., Ozer, H., Al-Qadi, I. (2017). Evaluating Effect of Mix Formula Changes on Complex Modulus and Fracture Properties of Danish SMA Graded Asphalt Mixes. *92nd Annual Meeting and Technical Sessions of Association of Asphalt Paving Technology (AAPPT)*, Long Beach, California, USA. (Abstract).

16.7 Project Reports

- [1]. *Islam, T; *Feroz, S.; **Hossain, K.**; Bazan, C.; Aurilio, M. (2024). Development of Improved Asphalt Mixture for the City of St. John's: Study on Rutting and Moisture Damage Characteristics of Modified Asphalt Binder. Submitted to City of St. John's, NL, Canada
- [2]. *Feroz, S.; **Hossain, K.**; Bazan, C.; Ahmad, A., Mitra, D. (2024). Development of Improved Asphalt Mixture for the City of St. John's: Study on Rheological and Mechanical Performance of Asphalt Mastic and Asphalt Mixture. Submitted to City of St. John's, NL, Canada
- [3]. *Islam, T; **Hossain, K.** (2020). Development of Improved Asphalt Mixtures: A Literature Review on Asphalt Binder Additives and Modifiers. *Submitted to the City of St. John's, St. John's, NL, Canada*
- [4]. **Hossain, K.** (2020). Tire Derived Aggregates for Newfoundland Road Construction. *Submitted to Multi-Materials Stewardship Board of Government of Newfoundland and Labrador*. St. John's, NL, Canada.
- [5]. *Ahmed, R; **Hossain, K.** (2019). Application of Waste Cooking Oil as an Asphalt Rejuvenator in Asphalt Concrete Recycling. *Submitted to the Harris Center*. St. John's, NL, Canada
- [6]. **Hossain, K.** (2018). Applications of Tire Derived Aggregate in Civil Engineering Projects in Newfoundland. *Submitted to Multi-Materials Stewardship Board of Government of Newfoundland and Labrador*. St. John's, NL, Canada
- [7]. **Hossain, K.**; Fu L. (2014). Optimal Snow and Ice Control for Parking Lot and Sidewalk Pavements. *Submitted to Landscape Ontario*, Milton, ON and SIMA, Wisconsin, USA
- [8]. Omer, R; Fu, L; **Hossain, K.**, Muresan, M., Hosseini, F. (2014). Evaluation and Optimization of Winter Pavement Maintenance of Railway Platforms. *Submitted to Metrolinx*, Toronto, ON
- [9]. **Hossain, K.**; Fu, L; Hosseini, F. (2014). Evaluation of Organic Additives for Anti-icing on Transportation Facilities. *Submitted to Toronto Region Conservation Authority*, Toronto, ON

16.8 Oral Presentation/Talks

Government Sectors/International Talks/Meetings

- [1]. **Hossain, K.** Climate Change Impacts and Adaptation Strategies for Highway Asphalt Pavements: A Canadian Study, EMPA, Zurich, Switzerland, May 3, 2024
- [2]. **Hossain, K.** Climate Change Impacts and Adaptation Strategies for Highway Asphalt Pavements: A Canadian Study, Sapienza University of Rome, Rome, Italy, May 6, 2024

- [3]. **Hossain, K.** Climate Change Impacts and Adaptation Strategies for Highway Asphalt Pavements: A Canadian Study, School of Civil Engineering, Southwest Jiaotong University (SWJTU), China, April 12, 2024
- [4]. **Hossain, K.** Sustainable Road Pavements, 2nd International Conference on Advances in Civil Infrastructure and Construction Materials, MIST, Dhaka, Bangladesh, July 2023
- [5]. **Hossain, K.** Climate Change Impacts and Adaptation Strategies for Highway Asphalt Pavements: A Canadian Study. 13th Annual Meeting of International Association of Chinese Infrastructure Professionals (IACIP), Jan 2023
- [6]. **Hossain, K.** “Effects of climate change on infrastructure design and planning” School of Engineering, UKZN, South Africa, July 22, 2022
- [7]. **Hossain, K.** “Pavement Performance and Sustainability Research: An Overview”. Keynote Speaker at the 3rd International Conference on Planning, Architecture and Civil Engineering (ICPACE), Faculty of Engineering, RUET, Bangladesh, Sept. 10, 2021
- [8]. **Hossain, K.** “Climate Change Impact on Pavement Performance”, NHEC, Bangalore, India, Oct. 22, 2020
- [9]. **Hossain, K.** “NL pavement specifications based on life-cycle cost and provincial climate.” Meeting with the Hon. Minister Tom Osborne, Finance Minister, Govt. of Newfoundland and Labrador at the Government Confederation Building, St. John’s, Oct. 11, 2019
- [10]. **Hossain, K.** “Development of pavement research program in N. L. and how road Conditions in N. L. can be improved”. Public Lecture. Sponsored by Professional Engineers and Geoscientists Newfoundland and Labrador (PEGNL) and Faculty of Engineering and Applied Science. St. John’s, NL, Nov. 20, 2019
- [11]. **Hossain, K.** “Sustainable Winter Road Maintenance Webinar” Center for Environmentally Sustainable Transportation in Cold Climates (CESTiCC), Washington State University and University of Alaska, Fairbanks, Alaska, USA, July 9, 2019
- [12]. **Hossain, K.** “Improved pavement design, construction & maintenance specs through innovative research for Mount Pearl” Presentation at the infrastructure engineering department of the City of Mount Pearl, NL, May 28, 2019
- [13]. **Hossain, K.** “Initiative for Pavement Research Program for NL Roads”, Presentation to the Hon. Minister Steve Crocker, Transportation Minister, Government of Newfoundland and Labrador, Confederation Building, St. John’s, NL, Mar. 26, 2019
- [14]. **Hossain, K.** “How can we reduce potholes and ruts in our NL roads?”, FEAS Lunch and Learn Lecture Series, Public Presentation, MUN, St. John’s, NL, Mar. 15, 2019
- [15]. **Hossain, K.** “Sustainable Pavements and Winter Road Maintenance for Newfoundland”, Department of Public Works of City of St. John’s, NL, Mar. 23, 2018
- [16]. **Hossain, K.** “Advanced Data for Sustainable Pavement Designs”, DalTrack, Department of Civil Engineering, Dalhousie University, Halifax, NS, Nov. 14, 2017
- [17]. **Hossain, K.** “Pavement Research Initiatives for NL”, Department of Planning, Engineering & Regulatory Services, The City of St. John’s, NL, Dec. 23, 2017
- [18]. **Hossain, K.** “An Overview of Emerging Technologies for Sustainable Transportation”, Military Institute of Science and Technology, Dhaka, Bangladesh, 2015
- [19]. **Hossain, K.** “Optimal Deicing of Parking Lots and Sidewalks”, Presented at the project sponsors’ meeting; Landscape Ontario, Region of Waterloo, Toronto Region Conservation

Authority, and Snow and Ice Management Association from Wisconsin USA., Milton, Ontario, Canada, 2013

Other Talks and Presentations

- [20]. **Hossain, K.** New Asphalt Binder Grade to Mitigate Climate Change Impacts on Canadian Asphalt Pavements. 68th Annual Conference of Canadian Technical Asphalt Association (CTAA). Charlottetown, PEI, Canada, November 21, 2023
- [21]. **Hossain K.** An Overview of Canadian Pavement Management Practices at Regional Level. 102nd Annual Meeting of the Transportation Research Board (TRB) of National Academies of Science and Engineering, Washington DC, USA, January 11, 2023
- [22]. **Hossain K.** “Laboratory Investigation of the Characteristics of Rejuvenated Asphalt Binder”. 64th Annual Conference of Canadian Technical Asphalt Association (CTAA). Montreal, QC, Nov. 27, 2019
- [23]. **Hossain K.** “An Experimental Design Approach for the Design of Two-Lift Concrete Pavements”. Canadian Society for Civil Engineering (CSCE) Conference, Virtual Meeting, May 27, 2021
- [24]. **Hossain, K.** “An Overview of Pavement Research Activities at Memorial University” Presentation at the Pavement Engineering Research Symposium and 2019 Grinch Meeting, University of Waterloo, ON, Apr. 26, 2019
- [25]. **Hossain, K.** “A Mechanistic Study of Two-Lift Concrete Pavements: Design & Economics”. 98th Annual Meeting of Transportation Research Board (TRB) of National Academies for Science and Engineering, Lectern Session. Washington DC, USA, Jan. 16, 2019
- [26]. **Hossain, K.** “Effect of UV Aging on Rheological Properties of Asphalt Cement”. 63rd Annual Meeting, Canadian Technical Asphalt Association (CTAA), Regina, SK, Nov. 14, 2018
- [27]. **Hossain, K.** “Research Initiative for Sustainable Road Pavements for Newfoundland”, Transportation Committee of Memorial University, St. John’s, NL, May 31, 2018
- [28]. **Hossain, K.** “Sustainable Pavements Materials, Designs and Performance Data”, Department of Physics and Oceanography, Memorial University, St. John’s, NL, Nov. 29, 2017
- [29]. **Hossain, K.** “Sustainable Pavements Designs: Data Need”, Stantec Inc., St. John’s, NL, Nov. 21, 2017
- [30]. **Hossain, K.** “Predicting Pavement Surface Temperature Using Metrological Data”, American Society of Civil Engineers (ASCE) Cold Regions Engineering Conference, Salt Lake City, Utah, USA, 2015
- [31]. **Hossain, K.** “A Mechanistic-Empirical Model for Predicting Deicing Performance of Road Salts”, American Society of Civil Engineers (ASCE) Cold Regions Engineering Conference, Salt Lake City, Utah, USA, 2015
- [32]. **Hossain, K.** “Deicing Performance of Road Salt: Modeling and Applications”. 93rd Annual Conference of Transportation Research Board (TRB) of the National Academies of Sciences and Engineering, Lectern Session. Washington DC, USA, 2014

- [33]. **Hossain, K.** “An Experimental Study on the Effectiveness of Anti-icing Operations for Transportation Facilities”. 93rd Annual Conference of Transportation Research Board (TRB) of the National Academies of Sciences and Engineering, Lectern Session. Washington DC, USA, 2014

16.9 Dissertations

- PhD Thesis (2014): “Optimum Deicing and Anti-icing for Snow and Ice Control of Parking Lots and Sidewalks”, Department of Civil and Environmental Engineering, University of Waterloo, ON, Canada. **Committee Members: Dr. Liping Fu, Dr. Susan Tighe, Dr. Mark Knight, Dr. Boxin Zaho**

17. Other Information

17.1 Professional Developmental Activities – Participation/Papers in Conferences

- Transportation Research Board (TRB) Conference; 2012 to Present
- Canadian Technical Asphalt Association (CTAA) Annual Meeting; 2017 to Present
- American Association of Asphalt Paving Technologies (AAPT) Annual Meeting; 2016
- The Petersen Asphalt Conference/Western Research Institute (WRI) Annual Meeting; 2017
- 57th Annual Illinois Bituminous Paving Conference; Champaign, IL, USA, 2016
- International Pavement Life Cycle Assessment Symposium; Champaign, IL, USA, 2017
- American Association of Civil Engineers (ASCE) Conference; Highway Pavement and Airfield Technology Conference; 2017, 2019
- American Association of Civil Engineers (ASCE) Conference; Cold Region Engineering Conference 2015
- Transportation Association of Canada (TAC) Conference; 2016, 2017, 2018, 2020, 2021
- Canadian Society for Civil Engineering (CSCE) Conference; 2015, 2016, 2018, 2021

17.2 Professional Developmental Activities – Teaching

- Completed a 12-week teaching training program entitled “Teaching Skills Enhancement Program (TSEP) for Educators”, Centre for Innovation in Teaching and Learning (CITL), MUN, Winter 2019
- Completed a 9-week program on faculty professional development through effective graduate supervision, entitled “Program in Graduate Student Supervision (PGSS)”, Centre for Innovation in Teaching and Learning (CITL), MUN, Winter 2019
- Attended a lecture on “The Flipped Engineering Classroom”, FEAS Learn and Lecture Series, Nov. 30, 2018
- Attended a training session on “Course Design Fundamentals”, Center for Teaching Excellence, University of Waterloo, 2015
- Attended a training session on “Effective Questions Strategies”, Center for Teaching Excellence, University of Waterloo, 2015

17.3 Other Contributions to Societies/Organizations

- Vice President Communication, PMI Canada’s Technology Triangle Chapter, 2015
- Vice President Communication, CEE Graduate Association, University of Waterloo, 2012-13