

Morteza Bagheri

Assistant Professor
School of Railway Engineering
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RESEARCH INTERESTS

- **Transportation Safety:** road and rail accident prediction, modeling crash risk, highway-railway grade crossing and evaluation of intervention programs.
- **Risk Analysis and Safety Management:** quantitative risk analysis, risk uncertainty, engineering risk and reliability.
- **Multimodal Transportation:** intermodal freight transportation, hinterland transportation, international freight corridors.
- **Logistics and Supply Chain Management:** supply and demand chain design and management, strategic logistics management in supply chain, transport economics and management, city logistics and supply chain security.

EDUCATION

Ph.D. in Transportation Engineering (GPA 88/100)

Department of Civil and Environmental Engineering
University of Waterloo, Canada, (2005-2009).

Ph.D. thesis: Risk based model for effective marshalling and buffering of dangerous goods railway cars. Supervisors: Dr.Frank Saccomanno and Dr.Liping Fu.

M.Sc. in Management of Transportation & Logistics (GPA 4.2/5)

Department of Technology Management and Economics
Chalmers University of Technology, Sweden, (2003-2004)

M.Sc. thesis: Efficient hinterland transportation with double-stack container trains. Supervisors: Dr.Johan Woxenius and Dr.Violeta Roso.

B.Sc. in Railway Transportation Engineering (GPA 16.51/20)

School of Railway Engineering
University of Science and Technology, Tehran, Iran (1998-2002)

B.Sc. thesis: Railway transportation opportunities in central Asia's corridors and the north-south corridor. Supervisor: Dr.Mohsen Pourseyed Aghaee.

EMPLOYMENT

Research Experience:

Postdoctoral Research Associate, Desautels Faculty of Management, McGill University, Montreal, Quebec, Canada, Aug.2010 – Dec.2010

- Developed an expected risk assessment framework for rail transport of dangerous goods
- Developed a comparative assessment framework for the in-transit risks for transporting hazardous materials by road and rail
- Presented results to McGill Transport Group (MTG) in Department of Civil Engineering and Applied Mechanics

Postdoctoral Research Associate, Management Science/ Operations Management, Faculty of Business Administration, Memorial University of Newfoundland, St. John's, Newfoundland, Canada, Jul.2010 – Aug.2010

- Developed comprehensive risk model for transportation of hazardous material by rail
- Presented preliminary results to Management Science group

Co-supervisor (Dr. L. Miranda), Department of Civil Engineering and Applied Mechanics, McGill University, Quebec, Canada, Apr. - Jul. 2010

- Assisted master and undergraduate students Jillian Strauss and Thomas Nosal
- Developed a statistical model for accident severity at railroad grade crossing

Research Assistant, Transportation Systems Research Group, Department of Civil and Environmental Engineering, University of Waterloo, Waterloo, Ontario, Canada, Sept. 2005 – Dec.2009

- Developed risk model for railway car position along train length to decrease chance of car derailment

Research Assistant, TranSys Research Ltd., Kingston, Ontario, Canada, Dec. 2005-Apr. 2006

- Analyzed train derailment accidents in the U.S. and Canada as member of research team
- Developed statistical model to predict and prevent train derailments

Research Assistant, Port of Göteborg AB, Gothenburg, Sweden, Sept. - Dec. 2004

- Conducted feasibility study for implementing Double-Stack Container Trains technology for Swedish Railway as national project funded by European Union
- Presented recommendations to senior management team

Research Assistant, Ministry of Roads and Transportation, Iran, Jan. - Aug. 2005

- Conducted feasibility study for implementing Monorail Trains technology in Tehran supported by Tehran municipality

Teaching Experience:

Lecturer, McGill University, May. - Jun. 2010

- Prepared an intensive course for 40 undergraduate students in Operations Management, MGCR-472, Section 051 (40 students)

Lecturer, McGill University, Jan. - Apr. 2010

- Prepared and conducted lectures for 100 undergraduate students in Operations Management, MGCR-472, Section 001(35 students) and Section 002 (65 students)

Teaching Assistant, University of Waterloo, Jan. - Apr. 2009

- Developed and led tutorial sessions for 100 undergraduate students in Transport Principles and Applications(CIVE 342)
- Assisted students and graded assignments and exams

Teaching Assistant, University of Waterloo, Sept. - Dec. 2007

- Prepared and conducted tutorial sessions for 120 undergraduate students in Engineering Economics (CIVE 292 and ENVE 292)
- Graded assignments and exams, and assisted students on a one-to-one basis

Teaching certificate, University of Waterloo, Dec. 2009

- Received teaching certificate after participation in a three-day, 24 hour hands-on “Instructional Skills Workshop” which is designed to strengthen University of Waterloo instructor’s skills through intensive, practical, exercises in learning-centered teaching.

Teaching certificate, University of Waterloo, Apr. 2006

- Received teaching certificate after participation in Faculty of Engineering ExpecTAtion TA training workshop and successfully passed presentations and quizzes

Centre for Teaching Excellence, University of Waterloo, Jan.2007-Jan. 2008

- Audited course GS 901: Preparing for University Teaching I
- Attended six CTE (Centre for Teaching Excellence)-approved workshops, including Course Design and Understanding the Learner (Submitted written reports for each workshop).

Training and Field Work:

**Railway Analysis Trainee, Islamic Republic of Iran Railway Co., Tehran, Iran
Mar.- Aug. 2001**

- Observed and analyzed monitoring department
- Planned and developed new schedule for freight and passenger trains
- Recommended new procedures based on “System Analysis” course

**Railway Transportation Trainee, Tehran Urban and Suburban Railway Co., Iran
Apr.-Sept. 2000**

- Observed and analyzed structure and signaling departments
- Interviewed managers of structure and signaling departments and recommended new ideas for improvements which were later implemented

PUBLICATIONS AND PRESENTATIONS

Refereed Journal Publications:

Bagheri, M., Saccomanno, F. F., Chenouri, S., and Fu, L., Reducing the threat of in-transit derailments involving dangerous goods through effective placement along the train consist, *Journal of Accident Analysis and Prevention*:43(3) 613-620 (2011) **(ISI Journal)**

Bagheri, M., Saccomanno, F. F., and Fu, L., Effective placement of dangerous goods cars in rail yard marshaling operation, *Canadian Journal of Civil Engineering*: 37(5) 753-762 (2010) **(ISI Journal)**

Bagheri, M., Risk analysis of stationary dangerous goods railway cars: a case study, *Journal of Transportation Security*: 2 (3) 77-89 (2009) **(Cited in Scopus)**

Bagheri, M., Saccomanno, F. F., and Fu, L., Modelling hazardous materials risks for different train make-up plans, *Journal of Transportation Research Part E: Logistics and Transportation Review*, Submitted on 09 October, 2010, Paper No. (TRE-S-10-00012) **(ISI Journal)**

Eluru, N., **Bagheri, M.,** Miranda-Moreno, L. F., and Liping Fu, Identifying injury severity factors at highway-railway crossings: a latent class modeling approach, *Journal of Accident Analysis and Prevention*, Submitted on 09 December, 2010 **(ISI Journal)**

Bagheri, M., Chenouri, S., Saccomanno, F. F., and Fu, L., Cause analysis for railroad derailments, *Journal of Safety Science*, Submitted on 19 December, 2010 **(ISI Journal)**

Book Chapter:

Bagheri, M., Verma, M., Verter, V., An expected risk model for rail transport of hazardous materials, *Risk Prevention for Environment and Human Society against Dangerous Goods Transport Accidents and Malicious Intents: Methods and Tools*, Springer Book, editors are : E. Garbolino, M. Tkiouat, N. Yankevich and D. Lachtar

Journal Papers in Progress:

Chenouri, S., and **Bagheri, M.**, Estimating point of derailment probability by position, (for submission to ASCE Journal of Transportation Engineering)

Bagheri, M., Verma, M., Verter, V., A comparison of in-transit risk associated with transportation of hazardous materials by road and rail, (for submission to Journal of Risk Analysis)

Chenouri, S., and **Bagheri, M.**, Derailment probability analysis using markov chain, (for submission to Transportation Research Part B)

Refereed Conference Contributions:

Bagheri, M., Verma, M., Verter, V.(2011), A comprehensive risk assessment framework for rail transport of hazardous materials, ASCE Conference Proceedings of the 1st International Conference on Transportation Information and Safety (ICTIS), Wuhan, China, Published by American Society of Civil Engineering (ASCE) , 2174-2182, doi:10.1061/41177(415)275

Eluru, N., **Bagheri, M.**, Miranda-Moreno, L. F., and Fu, L.(2011), A latent class modelling approach for identifying injury severity factors and individuals at high risk of death at highway-railway crossings, ASCE Conference Proceedings of the 1st International Conference on Transportation Information and Safety (ICTIS), Wuhan, China, Published by American Society of Civil Engineering (ASCE), 1584-1599, doi:10.1061/41177(415)201

Bagheri, M., Saccomanno, F.F., and Fu, L. (2009), Risk based model for marshalling dangerous goods railway cars in rail yards, Proceedings of the 88th Annual Meeting of Transportation Research Board (TRB) in Washington DC

Bagheri, M., Saccomanno, F.F., and Fu, L. (2009), Dangerous goods railway car placement model, Proceedings of the 9th International Heavy Haul Conference in Shanghai, 863-871

Technical Reports:

English, G.W., Higham, G., **Bagheri, M.**, Moynihan, T.W., Saccomanno, F.F.(2007), Evaluation of risk associated with stationary dangerous goods railway cars (TP 14690E), TranSys Research Ltd., prepared for Transportation Development Centre and Transport Dangerous Goods, Transport Canada

Presentations:

Bagheri, M., Verma, M., Verter, V., A comprehensive risk assessment framework for rail transport of hazardous materials, The 1st International Conference on Transportation Information and Safety (ICTIS), Wuhan, China, July 2011.

Eluru, N., **Bagheri, M.**, Miranda-Moreno, L. F., and Liping Fu, A latent class modelling approach for identifying injury severity factors and individuals at high risk of death at highway-railway crossings, The 1st International Conference on Transportation Information and Safety (ICTIS), Wuhan, China, July 2011.

Bagheri, M., Saccomanno, F.F., and Fu, L. (2009), Dangerous goods railway car placement model, 9th International Heavy Haul Conference in Shanghai, June 24, 2009

Bagheri, M., Fu, L., Saccomanno, F.F. (2009), Effective Marshalling at Rail Yards to Mitigate Risk of Derailments Involving Dangerous Goods, The CORS/INFORMS Joint International Meeting, Models and Methods for Planning Railroad Operations Transportation Science & Logistics cluster, Toronto, June 14-17, 2009

Bagheri, M. (2009), Train Derailment Analyses Using Fuzzy Logic, 2009 Graduate Student Research Conference. University of Waterloo, April 27, 2009

Bagheri, M. (2009), Risk assessment model for marshalling rail cars along a freight train, Annual Joint ITE Section, Institute of Transportation Engineers. University of Waterloo, March 04, 2009 (received prize for one of the three top presentations)

Newspaper Articles:

Bagheri, M. (2002), The Development of a Subway is in Our Best Interest, Iran Daily Newspaper, 25/04/2002

Bagheri, M. (2001), Afghanistan and Her Strategic Position for Railway Transportation”, Etelaat Daily Newspaper, 23/01/2001

Attended Conferences:

- 9th World Congress on Railway Research, Lille, France, 2011
- Eighth International Conference on the Bearing Capacity of Roads, Railways, and Airfields, Champaign, USA, 2009
- 9th International Heavy Haul Conference, Shanghai, China, 2009
- CORS/INFORMS Joint International Meeting, Toronto, Canada, 2009
- High Speed Rail Canada Symposium, Kitchener, Canada, 2009
- Canadian Institute of Transportation Engineers Conference, Toronto, Canada, 2007
- 7th World Congress on Railway Research, Montréal, Canada, 2006
- The First Railway Engineering Faculty Conference, Tehran, Iran, 2002
- The Science and Industry Forum, Tehran, Iran, 2002
- The Third Industrial Engineering Conference, Tehran, Iran, 2000
- The Fifth Railway Transportation Conference, Tehran, Iran, 1999

PROFESSIONAL SERVICE

Reviewer for: Safety Science

Canadian Journal of Civil Engineering
Transportation Research Record
Journal of Hazardous Materials
Journal of Risk Analysis
Journal of Rail and Rapid Transit

Vice President Internal, Civil and Environmental Engineering Graduate Association (CE2GA), University of Waterloo, Mar. 2008 – Apr.2009

- Applied and received \$ 4500 fund from GSEF and Department of Civil & Environmental Engineering to improve physical and electronic resources for graduate student common space
- Purchased and monitored the arrangement and delivery of refrigerators, microwaves and furniture to the Transportation-, Structure-, Water-, and MEng-students' common spaces.
- Attended Department of Civil & Environmental Engineering meetings; reported back to CE2GA executive members on the issues discussed

Vice President, Student Chapter of the Institute of Transportation Engineers (ITE), University of Waterloo, Jan. 2008 – Apr.2009

- Received the Student Chapter Activity Award 2009 from Canadian Institute of Transportation Engineers
- Arranged, publicized and hosted the First Annual Joint South-western Ontario, Toronto and Hamilton ITE Student Presentation Competition and Job Fair (representative from MMM Group, MTO and iTRANS) on March 4, 2009
- Interviewed by “The Iron Warrior” Newspaper, Volume 30, Issue 5 Wednesday, March 25, 2009. Spoke in support of Transportation Systems Research Group activities at UW and the potential value of its contribution to transport safety, both locally and internationally

Trip Planner, Management of Transportation and Logistics Program, Chalmers University of Technology, 2004

- Arranged and managed the European scientific tour for 12 graduate students

Vice President, Student Chapter of Railway Transportation Engineers, Iran University of Science and Technology, 1999-2001

PROFESSIONAL AFFILIATIONS

- Member, Interuniversity Research Centre on Enterprise Networks, Logistics and Transportation (CIRRELT).
- Member, McGill Transport Group (MTG).
- Member, Management Science Research Centre (MSRC), McGill University.
- Member, Transportation Association of Canada (TAC).
- Member, University of Waterloo Transportation Systems Research Group (TSRG).
- Member, American Railway Eng. & Maintenance-of-Way Association (AREMA)
- Member, Railway Applications Section (RAS) of INFORMS, USA
- Member, Society for Risk Analysis (SRA), USA
- Member, Institute of Transportation Engineers (ITE), USA
- Member, Canadian Society for Civil Engineering (CSCE)
- Member, American Society of Civil Engineers (ASCE)
- Member, Institute of Railway Transportation Engineers, Iran
- Member, Iran Logistics Society