

Dr. Leeza Malik

Assistant Professor,
Department of Civil Engineering,
IIT(ISM) Dhanbad
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Areas of Specialization

Freight Transportation Planning and Modelling;
Transportation Data Analytics and Machine
Learning Applications; Electric Mobility;
Congestion Pricing; Road Safety; Traffic Emissions

Education

Ph.D. in Transportation Engineering

July 2015 – March 2020

Indian Institute of Technology Delhi

Dissertation: Externalities of Urban Freight Transport: The Case of Delhi

Supervisors: Prof. Geetam Tiwari (IIT Delhi); Prof. Johan Woxenius (University of Gothenburg, Sweden)

M.Tech. in Transportation Engineering

July 2013 – July 2015

Indian Institute of Technology Delhi

C.G.P.A: 9.21/10

Dissertation: Urban Freight-Parking Practices: The Cases of Gothenburg (Sweden) and Delhi (India)

Supervisors: Prof. Geetam Tiwari (IIT Delhi); Prof. Johan Woxenius (University of Gothenburg, Sweden);

Prof. Ivan Sanchez Diaz (Chalmers University of Technology, Gothenburg, Sweden)

B.E. in Civil Engineering

July 2009 – July 2013

Chandigarh College of Engineering and Technology, Sector-26, Chandigarh (Govt. Institute under UT Admin.)

Affiliated to Panjab University, Sector-14, Chandigarh

Percentage: 85.12% (**University Gold Medal in Civil Engineering**)

Experience

Assistant Professor

March 2021 –Present

Indian Institute of Technology (Indian School of Mines) Dhanbad

Early Doctorate Fellow

March 2020 –February 2021

Indian Institute of Technology Delhi

Major Responsibilities: Research work

Technical Skills

Python; R; Matlab; TransCAD; Arc GIS; PTV Vissim; OpenRoads; SPSS; Stata; NLOGIT; AutoCAD; Biogeme;
Anylogic; Lindo

Professional Outreach

1. **Associate Editor (2023-Present):** International Association of Traffic and Safety Sciences, **Elsevier, IATSS Research** (ISSN: 0386- 1112)
 2. MoU between **IIT(ISM) Dhanbad** and **Centre for Studies on Environment and Climate**, Asian Development Research Institute, **Patna, Bihar** (2023-2028)
 3. Working Group member for “**India’s Zero Freight Emissions Program**” **C40 Cities Climate Leadership Group** (Based in London, United Kingdom)
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R&D Projects

1. Improvement of **Life Cycle Analysis Tool** in the Framework of **Decarbonising Transport in Emerging Economies** (DTEE) and The NCD Transport Initiative For Asia (NCD-TIA), **Organisation for Economic Co-operation and Development, Paris, France**. OECD/2022-2023/912/CE, 19.12 lakh (**Completed**)
 2. Designing **Charging Infrastructure System for Heterogeneous Vehicles** in Urban Networks, **IIT(ISM) Dhanbad**. FRS(173)/2022-2023/CE, 15 lakh (**Completed**)
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Consultancy Projects

1. Developing a Roadmap for **Clean Mobility Transition** in the **Commercial Transportation** Sector in the **Eastern Regions**: A case study of Bihar and Jharkhand, **Centre for Studies on Environment and Climate**, Asian Development Research Institute, **Patna, Bihar**. CONS/7075/2023-24 (**Completed**)
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Invited Talks

1. “**Electrifying Logistics: Assessing the Viability of eLCVs in Jharkhand’s Transport Sector**”, online lecture series organized by the **Center for Studies on Environment and Climate at the Asian Development, Patna**. (24th February 2025)
2. “**Overview of the ITF Transport Life-cycle Assessment Tool: the process, challenges and lessons learnt**”, “Paving the Patch: Decarbonising Transport in India and the Region” organized by **International Transport Forum (ITF)**, **NITI Aayog** and **International Climate Initiative (IKI)**. (28th-29th March 2024)
3. “**Harnessing Geospatial Technology for Traffic Emission Reduction**”, Summer School in Geospatial Science and Technology (Level 2)” sponsored by **DST-National Geospatial Program IIT(ISM) Dhanbad**, June 2024
4. “**India’s Freight Sector on the Road to Zero**”, online C40 Laneshift webinar organized by **C40 Cities Climate Leadership group, Bangalore**. (1st November 2023)
5. “**Enhanced Urban Freight Flow Prediction using Sparse Data**”, online Short-Term Training Programme (STTP) on "Recent Advances in Freight Transportation (RAFT 2023)" organized by **Centre of Excellence in Logistics and Supply Chain Management (CoELSCM)**, **NIT Calicut**. (21st July 2023)
6. “**Managing Freight Transport and Traffic considerations**”, Capacity Building Programme for Town Planning Officials, Government of Maharashtra Urban Development, Spatial Planning, and Governance - Concepts and strategies organized by **Indian Institute of Human Settlements, Mumbai**. (3rd May 2023)
7. “**GIS Applications in Urban Infrastructure Planning**”, Winter School in Geospatial Science and Technology (Level 1), sponsored by **DST-National Geospatial Program, IIT(ISM) Dhanbad**. (23rd February 2023)

8. **“Life Cycle Assessment of Passenger Transport: An Indian Case Study”**, Decarbonising Transport in India: Analysis, Dialogue, and Action organized by **International Transport Forum (ITF)**, **NITI Aayog** and **International Climate Initiative (IKI)**. (31st January-1st February 2023)
9. **“ITF Transport LCA Tool for India – Peer review workshop”**, Decarbonising Transport in India: Analysis, Dialogue, and Action organized by **International Transport Forum (ITF)**, **NITI Aayog** and **International Climate Initiative (IKI)**. (31st January-1st February 2023)
10. **“Development of safety performance function using surrogate variables for network screening on Indian National Highways”** at 4th National Conference on Traffic Technologies conducted by **Central Academy of Police Training, Bhopal** (03-04 March 2022)
11. **“Estimating Urban Freight flow with limited data”** in online symposium on “Sustainable Advancements in Transportation Engineering” organized by **Pandit Deendayal Energy University Gujarat**. (17-19 April 2021)

Scholarly Accomplishments

Refereed Journal Publications (Published)

1. Biswal, A., Singh, V.*, **Malik, L.**, Tiwari, G., Ravindra, K. and Mor, S., (2023). ‘Spatially resolved hourly traffic emission over megacity Delhi using advanced traffic flow data’. *Earth System Science Data Discussions*, 15(2) pp.661-680. doi: <https://doi.org/10.5194/essd-15-661-2023> (**Impact Factor: 11.815, SCIE, Q1**)
2. **Malik, L.***, Tiwari, G., Biswas, U. and Woxenius, J., (2021) ‘Estimating urban freight flow using limited data: The case of Delhi India’. *Transportation Research Part E: Logistics and Transportation Review*, 149. doi: <https://doi.org/10.1016/j.tre.2021.102316> (**Impact Factor: 10.6, SCIE, Q1**)
3. **Malik, L.***, Tiwari, G., Thakur, S. and Kumar, A., (2019) ‘Assessment of freight vehicle characteristics and impact of future policy interventions on their emissions in Delhi’. *Transportation Research Part D: Transport and Environment*, 67, pp.610-627. doi: <https://doi.org/10.1016/j.trd.2019.01.007> (**Impact Factor: 7.6, SCIE, Q1**)
4. **Malik, L.*** and Tiwari, G. (2017) ‘Assessment of interstate freight vehicle characteristics and impact of future emission and fuel economy standards on their emissions in India’, *Energy Policy*, 108, pp. 121–133. doi: <https://doi.org/10.1016/j.enpol.2017.05.053> (**Impact Factor: 9, SCIE, Q1**)
5. **Malik, L.***, Sánchez-Díaz, I., Tiwari, G. and Woxenius, J. (2017) ‘Urban freight-parking practices: The cases of Gothenburg (Sweden) and Delhi (India)’, *Research in Transportation Business & Management*, 24, pp. 37-48. doi: <https://doi.org/10.1016/j.rtbm.2017.05.002>. (**Impact Factor: 4.8, SSCI**)

Refereed Journal Publications (Submitted)

1. Sengupta, S. and **Malik, L.*** ‘Modeling Spatio-Temporal EV Charging Demand for Two-Wheelers and Four-Wheelers in Delhi’, submitted to *Transportation Research Part D: Transport and Environment*
2. Mandal. S., **Malik, L.***, Salim.A., ‘Beyond Private Wheels: How Ride-Hailing Transforms Mobility in Medium-Sized Indian Cities’ submitted to *Research in Transport Business and Management*

Refereed Conference Publications (Peer-Reviewed)

1. Sengupta, S. and **Malik, L.*** ‘Evaluating Range Sufficiency and Charging Infrastructure for Electric Light Commercial Vehicles in Delhi’, in *CTRG 2025 (8th Conference of Transportation Research Group of India)*, IIT Guwahati.
2. Biswal, A., Singh, V., **Malik, L.**, Tiwari, G., Ravindra, K. and Mor, S., (2022). ‘Using traffic flow and speed relation to estimate hourly on-road traffic PM and NOx Emissions for Delhi.’ *In Fall Meeting 2022. AGU, 2022, Chicago, IL, USA*. <https://agu.confex.com/agu/fm22/meetingapp.cgi/Paper/1163907>

3. Biswal, A., Singh, V., **Malik, L.**, Tiwari, G., Ravindra, K. and Mor, S., (2022). ‘A spatio-temporal street scale vehicular emission model for air quality studies.’ *13th International Conference on Air Quality, Greece*.
4. **Malik, L.***, Amber Gupta, Tiwari, G., (2020) ‘Accuracy assessment of using application programming interface in the development of safety performance function on Indian expressway’, *Transportation Research Board 99th Annual Meeting Transportation Research Board, Washington D.C, USA*. (No. 20-01281).
5. **Malik, L.***, Jindal Shukla, G. and Tiwari, G., (2018). ‘Estimation of safety performance function with limited data on highways’ *Transportation Research Board 97th Annual Meeting Transportation Research Board, Washington D.C, USA* (No. 18-03318). Available at: <https://trid.trb.org/view/1495721>

Refereed Conference Publications (Submitted)

1. Sengupta, S. and **Malik, L.*** ‘Evaluating Range Sufficiency and Charging Infrastructure for Electric Light Commercial Vehicles in Delhi’, submitted to *CTRG 2025 (8th Conference of Transportation Research Group of India)* (Status: Under Review)

Professional Responsibilities and Contributions

Research Guidance at IIT(ISM) Dhanbad

PhD Students: 06

S.No.	Name	Admission Number	Dissertation Topic	Status
1	Subrajeet Sengupta	21DR0191/ Full-time	Location of Charging Stations for Heterogeneous Electric Vehicles in Delhi	On-going
2	Sourav Mandal	22DR0225/ Full-time	Multi-objective Optimization Framework for Determining Mixed Fleet of Electric and Conventional Freight Vehicles in Solid Waste Management	On-going
3	Ashutosh Kumar Tiwari	23DR0035/Full-Time	Integration of Naturalistic Driving Behavior with Road Safety Audits for Enhanced Accident Risk Location Identification	On-going
4	Alaa Mahfoud	24IM0010/Full-Time (International Student)	Analyzing Heavy Vehicle-Pedestrian Interactions at Unsignalized Intersections	On-going
5	Ipshita Sanyal	25DR0005/Full-Time	On-going Coursework	On-going
6	Suman Dharmasthala	25DR0064/Full-Time	On-going Coursework	On-going

M.Tech Students: 05

S.No.	Name	Admission Number	Dissertation Topic	Status
1	Prashant Kumar Jha	21MT0286/Full-time	A Comparative Framework of Road Safety Audit on Existing Roads	Completed
2	Siva P	21MT0260/ Full-time (Co-supervisor)	A GIS-Based Traffic Rerouting Strategy for Dhanbad	Completed
3	Abdus Salim	22MT0002/Full-Time	Mode Shift Behaviour from the Introduction of Ride-Hailing Services in Dhanbad	Completed
4	Randheer Kumar	23MT0305/ Full-time	Sustainability Assessment of urban freight transportation in Dhanbad	Completed

B.Tech Students: 13

S.No.	Name	Admission Number	Project Topic	Status
1	Aadya Dewangan	21JE0001	Analyzing of Multimodal Integration of Delhi Metro and Buses	Completed
2-3	Shubh Yadav & Shubham Sharma	21JE0907, 21JE0909	Parking Characteristics of Freight Vehicles In Dhanbad	Completed
4-7	Neha Lalwani, Sparsh Agarwal, Vikhyat Chandra, Yashavi Garg	20JE0611, 20JE0973, 20JE1083, 20JE1117	Design of Dynamic Dashboard for Recording Indian Vehicle Characteristics	Completed
8-9	Neha Raliya & Srajan Verma	19JE0561, 19JE0819	Automated Travel Diary Generation using Mobile App	Completed
10	Sravya Pamula	18JE0574	Improvement Approaches and Techniques for Sustainable Solid Waste Transportation in Vijayawada	Completed
11	Bhumika Manker	18JE0230	Accident Reporting System	Completed
12	Nandan Kumar	18JE0519	Road Safety Audit: IIT(ISM) Main Gate Dhanbad	Completed
13	Kaustav Chakraborty	Summer Research Internship Program 2022	Applied Machine Learning Techniques in Transportation Systems	Completed

Courses Taught at Department of Civil Engineering, IIT(ISM) Dhanbad

1. Transportation Statistics and Microsimulation, PhD & M.Tech
2. Applied Engineering Statistics, PhD (Excellent Teaching Feedback, 2022-23, No. DT/Feedback/MS 2022-23)
3. Research Methodology and Statistics, PhD & M.Tech
4. Computational Laboratory (Transportation Planning and Modelling), M.Tech
5. Traffic Engineering and Management, B.Tech
6. Transportation Engineering II (Railway and Airport Engineering), B.Tech
7. Transportation Engineering Laboratory, B.Tech
8. Surveying Laboratory, B.Tech

Administrative Responsibilities at IIT(ISM) Dhanbad:

1. Timetable Coordinator, Department of Civil Engineering (August 2022-Till date)
2. Web and MIS Coordinator, Department of Civil Engineering (August 2022-Till date)
3. Transportation Engineering Lab-in-charge (August 2022-Till date)
4. Committee Member of Department Grievance Redressal Committee, Civil Engineering (Feb 2024-Till date)
5. Department Undergraduate UGC member, Department of Civil Engineering (August 2022-Till date)
6. Department Purchase Committee member, Department of Civil Engineering (2023-24)
7. Committee member for preparing a Vision 2035 Document for the Department of Civil Engineering (2022)
8. Anti-Ragging Squad 2021-24, Rosaline Hostel

Journal Responsibilities

Associate Editor: International Association of Traffic and Safety Sciences, IATSS Research (ISSN: 0386-1112)

Journals Peer Reviewer

Energy Policy (ISSN: 0301-4215); Springer Nature (ISSN: 1573-1596); Plos One (ISSN: 1932-6203); International Journal of Injury Control and Safety Promotion (ISSN: 1745-7319); World Review of Intermodal Transportation Research (ISSN: 1749-4737), Transport Reviews (ISSN: 1464-5327), IEEE Embedded Systems Letters (ISSN: 1943-0671), IATSS Research (ISSN: 0386-1112)

Conference Peer Reviewer

Conference of Transportation Research Group of India, Urban Mobility India, Transportation Infrastructure Projects: Conception to Execution,

Memberships

1. Institute of Transportation Engineers (ITE Membership No.: 1113839)
2. Transport Research Group (India) (TRG Membership No.: 20213)
3. Institute of Urban Transport (India) (IUT Membership No.: M-1610)
4. Indian Road Congress (IRC Membership No.: 103527)
5. The Institution of Engineers (India) (IEI Membership No.: M-1817655)

Invited Participation and Roles

1. Invitation to participate in workshop titled ‘Accelerating the Shift: Transition to Zero Emission Trucks- Ranchi Chapter’ organized by Smart Freight Centre (SFC), an international think tank working and BODHI (Centre for Sustainable Growth) as a knowledge partner for NITI Aayog’s (e-FAST) initiative. (19th February 2025).
2. Session Chair for “Urban Mobility” session at ASCE International Conference on Challenges and Innovations for Sustainable Smart Cities (CISSC 2025) organized by ASCE India Section Northern Region (ASCE IS NR) & Punjab Engineering College, Chandigarh (7th to 9th February 2025)
3. Session Co-chair for “Urban Planning and Development” session at ASCE International Conference on Challenges and Innovations for Sustainable Smart Cities (CISSC 2025) organized by ASCE India Section Northern Region (ASCE IS NR) & Punjab Engineering College, Chandigarh (7th to 9th February 2025)
4. Technical Committee member of International Conference on Smart, Resilient and Sustainable Infrastructure (SRISTI), IIT(ISM) Dhanbad
5. Invited talk, Harnessing Geospatial Technology for Traffic Emission Reduction, Summer School in Geospatial Science and Technology (Level 2)” sponsored by DST-National Geospatial Program IIT(ISM) Dhanbad, June 2024
6. Invitation to participate in Closed door (hybrid) roundtable on transportation fuel demand forecasting model, Council on Energy, Environment, and Water (CEEW) (1st October 2024).
7. A member of National Advisory Committee for “ASCE International Conference on Challenges and Innovations for Sustainable Smart Cities” (CISSC 2025), Chandigarh
8. Expert Trainer at Skill Development Program as “Assistant Mine Surveyor Course” at IIT(ISM) Dhanbad, under the scheme of PMKY4.0 & NSDC, June 2023
9. Convener for the session on “Environment and pollution” Dinesh Mohan Memorial Symposium, organized by Transportation Research and Injury Prevention Centre IIT Delhi. (7-9 September 2022).
10. Rapporteur for National Workshop on “Localizing Transport Sustainable Development Goals in Small Cities” (7-8 February 2020).
11. Rapporteur for Vulnerability, Safety and Security Session at VREF Research Network Workshop, Fortaleza, Brazil (22-26 June 2019).
12. Rapporteur for 25th International Course on Transportation Planning and Safety (29 Nov-02 Dec 2015).

International Conference Presentations (Oral/Poster)

1. Oral presentation at VREF Ph.D. Students and Younger Researchers Workshop, Fortaleza, Brazil on “Urban Freight Flow Estimation with Limited Data: The Case of Delhi (India)” (22-26 June 2019).
2. Poster presentation at VASI-SUFS conference at Rensselaer Polytechnic Institute, Troy, New York on “Externalities of Urban Freight Transport: The Case of Delhi” (04-11 August 2018).
3. Poster presentation on “Estimation of Safety Performance Function with Limited Data on Highways” at 97th Annual Transportation Research Board meeting, Washington D.C (7-11 January 2018).

4. Oral presentation at CODATU XVII, 2017, Hyderabad on “Assessment of Freight Vehicles Characteristics: The Case of Delhi” (4-6 November 2017).
5. Oral presentation on "Urban Freight-Parking Practices: The Cases of Gothenburg (Sweden) and Delhi (India)" at 14th World Conference on Transport Research, Shanghai. (10-15 July 2016).
6. Oral Presentation in open Seminar “Social Perspectives on City Transportation - Studies from Delhi & Urban Freight Studies in Gothenburg” held at Centre for Environment and Sustainability, GMV, Sweden (26th November 2014).

Conferences and Workshops Attended

1. Attended GIAN Course on “Transportation Systems: Dynamics and Control for Traffic, Vehicles and Pedestrians” by Prof. Pushkin Kachroo (2-13 December 2019, New Delhi).
2. Attended talk on “Open Data: A gateway towards better public transportation” Prof. Pravesh Biyani, IIIT Delhi (4th April 2019, New Delhi).
3. Attended thematic track on “Data to policy: Data-Driven and Smart Road Safety Policies for Indian cities” at World Sustainable Development Summit 2019 (11th Feb 2019).
4. Attended National Workshop by Ministry of Road Transport and Highways and Asian Institute of Transport Development on “Road Safety Engineering”, Delhi (6th February 2019).
5. Attended the workshop on “Introductory Workshop on Systematic Reviews and Evidence and Gap Maps” organized by Campbell Collaborations (7-9 December 2018).
6. Attended International Conclave on “Clean and Low Carbon Mobility Strategies”, Centre for Science and Environment, Delhi (4-5 September 2018).
7. Attended a half day short course on "Megacity logistics: Metrics, Tools and Measures for Sustainability (MEGALOG)" sponsored by The World Bank Group at CRRI, Delhi (12th December 2017).
8. Attended GIAN course on “Pedestrian Dynamics-Empirics and Modelling” by Prof. Armin Seyfried (8 -14 November 2017, New Delhi).
9. Participated in 7th METRANS International Urban Freight Conference (17-20 October, 2017, Long Beach, California, USA).
10. Participated in “Focused Group Discussion on the Progress, Barriers and Opportunities in Green Freight”. (11th September, 2015).
11. Participated in workshop "Characterization of Modified and Unmodified Asphalt Binders using Dynamic Shear Rheometer (DSR)". (18th February, 2015).
12. Participated in Annual TRIPP lectures on "How Can Transport Contribute to Other Urban Agendas?" and "Pedestrian Safety versus Traffic Flow: Finding the Balance" (2014 and 2015).
13. Attended Seminar on “Index for Climate-Smart Freight Transport” organized by the Urban Freight Platform. (28th November 2014, Sweden).
14. Attended the VREF Urban Freight Platform International urban freight workshop on “How is Urban Freight Research Being Applied to Make a Difference: Cases and Examples” (19th September, 2014, Sweden).
15. Participated in “Promoting Universal Design In Public Transport System And Pedestrian Environment Workshop”. (TRIPP, IIT Delhi, 20th September, 2013).
16. Attended 23rd and 25th International Course on Transportation Planning and Safety. (3-10, December, 2013; 29 November-05, December, 2015).

Awards

1. **Excellent Teaching Feedback** in “CEC512-Applied Engineering Statistics” in 2022-23 Monsoon Semester by Director, IIT(ISM) Dhanbad, (No. DT/Feedback/MS 2022-23)
2. Among the **finalist globally for the Lee Schipper Memorial Scholarship, 2021** (sponsored by WRI Ross Center for Sustainable Cities , Washington DC) for the proposal submitted on “Sustainable waste transportation through electric freight fleet in India” (Submission date 19th March, 2021).
3. Awarded **travel scholarship** to present Ph.D. thesis work at **Mobilize Fortaleza, Brazil** (22-26 June 2019)
4. Awarded **travel scholarship** to attend and present Ph.D. work in **VREF Advanced Studies Institutes on Sustainable Urban Freight Systems (VASI-SUFS) workshop, New York, USA** (4-11 August, 2018)
5. Awarded **Ministry of Urban Development (MoUD) scholarship** to collect traffic data for Ph.D. work (Session 2017-2018)
6. Awarded **Department of Science and Technology (DST) travel scholarship** to present at Transport Research Board Annual Meeting, **Washington D.C., USA**, 2018 (7-11 January, 2018)
7. Awarded **Volvo Research and Educational Foundations (VREF) scholarship** to attend 2017 METRANS International Urban Freight Conference held at Long Beach, **California, USA**. (17-20 October, 2017)
8. Awarded **Ministry of Urban Development (MoUD) scholarship** to present work at WCTR conference, **Shanghai, China**. (2016)
9. Awarded **Volvo Research and Educational Foundations (VREF) scholarship** to pursue my M.Tech. dissertation work in **Sweden** (2014).
10. Selected for **Student Exchange Programme** to pursue MTech. dissertation (**Indian Institute of Technology Delhi and University of Gothenburg, Sweden**; Session: 2014-15)
11. Awarded **Gold Medal** for being overall topper of **Panjab University in Civil Engineering** (2013).