

Curriculum Vitae

1. Name and full correspondence address:	Dr. Nandan Maiti Department of Civil Engineering, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal-721302
2. Designation:	Assistant Professor
3. Email(s) and contact number(s):	nandan@civil.iitkgp.ac.in nandan.besu043@gmail.com O: +91 3222 214668 M: +91 9647038933

Research Interests

- Traffic operations and management: Traffic control optimization, Real-time traffic monitoring, Sustainability, etc.
- Traffic flow modeling: Macro/micro-scopic traffic flow models, Network traffic dynamics, Simulation, Numerical analysis, etc.
- Intelligent transportation systems: V2X communication, AI in Mobility, Digital Twin, Heterogeneous data fusion, Energy and mobility, etc.

Education

Degree	Year	Subject	Institution
M.S. (by Research) & Ph.D PMRF Fellow	2019-2023	Civil Engineering	Indian Institute of Technology, Madras
B.E.	2011-2015	Civil Engineering	Indian Institute of Engineering Science and Technology, Shibpur

Academic Experiences

a) Teaching Experience:

Role	Subject Taught	Institute	Year
Instructor, Assistant Professor	CE13006: IoT in Civil Engineering CE29208: AI-ML in Civil Engineering CE29204: Transportation Engineering Lab	IIT Kharagpur	2025-2026
Instructor, Postdoc Researcher	Dynamic Macroscopic Modeling	ENTPE Lyon	2025

b) Research Experience & Project Proposals:

Role	Area of Research	Institute	Granting Agency	Year
Co-PI	Comprehensive study for assessing and formulating a feasible solution for devising a traffic management strategy in the bhubaneswar-cuttack twin city region	IIT Kharagpur	Police Commissonerate Bhubaneswar Cuttack Cost: 1.22 Cr INR	01/2026- 11/2028
Postdoctoral Researcher	Data-driven auto-calibration of simulation models for Digital Twin application	University Eiffel, ENTPE, EMob Lab France	Horizon Europe research,Agreement no. 101103808	12/2023- 12/2025
Exchange Mobility Scholar	Universality of area-occupancy-based fundamental diagrams	Georgia Institute of Technology, Atlanta, USA	International Immersion Experience program from IIT Madras	06/2022- 12/2022
Research Assistant	Macroscopic Modeling of Mixed Traffic Conditions: Fundamental Diagrams and An Areal Continuum Model	IIT Madras	PMRF, Govt. of India	01/2019- 12/2023

c) Industrial Experience

Role	Work	Organization	Year
Engineer	Construction site work	Italian-Thailand Development Corporation India Limited	07/2015- 03/2017

Training & Workshop Organizing

1. Training programme of WB Traffic Police Officers on road safety related issues as per the direction of The Hon'ble Supreme Court Committee on Road Safety (SCCoRS)-REF: 51/2014/CoRS (Vol-3), 19/02/2026, Yuva Bharati Krirangan, Kolkata.
2. Training programme of WBCS (exe) officers 2025 batch on Planning, Execution and Management of Civil Works for Rural Development, 09 – 11/ 04/2026, IIT Kharagpur.

Publications

a) Patents

1. Chilukuri, B. R., **Maiti, N.**, 'Departure time prediction based on V2V and V2I communication' (Indian patent number-411487, Application No.- 202241013896, Granted on 15/11/2022) [[Certificate](#)]

b) Journals (quartiles as per Scopus, SCI/SCIE, Scopus Indexed)

1. **Maiti, N.**, and Chilukuri, B.R., An areal continuum model for mixed traffic conditions, *Physica A: Statistical Mechanics and its Applications*, 2026., <https://doi.org/10.1016/j.physa.2026.131465> (IF-3.1, Q1) [[PDF](#)]
2. **Maiti, N.**, Seppecher, M., and Leclercq, L., Scaling Methods to Estimate Macroscopic Fundamental Diagrams in Urban Networks with Sparse Sensor Coverage, *Transportation Research Part C: Emerging Technologies*, 2025, <https://doi.org/10.1016/j.trc.2025.105213>, (IF-10, Q1) [[PDF](#)] [[Code](#)]
3. **Maiti, N.**, Seppecher, M., and Leclercq, L., Challenges in Calibrating Multimodal Network Macroscopic Fundamental Diagrams: A Review and Definition of Data Fusion Pipeline, *European Transport Research Review*, 2025, <https://doi.org/10.1186/s12544-025-00750-9> [[PDF](#)][[Code](#)] (IF-5.2, Q1)
4. **Maiti, N.**, and Leclercq, L., Estimating Spatial Mean Speeds from Local Sensors: A Machine Learning Approach, *Data Science for Transportation*, 7.1, 2025: 6 <https://doi.org/10.1007/s42421-025-00120-w> (Scopus indexed-new journal) [[PDF](#)] [[Code](#)]
5. **Maiti, N.**, Laval, J.A., and Chilukuri, B.R., Universality of area occupancy-based fundamental diagrams in mixed traffic, *Physica A: Statistical Mechanics and its Applications*, 2024, <https://doi.org/10.1016/j.physa.2024.129692> (IF-3.1, Q1) [[PDF](#)]
6. **Maiti, N.**, and Chilukuri, B.R., Empirical Investigation of Fundamental Diagrams in Mixed Traffic, *IEEE Access*, vol. 11, pp. 13293-13308, 2023, <https://doi.org/10.1109/ACCESS.2023.3242971> (IF-3.9, Q1) [[PDF](#)][[Code](#)]
7. **Maiti, N.**, and Chilukuri, B.R., Estimation of Local Traffic Conditions Using Wi-Fi Sensor Technology, *Journal of Intelligent Transportation Systems*, 2023, [doi: https://doi.org/10.1080/15472450.2023.2177103](https://doi.org/10.1080/15472450.2023.2177103) (IF-3.7, Q1) [[PDF](#)]
8. **Maiti, N.**, and Chilukuri, B.R., Does Anisotropy Hold in Mixed Traffic Conditions?, *Physica A: Statistical Mechanics and its Applications*, 2023, doi: <https://doi.org/10.1016/j.physa.2023.129336> (IF-3.1, Q1) [[PDF](#)][[Code](#)]

c) Scopus-Indexed Proceedings & Book Chapters

1. **Maiti, N.**, and Chilukuri, B.R., "Traffic Signal Control for an Isolated Intersection Using Reinforcement Learning," 2021 International Conference on Communication Systems & Networks (COMSNETS), *IEEE Xplore*, Bangalore, India, 2021, pp. 629-633, doi: [10.1109/COMSNETS51098.2021.9352834](https://doi.org/10.1109/COMSNETS51098.2021.9352834) [[PDF](#)]
2. **Maiti, N.**, and Chilukuri, B.R., Improved numerical solution of inhomogeneous ARZ-higher-ordered traffic flow model, Proceedings of 7th Conference of the Transportation Research Group

of India (CTRG 2023), *Springer Nature*, Volume-2, https://doi.org/10.1007/978-981-96-1037-2_28 [PDF]

3. **Maiti, N.**, Seppecher, M., and Leclercq, L., Upscaling Macroscopic Fundamental Diagram Estimation From the Equipped to Full Networks, *13th Symposium of the European Association for Research in Transportation (hEART)*, Munich, 2025, https://transport.epfl.ch/heart/2025/abstracts/hEART_2025_shortpaper_107.pdf

d) Reports

1. **Maiti, N.**, Seppecher, M., Leclercq, L., Tympakianaki, A., and Perarnau, J., Autocalibration methods for simulation in a AI-aided decision tool for seamless multimodal network and traffic management (ACUMEN), *European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101103808*, <https://acumen-project.eu/>

e) Conference Presentations

1. **Maiti, N.**, Link-level Macroscopic Models for Mixed Traffic: An Overview of Existing Research and Future Research Directions, TRBAM-26-03320, *Transportation Research Board 105th Meeting*, Washington D.C., 2026
2. **Maiti, N.**, Seppecher, M., and Leclercq, L., Enhancing Macroscopic Fundamental Diagram Estimation in Urban Networks with Sparse Sensors: A Hierarchical and Spatial Imputation Approach, *TRB Traffic Flow Theory Committee Meeting ACP 50*, Cairns, Australia, 2025, <https://hal.science/hal-05266878/>
3. **Maiti, N.**, Seppecher, M., and Leclercq, L., Upscaling Macroscopic Fundamental Diagram Estimation From the Equipped to Full Networks, *hEART*, Munich, 2025, <https://hal.science/hal-05114274/>
4. **Maiti, N.**, Seppecher, M., and Leclercq, L., Unveiling Challenges in Empirical Estimation of Multimodal Network Macroscopic Fundamental Diagrams: A Data Fusion Perspective, TRBAM-25-03306, Washington D.C., 2025 (**Best paper- Greenshields Award from ACP50**), <https://hal.science/hal-04903747/>
5. **Maiti, N.**, and Chilukuri, B.R., Improved numerical solution of inhomogeneous ARZ-higher-order traffic flow model, *7th Conference of the Transportation Research Group of India (CTRG)*, 2023.
6. **Maiti, N.**, and Chilukuri, B.R., "Does Anisotropy Hold In Mixed Traffic Conditions?", TRBAM-24-03007, *Transportation Research Board 103rd Annual Meeting*, Washington D.C., 2024.
7. **Maiti, N.**, Laval, J.A., and Chilukuri, B.R., Universality Of Area Occupancy-Based Fundamental Diagrams In Mixed Traffic, TRBAM-24-06011, *Transportation Research Board 103rd Annual Meeting*, Washington D.C., 2024.
8. **Maiti, N.**, and Chilukuri, B.R., Empirical investigation of fundamental diagrams in mixed traffic, accepted for presentation, TRBAM-22-04880, *Transportation Research Board 101th Annual Meeting*, 2022.
9. **Maiti, N.**, and Chilukuri, B.R., Effect of vehicle composition on fundamental diagrams, accepted for presentation at the *6th Conference of the Transportation Research Group of India (CTRG)*, 2022. (**Best paper award**)
10. **Maiti, N.**, Krishna, Abirami A., Deepak S, and Chilukuri, B.R., Estimation of Traffic Conditions along Highways Using Wi-Fi Technology, 6th Annual ITS Workshop, *COMSNETS*, 2020
11. Prakash, V., **Maiti, N.**, and Chilukuri, B.R., Modeling Truck-Lanes in Heterogeneous Traffic, 5th *Conference of the Transportation Research Group of India (CTRG)*, 2019

Fellowship & Awards

1. **Greenshields Award** from the Traffic Flow Theory and Characteristics Committee, Transportation Research Board Annual Meeting 2025, Washington, D.C.
2. **International Immersion Experience (IIE)** award, IIT Madras, for a research stay at *Georgia Institute of Technology, Atlanta, USA* (\$8,000), Aug 2022-Dec 2022
3. **Best Paper Award** in safety, sustainability, and traffic at 6th CTRG, Transportation Research Group of India, 2021
4. Recipient of **Prime Minister's Research Fellows (PMRF)** for M.S.+ Ph. D. at IIT Madras, 2019-2023

Professional Activities

1. External Reviewer for Conferences and Journals

Transportation Research Part-C; Transportmetrica B; Transportation Letters, TIDE, Scientific Reports, Data Science for Transportation, TRR, Plos One, European Transport Research Review, etc.

TRBAM- ACP80, ACP50; WCTR, hEART Conference; TPMDC; TIPCE; COMSNETS; CTRG, etc.

2. Conference Program Committee

(a) Traffic and Granular Flow 2024, Lyon; (b) COMSNETS 2026, Bangalore; (c) hEART 2026, Paris