

# Rushikesh Amrutsamanvar

· TRANSPORTATION SYSTEM ANALYSIS | DRIVER BEHAVIOR MODELING | INTELLIGENT TRANSPORTATION SYSTEMS

Elmshorner straÙe 17, Pinneberg 25421, Greater Hamburg Area, Germany

☎ (+49) 15223349170 | ✉ rushikesh.amrut@gmail.com | 🌐 rushikesh-amrutsamanvar-ph-d-30849349



“Challenges are a part of life, and positively overcoming them is what makes life more meaningful.”

## About me

I primarily work on transportation systems analysis. I have a broad skills and experience in driver behavior modeling, transportation planning, and intelligent transportation systems. I am interested in understanding the challenges facing the future of urban mobility and how new technologies can influence it. I employ simulation, data science, machine learning and econometric modeling to generate insights into these questions.

## Education

### Indian Institute of Technology Madras (IITM)

PH.D. IN CIVIL ENGINEERING (TRANSPORTATION SYSTEMS ENGINEERING)

- Topic of the thesis: Modeling of Power Two Wheeler Movements in Multi-Class Disordered Traffic

Tamilnadu, India

July 2013 - February 2021

### Sardar Valabhbhai National Institute of Technology, Surat (SVNIT)

M.TECH (TRANSPORTATION ENGINEERING & PLANNING)

- Topic of the dissertation : Assessment of Travel Time Reliability on Indian Arterial Roads | CGPA: 8.54

Gujrat, India

July 2011 - 2013

### Shivaji University, Kolhapur

BACHELOR OF ENGINEERING (CIVIL ENGINEERING)

- Topic of project: Evaluating the Performance of Geo-polymer Concrete for Construction Works in India | CGPA: 65.76%

Maharashtra, India

July 2005 - 2009

## Skills

**Programming** *Experienced:* Matlab | R / R Studio / R Markdown |  $\LaTeX$  *Familiar:* Python | SQL

**Softwares** *Experienced:* SPSS | Inkscape | VISSIM *Familiar:* IPG Carmaker | MX-Road

**Languages** *Native:* Hindi *Fluent:* English *Beginner:* German

## Work Experience

### Indian Institute of Technology, Madras

RESEARCH CONTRIBUTIONS

- Developed **VeTre**: a novel offline semi-automated vision-based software to track vehicle trajectories from video footages
- Developed (**Traf-Vis**): a to visualize the tracked vehicles in the trajectory databases
- Developed data processing codes to glean out the essential multivariate database for driver behavior modeling
- Modeled the lateral movement decisions of Powered Two Wheelers (Motorcycles/Scooters/Mopeds)
- Identified the factors governing lateral movement decisions of PTWs using statistical and machine learning techniques
- Collected and worked with telematics data from Buses to predict traffic density in real-time framework
- Worked in a wide range of interdisciplinary contexts from Traffic and Transportation Engineering to Urban transportation planning, Intelligent Transportation Systems, Civil Engineering, to Vehicle Dynamics & Control.

Chennai, India

July 2013 - June 2020

### Sardar Vallabhbhai National Institute of Technology (SVNIT), India

TEACHING AND RESEARCH ASSISTANT FOR FOLLOWING COURSES

- Coordinated the stated preference (SP) and revealed preference (RP) surveys conducted by the senior research students
- Collected and curated the telematic data (through OBDs) from different type of vehicles
- Drafted the assignments and managed the field surveys related to the three courses: Transportation Planning- I & II | Traffic Engineering

Surat, India

July 2011 - July 2013

### Central Road Research Institute (CRRI), India

VISITING RESEARCHER (TRAFFIC AND PLANNING ENGINEERING LAB)

- Selected for carrying out the graduate research work for the Development of the first Highway capacity manual of India (Indo-HCM: Work Package-9). The project was sponsored by Planning commission, Government of India.
- One of the first studies focused on the assessment of the travel time reliability on Indian urban roads.
- Developed the initial data collection protocol for collecting the travel time data using LPR method

New Delhi, India

November, 2012 - April, 2013

## Central Road Research Institute (CRRI), India

New Delhi, India

### RESEARCH INTERN (TRAFFIC AND PLANNING ENGINEERING LAB)

May. 2012 - July. 2012

- Head of the field survey group
- Planning and execution of multiple field surveys for different research groups from Traffic Engineering and Planning departments
- Developed the protocols of data extraction and data management for the different surveys

### Sankalp Construction

Ichalkaranji, Maharashtra

### ENGINEER TRAINEE & SITE ENGINEER

July 1, 2009 - March 31, 2011

Site Supervision, Purchasing, Estimating & Costing

## Publications

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### Journal Publications & Book Chapters

- **Amrutsamanvar R.** (2020) Modeling Lateral Movement Decisions of Powered Two Wheelers in Disordered Heterogeneous Traffic Conditions, *Transportation letters, Taylor & Francis*.  
[10.1080/19427867.2020.1839718](https://doi.org/10.1080/19427867.2020.1839718)
- Deshpande P. **Amrutsamanvar, R.** and Subramanian S. (2020) Vehicle Path Generation and Tracking in Mixed Road Traffic. *International Federation of Automatic Control (IFAC)-PapersOnLine*, 53(1), 524-529. *Elsevier*.  
[DOI: 10.1016/j.ifacol.2020.06.088](https://doi.org/10.1016/j.ifacol.2020.06.088)
- **Amrutsamanvar, R.**, Joshi, G., Ravisekhar C., Arkatkar S. (2020) Empirical Travel Time Reliability Assessment of Indian Urban Roads. In: Arkatkar S., Velmurugan S., Verma A. (eds) *Recent Advances in Traffic Engineering. Lecture Notes in Civil Engineering*, vol 69 (11), pp. 165-182, Springer, Singapore.  
[DOI: 10.1007/978-981-15-3742-4\\_11](https://doi.org/10.1007/978-981-15-3742-4_11)
- **Amrutsamanvar R.**, Muthurajan, B., and Vanajakshi, L. (2019) Extraction and Analysis of Microscopic traffic Data in Disordered Heterogeneous Traffic Conditions, *Transportation letters, Taylor & Francis*.  
[DOI: 10.1080/19427867.2019.1695563](https://doi.org/10.1080/19427867.2019.1695563)
- Chepuri, A., Borakanavar, M., **Amrutsamanvar, R.**, Arkatkar, S., Joshi, G. (2018) Examining Travel Time Reliability under Mixed Traffic Conditions - A Case Study of Urban Arterial Roads in Indian cities. *Asian Transport Studies: 5(1)*, 30-46.  
[DOI: 10.11175/eastsats.5.30](https://doi.org/10.11175/eastsats.5.30)

### International Conferences & Book Chapters

- Deshpande P. **Amrutsamanvar, R.** and Subramanian S. (2020) Vehicle Path Generation and Tracking in Mixed Road Traffic. In *Advances in Control and Optimization of Dynamical Systems (ACODS) 2020* IIT Madras, India.
- **Amrutsamanvar, R.**, Vanajakshi L. (2019) Modeling Path Choice Behavior of Powered-Two-Wheelers in Disordered Heterogeneous Traffic. Presented In: *98<sup>th</sup> Annual Meeting Transportation Research Board*, Washington DC 12-17 January, 2019.
- **Amrutsamanvar, R.**, Vanajakshi L. (2017) A Semi-Automated Image Processing Solution for Extracting Microscopic Traffic Data. Presented In: *10<sup>th</sup> Urban Mobility India and CODATU XVII Conference*, Hyderabad, India 6-8 November, 2017.
- **Amrutsamanvar, R.**, Vanajakshi L. (2017) Empirical Analysis of disordered heterogeneous traffic flow. Presented In: *ASCE India Conference: Urbanization Challenges in Emerging Economies*, New Delhi, India 12-14 December, 2017.
- Dhivyabharathi, B., Fulari, S., **Amrutsamanvar, R.**, Vanajakshi L., Subramanian, S., and Panda, M. (2015) Performance Comparison of Filtering Techniques for Real Time Traffic Density Estimation under Indian Urban Traffic Scenario. In *proceedings: IEEE 18<sup>th</sup> International Conference on Intelligent Transportation Systems (ITSC)*, Gran Canaria, Spain: September 15-18, 2015.  
[DOI:10.1109/ITSC.2015.23](https://doi.org/10.1109/ITSC.2015.23)
- **Amrutsamanvar, R.**, Joshi, G., Ravisekhar C. (2013) Relation between Travel Time Reliability and Space Mean Speed under Mixed Traffic Conditions - A Case Study of Urban Arterial in Surat. *10<sup>th</sup> EASTS conference on "Towards a harmonized transport society"*, Taipei, Taiwan: 9-12 December, 2013.

## Achievements & Awards

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2020	<b>Best Presentation Award</b> , in 6 <sup>th</sup> Conference on Advances in Control and Optimization of Dynamical Systems (ACODS 2020) for the research paper titled- "Vehicle Path Generation and Tracking in Mixed Road Traffic."	Chennai, India
2017	<b>Best Research Paper Award</b> , in 10 <sup>th</sup> Urban Mobility India and CODATU XVII Conference for the research paper titled- "A Semi-Automated Image Processing Solution for Extracting Microscopic Traffic Data"	Hyderabad, India
2012	<b>Official Contributor</b> , Development of the Highway capacity manual of India (Indo-HCM: Work Package-9)	New Delhi, India