SIDDHARTHA GULHARE

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SUMMARY

PhD candidate with 6 years of professional and research experience in transportation. Proficient knowledge in statistics, discrete choice modeling, data analysis, data visualization and machine learning. Have an excellent understanding of R programming and tools required to analyze transport related data. Currently seeking full time opportunity in Transportation domain beginning from summer 2022.

EDUCATION

University of Florida, Gainesville, United States *Jan 2018-Present*
PhD ongoing in Transportation Engineering GPA: **3.62/4.0**

Indian Institute of Technology Bombay, Mumbai, India (IIT) *Jul 2013-June 2015*
Master of Technology in Transportation Engineering GPA: **9.52/10.0**

National Institute of Technology Calicut, India (NIT) *Jul 2008-June 2012*
Bachelor of Technology in Civil Engineering

AREA OF INTEREST/EXPERTISE

Data visualization - Data modelling - Data analysis

DATA ANALYSIS PROJECTS

Experience of working with a wide spectrum of projects

- Travel behavior/mode choice behavior
- Online shopping trends
- Connected and autonomous vehicles
- Emissions and fuel consumption
- Transportation safety
- Spatial and temporal analysis

Experience of working with variety of dataset

- Travel behavior datasets
  - National Household travel survey (NHTS) data
  - Bay Area Travel Survey (BATS) data
  - Online survey data
  - Synthetic data with very specific characteristics
- Accident datasets
  - Spatial crash datasets
- Traffic related datasets
  - Large scale GPS trajectory data
  - Processed LIDAR data
  - Open Street Maps
  - APIs - Google maps API, Here API, OSM API
  - Automated Traffic Signal Performance Measure (ATSPM) data

TECHNICAL SKILLS

- Programming: R**, Python*, MATLAB**, HTML*, CSS*, SQL*, R Shiny**, Hi-performance computing**
- Software: SPSS**, VISSIM*, ArcGIS**, MS Office**, Aimsun*
- Modeling and Analysis: Keras**, TensorFlow*, Discrete choice analysis**, Deeplearning**, Clustering Analysis**, Spatial Analysis**

** excellent skills, * intermediate skills

PROFESSIONAL EXPERIENCE

University of Florida | Gainesville, FL

Instructor, Discrete Choice Analysis *Spring 2022*

- Responsibility includes covering the designated syllabus, evaluation of assignments and final course projects which are real world applications of discrete choice models.
- Syllabus includes logit models up to Nested Logit

Graduate Research Assistant **|** Gainesville, Fl *Jan 2018-Present*

Project: *Performance Measurement & Management Using Connected & Automated Vehicle Data*

- Worked with large (50,000) vehicular GPS trajectory dataset
- Developed scripts to automate estimation of emission of all trajectories using microscopic emissions model - CMEM
- Developed a probabilistic model to estimate emissions of a network using limited connected vehicle data

Project: *Road Ranger Programs for Arterials*

- Performed detailed exploratory data analysis of three years of crash data for a region in Orlando
- Developed a numerical simulation methodology to evaluate the performance of proposed service patrol program
- Simulation was used to evaluate various potential staging locations for service patrol vehicle
- Pilot project will be deployed in early 2022 based on the finding of my work

Project: *Evaluation and Assessment of Operational and Safety Functions of ATMA Vehicle in Closed Loop and Active Mobile Work Zones*

- Performed exploratory data analysis for the project
- Created animated videos which collate all the information for better understanding and communication

Project: *Understanding changes in online and in-store shopping behavior due to COVID-19 pandemic*

- Performed exploratory data analysis and developed ordered response model for online shopping using NHTS data
- Automated the process of developing logit models and generating results

Indian Institute of Science, Bangalore, India (IISc) *April 2016-Nov 2017*

Research Assistant **|** *Sustainable Transportation Lab*

Project: *The Kumbh Mela Experiment: Measuring and Understanding the dynamics of mankind's largest crowd*

- Conducted empirical studies to quantify traffic/pedestrian flow characteristics, later to be used for calibrating simulations
- Published two journal and two conference papers based on the analysis
- Analyzed activity patterns of visitors using trip chains, episodes, transition matrices, and modal distribution

PUBLISHED JOURNAL PAPERS

- Gayathri, H., Gulhare, S., & Verma, A. (2019). Characteristics of Stop and Go Wave in One Dimensional Interrupted Pedestrian Flow Through Narrow Channel. Collective Dynamics, 3, 1-14.
- Gulhare, S., Verma, A., & Chakroborty, P. (2018). Comparison of pedestrian data of single file movement collected from controlled pedestrian experiment and from field in mass religious gathering. Collective Dynamics, 3, 1-14.

ACCEPTED JOURNAL PAPERS

- Adibfar, A., Gulhare, S., Srinivasan, S. & Costin, A. (2022). Analysis and modeling of changes in online shopping behavior due to COVID-19 pandemic: A Florida Case Study. Transport Policy

CONFERENCE PAPERS

- Gulhare, S., & Srinivasan, S. (2021, September). A Probabilistic Method to Estimate Emissions and Fuel Consumption using Connected Vehicle Data from a Mixed Fleet. In 2021 IEEE International Intelligent Transportation Systems Conference (ITSC) (pp. 3833-3838). IEEE.
- Gayathri, H., Gulhare, S., & Verma, A. (2020). Understanding Crowd Dynamics in Processions during Mass Religious Gatherings A Case Study of Shahi Snan in Kumbh Mela. Collective Dynamics, 5, 403-412.
- Gulhare, S., Aparna, P. M., & Verma, A. (2020). Pedestrian Flow Characteristics at Upstream and Downstream of Bottleneck for Unidirectional Flow under Normal Conditions. Collective Dynamics, 5, 10-16.
- Gulhare, S., & Vedagiri, P. (2018). Modified Social Force Model with Realistic Psychological Behavior for Bidirectional Pedestrian. Transportation Research Board 97th Annual Meeting Transportation Research Board

COMPLETE FUNDED RESEARCH PROJECTS

- Hadi, M., Srinivasan, S., Ramadan, O. E., Islam, A., Azizi, L., Gulhare, S., Wang, T. & Iqbal, S. (2021). Performance Measurement & Management Using Connected & Automated Vehicle Data (No. Project C). Southeastern Transportation Research, Innovation, Development and Education Center (STRIDE).
- Srinivasan, S., Bejleri, I., Gulhare, S. & Lee. I. (2022). Road Ranger Programs for Arterials (Contract or Grant No. BDV31-977-142). The Florida Department of Transportation Research Center (FDOT)

WORKING PAPERS

- Gulhare, S. & Srinivasan, S. (2022). Challenges Involved in Extracting Value of Travel Time from Artificial Neural Networks. To be submitted in the journal - Transportation Research Part B. *Status – Analysis completed; Manuscript preparation ongoing*
- Gulhare, S. & Srinivasan, S. (2022). Impact of Bias-Variance Trade-off in Extracting Value of Travel Time from Artificial Neural Networks. To be submitted in the journal – Transportation. Status – Final stage of analysis; Manuscript preparation ongoing simultaneously
- Gulhare, S., Lee, I. Srinivasan, S. & Bejleri, I. (2022). Development of Simulation Framework to Evaluate the Potential Performance of Road Ranger Programs for Arterials. To be submitted in the journal - Accident Analysis and Prevention. Status – Analysis completed; Manuscript preparation ongoing

- Agrawal, N., Rahmani, R., Gulhare, S., Chowdenhalli, T. & Srinivasan, S. (2022). Evaluation and Assessment of Operational and Safety Functions of ATMA Vehicle in Closed Loop and Active Mobile Work Zones. TO be submitted in the journal not finalized. Status – Analysis completed; Manuscript preparation ongoing

RECENT LEADERSHIP AND ACHIEVEMENTS

- Member of winning team of prestigious CoMotion Miami civil startup challenge 2021
- Among 50 students across the world who are selected as Traffic Safety Scholars for 2022
- President of the Institute of Transportation Engineers at University of Florida (2019-20)
- Treasurer of the Institute of Transportation Engineers at University of Florida (2018-19)
- Alumni Convenor of Transportation research group of Indian Institute of Science Bangalore, India (2021-22)

REFERENCES

1. Sivaramakrishnan (Siva) Srinivasan
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