Abhilash Chandra Singh

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EDUCATION

Doctor of Philosophy (PhD) in Transportation *2019 - 2023*
Department of Civil and Environmental Engineering
Imperial College London, UK
PhD Viva (defense) and result: 11/09/2023 - Successful (no corrections)
PhD award date (tentative): 01/11/2023
Committee: Aruna Sivakumar (advisor), Dan Graham (examiner), Jonas De Vos (examiner)
Dissertation: Endogeneity and consideration set issues in residential location choice models

Master of Science in Engineering (MSE) in Transportation *2016 - 2018*
Department of Civil and Environmental Engineering
University of Texas at Austin, USA
Committee: Chandra Bhat (advisor), Stephen Boyles (examiner)
Thesis: Quantifying the relative contribution of factors to household vehicle miles of travel

Bachelor of Technology (BTech) in Civil Engineering *2012 - 2016*
Department of Civil Engineering
Indian Institute of Technology Bombay, India
Committee: Tom Mathew (advisor), Raaj Ramsankaran (faculty mentor)
Thesis: Modelling Heterogeneous Traffic Behaviour under mixed traffic conditions

EMPLOYMENT HISTORY

Postdoctoral Researcher, School of Allied Health - University of Limerick
Limerick, Ireland *2023 - present*

Lecturer (part-time), Department of Civil Engineering - University of Limerick
Limerick, Ireland *Fall 2023*

Research Assistant, Imperial College London & Pathways to Equitable Healthy Cities (WELLCOME)
London, UK *2019 - 2023*

Senior Data Scientist (part-time) - ASDA Business Services
Leeds, UK *2021 - 2022*

Visiting Researcher, Alan Turing Institute & Leeds Institute of Data Analytics
Leeds, UK *Summer 2021*

Research Assistant, CTR - University of Texas at Austin
Austin, Texas, USA *2016 - 2019*

Engineering Intern, Hindustan Construction Company
Mumbai, India *Fall 2015*

Summer Research Assistant, University of Alberta & Landmark Group of Builders
Edmonton, Alberta, Canada *Summer 2015*

Research Intern, Indian Institute of Management Lucknow
Lucknow, India *Summer 2014*

RESEARCH INTERESTS

Transportation (Urban Planning, Travel Behaviour Modelling, Sustainable Transportation, Urban Systems, Social Psychology, Behavioural Change and Interventions)
Decision Sciences and Operations Research (Endogeneity and Causality, Applied Econometrics, Applied Statistics, Choice-Based Optimization)
Behavioural Economics (Consumer demand modelling, Energy Consumption Behaviour Modelling)

AWARDS & FELLOWSHIPS

Imperial College Global Fellowship *UK, 2022*
– Awarded grant funding of £1,400 to conduct research in Germany

Turing Scheme Research Award *UK, 2022*
– Awarded grant funding of £1,500 to conduct research in Germany

Department Dixon Scholarship *UK, 2019 - 2023*
– Awarded funding of £8,654 per annum (total = £25,962) for PhD in the UK

Wellcome Trust Scholarship *UK, 2019 - 2023*
– Awarded funding of £17,009 per annum (total = £59,531) for PhD in the UK

Professional Development Award *USA, 2018*
– Awarded $500 to support research development in Texas, USA

Texas District Student Fellowship *USA, 2017*
– Awarded $1,000 to support research development in Texas, USA

Graduate fellowship *USA, 2016-2018*
– Awarded funding of $52,812 per annum (total = $105,524) for graduate education in USA

University of Alberta Research fellowship *Canada, 2015*
– Awarded research grant of $5,000 to conduct research in Canada

IITBAA-NY Chapter scholarship *USA, 2014*
– Awarded bursary of $5,000 for studies as an exchange student in New York

WORKING PAPERS (intended for journals)

10. Singh, A.C. Analysing Factors Influencing Household Vehicle Kilometres Travelled (VKT): A Comprehensive Study.

9. Singh, A.C., Christopher Tsa-Kwet-Shin, A. Faghih-Imani and Audrey de Nazelle. Bicycle route choice modelling using multi-city data.

8. Singh, A.C. and N. Daina. Choice-based optimization for sustainable overnight charging of electric vehicles.

7. Singh, A.C., A. Sivakumar. Accessibility in the Era of Big Data and Emerging Technologies.

JOURNAL PAPERS (including submitted)

6. Singh, A.C., A. Sivakumar and H. Watanabe. An instrumental variable model for addressing endogeneity in residential location choice (in preparation for Journal of Transport and Land Use).

5. Watanabe, H. and **A.C. Singh**. A probit instrumental variable model for addressing endogeneity in multinomial choice and its choice set formation (in preparation for Transportation Research Part B: Methodological).

4. Singh, A.C., A. Sivakumar and R. Moeckel. Semi-compensatory probabilistic model for residential location choices (in preparation for Journal of Choice Modelling).

3. Sivakumar, A., A. Gough, **A.C. Singh**, and F. Guo. Incorporating the impacts of air pollutants and exposure to crime into accessibility-based planning: A London Case Study (in preparation for Journal of Transport Geography).

2. Singh, A.C., Imani, A.F., Sivakumar, A., Xi, Y.L. and Miller, E.J., 2024. A joint analysis of accessibility and household trip frequencies by travel mode. Transportation Research Part A: Policy and Practice, 181, p.104007. weblink

1. Singh, A.C., S. Astroza, V.M. Garikapati, R.M. Pendyala, C.R. Bhat, and P.L. Mokhtarian (2018), Quantifying the Relative Contribution of Factors to Household Vehicle Miles of Travel. Transportation Research Part D, Vol. 63, pp. 23-36. weblink

REPORTS

1. Boyles, S. D., C. Bhat, J. Duthie, N. Jiang, F. Dias, E. Jafari, V. Pandey, **A.C. Singh**, and C. Yahia. (2017) Methods for Improving Consistency between Statewide and Regional Planning Models. Texas Department of Transportation FHWA/TX-17/0-6900-1

CONFERENCE PRESENTATIONS

17. Singh, A.C., Christopher Tsa-Kwet-Shin, A. Faghih-Imani and Audrey de Nazelle. Bicycle route choice modelling using multi-city data (accepted for presentation at 17th International Conference on Travel Behaviour Research (IATBR), July 2024, Vienna, Austria)

16. Singh, A.C., H. Watanabe and A. Sivakumar. An instrumental variable model for addressing endogeneity in residential location choice (accepted for presentation at International Choice Modelling Conference (ICMC), April 2024, Puerto Varas, Chile)

15. Singh, A.C., Christopher Tsa-Kwet-Shin, A. Faghih-Imani and Audrey de Nazelle. Modelling active mobility route choice using Moves data (accepted for presentation at International Choice Modelling Conference (ICMC), April 2024, Puerto Varas, Chile)

14. Singh, A.C. and N. Daina*. Choice-based optimization of electricity consumption during overnight charging of electric vehicles (*invited for INFORMS presentation, October 2023, Arizona, USA).

13. Sivakumar, A., **A.C. Singh**, F. Guo and A. Gough. Incorporating the impacts of air pollutants and exposure to crime into accessibility-based planning: A London Case Study (Irish Transport Research Network Conference 2023, Sligo, Ireland).

12. Watanabe H. and **A.C. Singh**. A probit instrumental variable model for addressing endogeneity in multinomial choice and its choice set formation (16th World Conference on Transportation Research (WCTR) 2023, Montreal, Canada).

11. Singh, A.C., A. Faghih-Imani, A. Sivakumar, Y. Xi and E. J. Miller. A joint analysis of accessibility and household trip frequencies by travel mode (16th World Conference on Transportation Research (WCTR) 2023, Montreal, Canada).

10. Singh, A.C., A. Sivakumar. Semi-compensatory probabilistic model for residential location choices. 7th International Choice Modeling (ICMC), Reykjavik, Iceland, May 2022.

9. Singh, A.C., H. Bouscasse, A. Sivakumar. Psychosocial Factors associated with Intended Use of Automated Vehicles: A Latent-Class and Latent-Variable Analysis. 9th Symposium of the European Association for Research in Transportation (hEART), Lyon, France, February 2021.

8. Singh, A.C., K.C. Abel, J.W. Hutchinson, K.M. Faust, and C.R. Bhat. Food Access for Low Income Individuals. Session on Highlights from the 2017 NHTS Data Workshop. 98th Annual Meeting of the Transportation Research Board, Washington, DC, January 2019.

7. Singh, A.C., K.C. Abel, J.W. Hutchinson, K.M. Faust, and C.R. Bhat. Predictive Food Desert Simulation Modelling to increase Food Access in Underserved Communities. National Household Travel Survey (NHTS) Data for Transportation Applications Workshop in Washington, DC in August 2018.

6. Singh, A.C., P. Lavieri, T. Kim, C.R. Bhat, and R.M. Pendyala. Evaluating the Effects of Consumer's Perceptions of Safety and Productive Use of Time on the Intention to Adopt Autonomous Vehicle Technology. 15th International Conference on Travel Behaviour Research, Santa Barbara, California, July 2018.

5. Bouscasse H., **A.C. Singh**, S. Astroza, C.R. Bhat. Modeling Simultaneous Choices in

Transportation. Rencontres Francophones Transport-Mobilité (RFTM), Lyon, June 2018.

4. Copperman R., J. Lemp, T. Rossi, **A.C. Singh**, C.R. Bhat, R.M. Pendyala, S. Khoeini, S. Astroza. Adapting an Existing Activity Based Modeling Structure for the New York Region. 2018 TRB Innovations in Travel Modeling Conference, June 2018.

3. Singh, A.C., S. Astroza, V.M. Garikapati, R.M. Pendyala, and C.R. Bhat. Quantifying the Contribution of Various Factors to Household Vehicle Miles of Travel. 97th Annual Meeting of the Transportation Research Board, Washington, DC, January 2018.

2. Singh, A.C., L. Yang, and M. Al-Hussein. Predicting the Energy Output for Solar PV Systems: A Statistical Analysis. University of Alberta Research Experience (UARE) Poster Symposium, Edmonton, Alberta, July 2015

1. Yang L., E.K. Salim, **A.C. Singh**, H. Awad, H. Yu, M. Gül, and M. Al-Hussein. Integrating solar PV systems into residential buildings in cold-climate regions. University of Alberta Research Experience (UARE) Poster Symposium, Edmonton, Alberta, July 2015.

INVITED TALKS

4. "Semi-compensatory probabilistic model for residential location choices" TU Berlin Kai Nagel's Lab, July 2022

3. "Theoretical and Applied Choice Modelling" ASDA, March 2022

2. "Exploring and quantifying the effect of weather on sales." The Alan Turing Institute, July 2021

1. "Integrating solar PV systems into residential buildings in cold-climate regions." UARE, July 2015

TEACHING EXPERIENCE

Lecturer/Tutor: University of Limerick, Ireland
Design Studio (CE4023) *2023*
Invited teacher for Fall 2023 semester, with a class of 42 students.

Teaching Assistant: Imperial College London, UK
Transport Demand and Economics (CIVE70016) *2022*
Advanced Transport Modelling (CIVE97126) *2020, '21, '22*

SERVICE

Research Mentoring
1. Joseph Hutchinson, MSc, UT Austin *2018 - 2019*
2. Teagan Webb, BS, UT Austin *2018 - 2019*
3. Christopher Tsa-Kwet-Shin, BS, TAEP - ENSTA Paris *Summer 2023*

Steering Committee Member: Imperial Network of Excellence *2021 - 2023*
Seminar series, Urban Systems Lab, Imperial College London *2021 - 2023*
Mentor — The AMOS Bursary and TechLabs London *2021 - 2022*
IIT Bombay Department Academic Mentorship Program (DAMP) *2015 - 2016*

Reviewing Activities:
Transportation Research Board Annual Meeting *2017, 2019, 2021, 2023*
Data Science for Transportation *2023 - present*
Journal of Transport and Land Use *2022 - present*
Transportation *2021 - present*
Transportmetrica A: Transport Science *2021 - present*
World Symposium on Transport and Land Use Research *2021*
Transportation Research Record *2019 - 2021*

RELEVANT TRAINING

Imperial College London *2019 - 2023*
Teaching training: Introduction to Assessment and Feedback for Learning
Teaching training: Introduction to Learning and Teaching

Teaching training: Applying for Associate Fellowship (AFHEA)
Ensuring Integrity: Plagiarism (Online Course)
Research Computing: Writing Theses in LaTeX
Impact in Academia: Alternative Ways to Measure Your Research Impact
Econometrics Methods for Causal Inference (Kings College London, *audit*)
Econometrics for Research (London School of Economics, *audit*)
Writing a Research Paper
Data Processing with Python Pandas
Research Computing: Object-Oriented Python

The University of Texas at Austin *2016 - 2018*
[Statistics and Econometrics Coursework] Mathematical Statistics 1, Econometrics 1 (MS) and 2 (PhD), Bayesian Statistical Methods, Longitudinal Data Analysis, Maximum Likelihood Estimation Statistics
[Transportation Engineering Coursework] Transportation Systems Management, TransCAD GIS, Transportation Network Analysis, Discrete Choice Methods

Indian Institute of Technology Bombay *2012 - 2016*
Traffic Analysis and Design, Urban Transportation Planning (in addition to the entire Civil Engineering curriculum)

REFERENCES

Dr. Aruna Sivakumar
Reader in Consumer Demand Modelling And Urban Systems, Imperial College London
South Kensington Campus, London SW7 2AZ, U.K.
Email: a.sivakumar@imperial.ac.uk

Dr. Eric Miller
Professor and Director, University of Toronto Transportation Research Institute (UTTRI)
35 St. George St., Toronto, Ontario M5S 1A4, Canada
Email: eric.miller@utoronto.ca

Dr. Audrey de Nazelle
Senior Lecturer, Centre for Environmental Policy, Imperial College London
South Kensington Campus, London SW7 2AZ, U.K.
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Dr. James Green
Senior Lecturer, School of Allied Health, University of Limerick
Faculty of Education & Health Services, Castletroy, Co. Limerick, V94T9PX
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Dr. Thomas Cosgrove
Professor of Civil Engineering, University of Limerick
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