CURRICULUM VITAE

Songhua Hu
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EDUCATION

Ph.D. candidate, Transportation Engineering, University of Maryland, College Park, MD, USA, 09/2019~Now [GPA: 3.90/4.00].

Master of Engineering, Transportation Engineering, Tongji University, Shanghai, China, 09/2016~06/2019 [GPA: 4.22/5.00]

Bachelor of Engineering, Transportation Engineering, Huazhong University of Science & Technology, Wuhan, Hubei, China, 09/2012~06/2016 [GPA: 90.40/100.00]

RESEARCH INTERESTS

Smart City and Shared Mobility
Transport Health and Equity
Dynamic Spatiotemporal Human Mobility Modelling
Quantitative Analysis: Machine Learning, Statistical Modeling, Cloud Computing, Simulation

AWARDS AND HONORS

University of Maryland, College Park: Outstanding Graduate Assistant (top 2%), 2021
University of Maryland, College Park: CEE Summer Research Fellowship, 2020
University of Maryland, College Park: The Graduate School's Dean's Fellowship, 2019
Tongji University: The Second Price in China Big Data Innovation Competition, 2017
Tongji University: Top / Runner Up Student Scholarship, 2016~2019 | Travel Grant, 2017
Tongji University: Social Responsibility Award in BMW Next Mobility Youth Camp, 2016
Huazhong University of Science & Technology: Outstanding Graduates, 2016
Huazhong University of Science & Technology: Pacemaker to Merit Student, 2015
Huazhong University of Science & Technology: National Scholarship, 2013~2015

JOURNAL PUBLICATIONS (*corresponding author)

1. **Hu, Songhua**, Mingyang Chen, Yuan Jiang, Wei Sun, and Chenfeng Xiong. "Examining factors associated with bike-and-ride (BnR) activities around metro stations in large-scale dockless bikesharing systems." Journal of Transport Geography 98 (2022): 103271.

2. **Hu, Songhua**, Chenfeng Xiong, Hannah Younes, Mofeng Yang, Aref Darzi, and Zhiyu Catherine Jin. "Examining spatiotemporal evolution of racial/ethnic disparities in human mobility and COVID-19 health outcomes: Evidence from the contiguous United States." Sustainable cities and society 76 (2022): 103506.

3. **Hu, Songhua**, Weiyu Luo, Aref Darzi, Yixuan Pan, Guangchen Zhao, Yuxuan Liu, and Chenfeng Xiong. "Do racial and ethnic disparities in following stay-at-home orders influence COVID-19 health outcomes? A mediation analysis approach." PloS one 16, no. 11 (2021): e0259803.

4. Luo, Weiyu, Wei Guo, **Songhua Hu**, Mofeng Yang, Xinyuan Hu, and Chenfeng Xiong. "Flatten the curve: Empirical evidence on how non-pharmaceutical interventions substituted pharmaceutical treatments during COVID-19 pandemic." Plos one 16, no. 10 (2021): e0258379.

5. **Hu, Songhua**, Peng Chen, and Xiaohong Chen. "Do personalized economic incentives work in promoting shared mobility? Examining customer churn using a time-varying Cox model." Transportation Research Part C: Emerging Technologies 128 (2021): 103224.

6. **Hu, Songhua**, Chenfeng Xiong, Zhanqin Liu, and Lei Zhang. "Examining spatiotemporal changing patterns of bike-sharing usage during COVID-19 pandemic." Journal of transport geography 91 (2021): 102997.

7. **Hu, Songhua**, Chenfeng Xiong, Mofeng Yang, Hannah Younes, Weiyu Luo, and Lei Zhang. "A big-data driven approach to analyzing and modeling human mobility trend under non-pharmaceutical interventions during COVID-19 pandemic." Transportation Research Part C: Emerging Technologies 124 (2021): 102955.

8. **Hu, Songhua**, and Peng Chen. "Who left riding transit? Examining socioeconomic disparities in the impact of COVID-19 on ridership." Transportation Research Part D: Transport and Environment 90 (2021): 102654.

9. Xiong, Chenfeng, **Songhua Hu**, Mofeng Yang, Hannah Younes, Weiyu Luo, Sepehr Ghader, and Lei Zhang. "Mobile device location data reveal human mobility response to state-level stay-at-home orders during the COVID-19 pandemic in the USA." Journal of the Royal Society Interface 17, no. 173 (2020): 20200344.

10. Xiong, Chenfeng, **Songhua Hu**, Mofeng Yang, Weiyu Luo, and Lei Zhang. "Mobile device data reveal the dynamics in a positive relationship between human mobility and COVID-19 infections." Proceedings of the National Academy of Sciences 117, no. 44 (2020): 27087-27089.

11. Zhang, Lei, Aref Darzi, Sepehr Ghader, Michael L. Pack, Chenfeng Xiong, Mofeng Yang, Qianqian Sun, AliAkbar Kabiri, and **Songhua Hu**. "Interactive covid-19 mobility impact and social distancing analysis platform." Transportation Research Record (2020): 03611981211043813.

12. Wang, Tao, **Songhua Hu ***, and Yuan Jiang. "Predicting shared-car use and examining nonlinear effects using gradient boosting regression trees." International Journal of Sustainable Transportation 15, no. 12 (2020): 893-907.

13. **Hu, Songhua**, Kun Xie, Xiaonian Shan, Hangfei Lin, and Xiaohong Chen. "Modeling usage frequencies and vehicle preferences in a large-scale electric vehicle sharing system." IEEE Intelligent Transportation Systems Magazine (2020): 1-10.

14. **Hu, Songhua**, Peng Chen, Feifei Xin, and Chi Xie. "Exploring the effect of battery capacity on electric vehicle sharing programs using a simulation approach." Transportation Research Part D: Transport and Environment 77 (2019): 164-177.

15. Chen, Peng, **Songhua Hu** *, Qing Shen, Hangfei Lin, and Chi Xie. "Estimating traffic volume for local streets with imbalanced data." Transportation research record 2673, no. 3 (2019): 598-610.

16. **Hu, Songhua**, Peng Chen, Hangfei Lin, Chi Xie, and Xiaohong Chen. "Promoting carsharing attractiveness and efficiency: An exploratory analysis." Transportation

Research Part D: Transport and Environment 65 (2018): 229-243.

SELECTED PRESENTATIONS/POSTERS

1. **Hu, Songhua**, Weiyu Luo, Aref Darzi, Yixuan Pan, Guangchen Zhao, Yuxuan Liu, and Chenfeng Xiong. Do Racial and Ethnic Disparities in Maintaining Social distancing Influence COVID-19 Health Outcomes? A Mediation Analysis Approach, Transportation Research Board 101st Annual Meeting (2022), Washington DC.

2. **Hu, Songhua**, Chenfeng Xiong, Hannah Younes, Mofeng Yang, Aref Darzi, and Zhiyu Catherine Jin. Examining spatiotemporal evolution of racial/ethnic disparities in human mobility and COVID-19 health outcomes: Evidence from the contiguous United States, Transportation Research Board 101st Annual Meeting (2022), Washington DC.

3. Xiong, Chenfeng, **Songhua Hu**, Mofeng Yang, Hannah Younes, Weiyu Luo, Sepehr Ghader, and Lei Zhang. Mobile device location data reveal human mobility response to state-level stay-at-home orders during the COVID-19 pandemic in the USA, Transportation Research Board 100th Annual Meeting (2021), Washington DC.

4. **Hu, Songhua**, Chenfeng Xiong, Mofeng Yang, Hannah Younes, Weiyu Luo, and Lei Zhang. A big-data driven approach to analyzing and modeling human mobility trend under non-pharmaceutical interventions during COVID-19 pandemic, Transportation Research Board 100th Annual Meeting (2021), Washington DC.

5. Jing, Yi, **Songhua Hu**, and Hangfei Lin. Estimating Traffic Volume with Limited Observations: A Combination of Sampling Expansion and Geographically Weighted Poisson Regression, Transportation Research Board 100th Annual Meeting (2021), Washington DC.

6. Jing, Yi, **Songhua Hu**, and Hangfei Lin. Joint Analysis of Scooter Sharing and Bikesharing Usage: A Structural Equation Modeling Approach, Transportation Research Board 100th Annual Meeting (2021), Washington DC.

7. **Hu, Songhua**, Peng Chen, and Xiaohong Chen. Do Personalized Economic Incentives Work in Promoting Shared Mobility? Examining Customer Churn Using a Time-Varying Cox Model, Transportation Research Board 99th Annual Meeting (2020), Washington DC.

8. **Hu, Songhua**, Peng Chen, Feifei Xin, and Chi Xie. Exploring the effect of battery capacity on electric vehicle sharing programs using a simulation approach, Transportation Research Board 99th Annual Meeting (2020), Washington DC.

9. Chen, Peng, **Songhua Hu**, Qing Shen, Hangfei Lin, and Chi Xie. Estimating traffic volume for local streets with imbalanced data, Transportation Research Board 98th Annual Meeting (2019), Washington DC.

10. **Hu, Songhua,** Hangfei Lin, Kun Xie, Xiaohong Chen, and Hongjie Shi. Modeling users' vehicles selection behavior in urban carsharing program, The 21st IEEE International Conference on Intelligent Transportation Systems (2018).

11. **Hu, Songhua**, Hangfei Lin, Kun Xie, Jianjun Dai, and Jiandong Qui. Impacts of rain and waterlogging on traffic speed and volume on urban roads, The 21st IEEE International Conference on Intelligent Transportation Systems (2018).

12. **Hu, Songhua**, Jianjun Dai, Jiandong Qiu, and Hangfei Lin. Identification of Urban Road Waterlogging Using Floating Car Data. In CICTP 2018: Intelligence, Connectivity,

and Mobility (pp. 1885-1894)(2018). Reston, VA: American Society of Civil Engineers.

RESEARCH EXPERIENCE

<u>Graduate Research Assistant (PI: Lei Zhang, Chenfeng Xiong)</u>

INFORM AFRICA: Integrated Modeling of Mobility and Epidemiology in South Africa and Nigeria, 2021~ Present (NIH)

Digital Twin of Urban Mobility: Integrated AI and Data-Driven Mobility Prediction And Simulation Framework, 2021~Present

Next Generation National Household Travel Survey Origin Destination Data Program, 2021~Present (FHWA)

ATCMTD: Deployment of Personalized and Dynamic Travel Demand Management Technology in the Washington D.C.-Baltimore, MD-Richmond, VA Megaregion, 2020~ Present (USDOT)

University of Maryland COVID-19 Impact Analysis Platform (data.covid.umd.edu), 2020~2021 (USDOT)

Evaluate the Impact of Express Toll Lanes in Maryland with Advanced Travel Demand and Dynamic Traffic Assignment Models, 2019~2020 (MDOT SHA)

incenTrip APP: Personalized and Real-Time Traveler Incentives (incentrip.org), 2019~Present (USDOE, USDOT)

<u>Research Assistant (PI: Hangfei Lin, Xiaohong Chen, Peng Chen)</u>

A Data-Driven Simulation Framework for Station Site Selection, Fleet Management, and Operation Optimization in Large-Scale Electric Carsharing Systems (Evcard.Com), 2018~2019

Shenzhen Waterlogging and Incident Detection Platform Using Location-Based Traffic Flow Information, 2018

Pedestrians Flow Simulation in Subway Systems Using Anylogic, 2017

Shanghai Intelligent Transportation Information Platform, 2017

Bus Lane Performance Evaluation Using Micro-Simulation Tool Vissim, 2016~2017

<u>Research Assistant (PI: Li Duan)</u>

Pedestrians Flow Simulation Based on the Floor Field Cellular Automata Model for Turnstiles Deployment Optimization in Subway Systems, 2015~2016

SERVICE TO PROFESSION

<u>Journal Article Reviewer (Selected)</u>

1. Accident Analysis and Prevention
2. Cambridge Journal of Regions, Economy and Society
3. Cities
4. IEEE Access
5. International Journal of Transportation Science and Technology
6. Journal of Transport Geography
7. Journal of Transport and Land Use
8. Journal of Advanced Transportation
9. PLOS One
10. Regional Studies

11. Sustainable Cities and Society
12. Scientific Reports
13. Transportation Research Part B: Methodological
14. Transportation Research Part D: Transport and Environment
15. Transport Policy
16. Traffic Injury Prevention
17. Travel Behavior and Society
18. Transportation Letters
19. Transportation Research Record

Conference Proceeding Reviewer

TRB Transportation Research Board Annual Meeting

COTA International Conference of Transportation Professionals

IACP International Association of China Planning

SKILLS

Statistics and Data Modeling: Python, R, Matlab, SQL

Spatial Analysis and Mapping: ArcGIS, Geopandas, Gephi, QGIS

Cloud Computing: PySpark, AWS-EMR, AWS-EC2

Transportation Simulation: Vissim(&COM), DTALite, Synchro, AnyLogic, TransCAD

Updated by 03/2022