

# Xiaowei Chen

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Google scholar

## RESEARCH INTERESTS

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Addressing critical challenges in integrating **Electric & Shared Mobility** with other networks to enhance their efficiency, robustness, and sustainability.

- Data-driven optimization in sustainable transportation;
- Development of practical operational strategies;
- Impact assessment and system performance evaluation.

## EDUCATION

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- **Ph.D. in Transportation and Infrastructure System** **2024**  
Purdue University, IN, US  
Advisor: Dr. Satish V Ukkusuri  
Dissertation: *Advancing Operational Algorithms for Electric Mobility Systems Modeling*
- **M.S. in Traffic Control and Information Engineering** **2019**  
Zhejiang University, Zhejiang, China  
Advisor: Dr. Xiqun Chen  
Dissertation: *Reinforcement Learning-Based Optimal Dispatching for On-Demand Ride Services*
- **B.S. in Transportation Engineering** **2016**  
Jilin University, Jilin, China  
Dissertation: *Pedestrian crossing characterization based on video processing*

## PROFESSIONAL EXPERIENCE

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- **Graduate Research Assistant** **08/2019 - present**  
Lyles School of Civil Engineering  
*Purdue University*
  - INDOT: Simulating current and future EV growth scenarios in Indiana (SPR 4811)
  - INDOT: Electric vehicles: public perceptions, expectations, and willingness-to-pay across highway user groups (vehicle classes) (SPR 4706).
  - DOE EERE: Multimodal Energy-optimal Trip Scheduling in Real-time (METS-R) for Transportation Hubs.

- **Graduate Research Assistant**

09/2016 - 06/2019

College of Civil Engineering and Architecture  
Zhejiang University

- National Natural Science Foundation of China: Evolutionary Mechanism and Control Strategies Optimization for On-Demand Ride Services Based on Connected Mobile Big Data. (71771198)
- Fundamental Research Funds for the Central Universities: Ride-Sourcing Demand Forecasting Based on Deep Learning (2017QNA4025)
- DiDi Chuxing: Transportation Big Data Analysis.
- DiDi Chuxing: Reliability Analysis of Urban Traffic in China.

## PUBLICATIONS

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- **Under Review Journal Publications**

1. **Chen, X.**, HAMIM, O. F., AND UKKUSURI, S. V. Electric Vehicle Trips Detection and Synthesis via Cellular Data. Submitted to *Expert Systems With Applications*, (Second round review. 05/2024).
2. **Chen, X.**, HAMIM, O. F., MORAS, B.C.K., GKRTZA, K., AND UKKUSURI, S. V. Future Electric Vehicle Usage Forecasting Using Sequential Generative Adversarial Networks. Under review in *Transportation Research Part D: Transport and Environment*, (07/2024).
3. **Chen, X.**, WANG, Z., LEI, T., AND UKKUSURI, S. V. Advanced Charging Strategies for EVs: Integrating Power-Sharing at Public Stations. Under review in *IEEE Transactions on Intelligent Transportation Systems*, (07/2024).

- **Peer-Reviewed Journal Publications**

1. **Chen, X.**, LEI, Z., AND UKKUSURI, S. V. Modeling the Influence of Charging Cost in Electric Ride-hailing Vehicles. *Transportation Research Part C: Emerging Technologies*, Vol. 160, p.104514 (2024).
2. LEI, Z., XUE, J., **Chen, X.**, QIAN, X., SAUMYA, C., HE, M., SOBOLEVSKY, S., KULKARNI, M. AND UKKUSURI, S.V. METS-R SIM: A simulator for multi-modal Energy-optimal Trip Scheduling in Real-time with shared autonomous electric vehicles. *Simulation Modelling Practice and Theory*, p.102898 (2024).
3. VERMA, R., MITTAL, S., LEI, Z., **Chen, X.**, AND UKKUSURI, S. V. Comparison of home detection algorithms using smartphone GPS data. *EPJ Data Science*, 13(1), p.6. (2024).
4. **Chen, X.**, QIAN, X., LEI, Z., JUE, X. AND UKKUSURI, S. V. Online eco-routing for electric vehicles using combinatorial multi-armed bandit with estimated covariance. *Transportation Research Part D: Transport and Environment*, Vol. 111, 103447 (September 2022).
5. HE, M., MUJAZ, U., JIANG, H., LEI, Z., **Chen, X.**, UKKUSURI, S. V., AND SOBOLEVSKY, S. Ridership prediction and anomaly detection in transportation hubs: an application to New York City. *The European Physical Journal Special Topics*, 1-17 (2022).

6. **Chen, X.**, ZHENG, H., WANG, Z. AND CHEN, X. Exploring impacts of on-demand ridesplitting on mobility via real-world ridesourcing data and questionnaires. *The Transportation*, 48(4), pp.1541-1561 (2021).
7. CHEN, X.M., **Chen, X.**, ZHENG, H. AND XIAO, F. Efficient dispatching for on-demand ride services: Systematic optimization via Monte-Carlo tree search. *The Transportation Research Part C: Emerging Technologies*, Vol. 127, p.103156 (2021).
8. WANG, Z., **Chen, X.** AND CHEN, X.M. Ridesplitting is shaping young people's travel behavior: Evidence from comparative survey via ride-sourcing platform. *The Transportation research part D: transport and environment*, Vol. 75, pp.57-71 (2019).
9. ZHENG, H., **Chen, X.** AND CHEN, X.M. How does on-demand ridesplitting influence vehicle use and purchase willingness? A case study in Hangzhou, China. *The IEEE Intelligent Transportation Systems Magazine*, 11(3), pp.143-157 (2019).
10. CHEN, X.M., **Chen, X.**, ZHENG, H. AND CHEN, C. Understanding network travel time reliability with on-demand ride service data. *The Frontiers of Engineering Management*, 11(3), 4(4), pp.388-398 (2017).

• **Peer-Reviewed Conference/Workshop Papers**

1. **Chen, X.**, HAMIM, O. F., MORAS, B.C.K., GKRTZA, K., AND UKKUSURI, S. V. Estimation of Electric Vehicle Adoption Rates Using Sequential Generative Adversarial Networks. Proceedings by the *IEEE International Conference on Intelligent Transportation Systems (ITSC 2024)*.
2. **Chen, X.**, HAMIM, O. F. AND UKKUSURI, S. V. Detecting Electric Vehicle Trips via Cellular Data. Accepted for presentation at the *Transportation Research Board Conference (2024)*.
3. **Chen, X.**, LEI, Z. AND UKKUSURI, S. V. Prediction of Road-level Energy Consumption of Battery Electric Vehicles. Proceedings by the *IEEE International Conference on Intelligent Transportation Systems (ITSC 2022)*.
4. LEI, Z., XUE, J., **Chen, X.**, SAUMYA, C., QIAN, X., HE, M., SOBOLEVSKY, S. AND UKKUSURI, S.V. ADDS-EVS: An agent-based deployment decision-support system for electric vehicle services. Proceedings by the *IEEE International Conference on Intelligent Transportation Systems (ITSC 2021)*.
5. **Chen, X.**, XUE, J., QIAN, X., SUAREZ, J. AND UKKUSURI, S.V. Online energy-optimal routing for electric vehicles with combinatorial multi-arm semi-bandit. Proceedings of the *IEEE International Conference on Intelligent Transportation Systems (ITSC 2020)*, pp. 1-6 (Rhodes, Greece, September 2020).
6. LEI, Z., QIAN, X., **Chen, X.** AND UKKUSURI, S.V. Real-time Ridesharing for Transportation Hubs with Demand and Supply Uncertainty. Accepted for presentation at *Transportation Research Board Conference (2020)*.
7. ZHENG, H., **Chen, X.** AND CHEN, X. How does on-demand ridesplitting influence vehicle use and ownership? A case study in Hangzhou, China. Accepted for presentation at *Transportation Research Board Conference (2018)*.
8. **Chen, X.**, ZHENG, H., WANG, Z. AND CHEN, X.M. Exploring On-Demand Ridesplitting Behavior and Impact on Mobility: a Case Study in Hangzhou, China. Accepted for presentation at *Transportation Research Board Conference (2018)*.

9. ZHENG, H., **Chen, X.** AND CHEN, X. Random Forests for Freeway Short-Term Traffic Speed Prediction. In *CICTP 2017: Transportation Reform and Change—Equity, Inclusiveness, Sharing, and Innovation* (pp. 120-130). Reston, VA: American Society of Civil Engineers (2017).
10. LIU, J., CUI, E., HU, H., **Chen, X.**, CHEN, X. AND CHEN, F. Short-term forecasting of emerging on-demand ride services. In *2017 4th International Conference on Transportation Information and Safety (ICTIS)* (pp. 489-495). IEEE (August 2017).

## PRESENTATIONS

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1. Detecting Electric Vehicle Trips via Cellular Data. The 103rd Annual Meeting of Transportation Research Board, Washington DC, United States, January 7-11, 2024.
2. Prediction of Road-level Energy Consumption of Battery Electric Vehicles. The 25th IEEE International Conference on Intelligent Transportation Systems, Macau, China, September 18 - October 12, 2022.
3. Online energy-optimal routing for electric vehicles with combinatorial multi-arm semi-bandit. The 23rd IEEE International Conference on Intelligent Transportation Systems, Rhodes, Greece, Sep 20 - 23, 2020.
4. Exploring on-demand ridesplitting behavior and impact on mobility: A case study in Hangzhou, China. The 97th Annual Meeting of Transportation Research Board, Washington DC, United States, January 7-11, 2018.
5. Random forests for freeway short-term traffic speed prediction. The 17th COTA International Conference of Transportation Professionals, Shanghai, China, July 7-9, 2017.

## HONORS AND AWARDS

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|---|------------------|
| • 2019 Outstanding Master's Thesis of Zhejiang Province   | 2019             |
| • National Scholarship (Top 5%)   | 2017             |
| • Academic Scholarship  | 2017             |
| • Graduate of Merit/Triple-A Graduate   | 2017             |
| • Award of Honor for Graduate Students  | 2017             |
| • Third Prize of the Joint Research Laboratory of Tongji Didi Smart Travel, Network Car and Urban Transport (Major participators) | 2017             |
| • Outstanding Student Leader Awards   | 2016             |
| • Transportation College Scholarship (Top 10%)  | 2013, 2014, 2015 |
| • National Computer Rank Examination Certificate of Level 2   | 2014             |

- Outstanding Student Club Leader Awards 2013

## SERVICES

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- **Reviewer:** Transportmetrica B: Transport Dynamics; IEEE Transactions on Intelligent Vehicles; IEEE Transactions on Intelligent Transportation Systems; Transportation Research Board (2019-2023); International Conference on Intelligent Transportation Systems (2022, 2023, 2024)
- **Mentoring:** Two graduate students in Civil engineering at Shenzhen Technology University, China.
- **Diversity and Inclusion Initiatives :** Coordinate outdoor activities such as skiing and hiking for women in engineering; Organize Chinese transportation dinners every semester; Facilitate academic and industrial communication within the transportation field.