

# Xi Cheng

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## EDUCATION

<b>Ph.D.</b> in Transportation Engineering, GPA: 4.0/4.0 <i>University of Illinois Chicago, USA   Advisor: Jane Lin</i> Thesis Title: <i>Emerging Vehicle Technology Enabled Transportation Services: Autonomous and Modular Urban Mobility &amp; Long-haul Electric Truck</i>	8/2021 – Present (Expected 2024 Summer)
<b>CMEP Traveling Scholar</b> at Northwestern University	1/2022-7/2022
<b>Ph.D.</b> study at <i>University of Illinois Urbana-Champaign</i>	8/2020 – 12/2021
<b>M.S.</b> in Transportation Engineering, GPA: 3.9/4 <i>University of California, Berkeley, California, USA   Advisor: Michael Cassidy</i>	8/2018 – 5/2019
<b>B.S.</b> in Civil Engineering at <i>Tongji University</i> , GPA: 4.64/5 Minor: Finance at <i>Fudan University</i> Exchanged Program (8/2017-5/2018): Civil Engineering at <i>University of California, Berkeley</i>	9/2014 – 6/2018

## WORK EXPERIENCE

<b>Graduate Research Assistant</b> , Department of Civil, Materials, and Environmental Engineering, <i>University of Illinois Chicago</i>	8/2021-Present
<b>Graduate Research Assistant</b> , Department of Civil and Environmental Engineering, University of <i>Illinois Urbana-Champaign</i>	8/2020-12/2021
<b>Assistant R&amp;D engineer</b> , California PATH, CA, U.S.	10/2019-7/2020
<b>Graduate Teaching Instructor</b> , UC Berkeley, CA, U.S. • 100% (40 hours/week) appointment for PHYSICS 8A (Introductory Physics) at the Department of Physics	6/2019-8/2019
<b>Graduate Research Assistant</b> , California PATH, CA, U.S.	2/2019-5/2019
<b>Assistant Geotechnical Engineer</b> , Hongrun Construction Engineering Corporation, Shanghai, China	7/2017-8/2017
<b>Assistant Civil Engineer</b> , Anhui Architectural Design Group, Hefei, China	2/2017-3/2017

## RESEARCH EXPERIENCE

<b>An Autonomous Modular Vehicle Technology-based Multifaceted Mobility Service Paradigm – A Proof-of-Concept Study</b> <i>with Prof. Jane Lin (UIC) &amp; Prof. Yu (Marco) Nie (NU)</i>	9/2021-Present
<b>Development of Commercial Vehicle Emission Inventory and Analysis</b> <i>with Prof. Jane Lin, UIC</i>	9/2021-Present
<b>On Carsharing Platforms with Electric Vehicles as Energy Service Providers</b> <i>with Prof. Subhonmesh Bose &amp; Prof. Lav Varshney, UIUC</i>	8/2021-12/2021
<b>Integrated Modeling and Technoeconomic Assessment of Electric Vehicle Community Charging Hubs</b> <i>with Prof. Eleftheria Kontou, UIUC</i>	8/2020-8/2021
<b>Research on a Parking Navigation System to Optimize Assignment at a Big Event</b> <i>with Prof. Michael Cassidy, UC Berkeley</i>	8/2018-6/2020
<b>Development of CRM GUI System</b> <i>with Dr. Xiao-Yun Lu &amp; Dr. John Spring, California PATH - UC Berkeley</i>	9/2019-7/2020
<b>Flight Path Optimization from ORD to San Francisco International Airport (SFO)</b> <i>Supervisor: Prof. Mark Hansen &amp; Prof. Scott Moura, UC Berkeley</i>	2/2019-8/2019
<b>Identify and Evaluate the Safety Effects of the Yellow Alert CMS (Changeable Message Sign)</b> <i>Supervisor: Dr. Ching-Yao Chan, California PATH - UC Berkeley</i>	2/2019-5/2019
<b>Comparisons of four intersections observed in China and US</b> <i>Supervisor: Dr. Offer Grembek &amp; Prof. David Ragland, SafeTREC - UC Berkeley</i>	2/2019-5/2019
<b>Development of Tomography Modeling of Hayward Fault near California Memorial Stadium</b> <i>with Prof. James Rector, UC Berkeley</i>	1/2018-5/2018

## AWARDS & SERVICES

- [Best Paper Award, IEEE Forum on Integrated and Sustainable Transportation Systems \(FISTS\)](#) 02/2024
- The College of Engineering Graduate Student Award for Exceptional Research Promise (10 awards in 592 PhD students) 05/2024
- *Reviewer* for IEEE Forum for Innovative Sustainable Transportation Systems (FISTS) 11/2023
- *Reviewer* for Transportation Research Board (TRB) Annual Meeting 09/2023
- [Pecan Street's V2G University Challenge Winner](#) 12/2020
- [Honorable Mention, Fall/Winter 2020 INFORMS OR/MS Tomorrow Mini Poster PhD-level](#) 10/2020
- *Reviewer* for dta2020: The 8th International Symposium on Dynamic Traffic Assignment 12/2019
- Second Prize in the 10th National Computer Design Competition 08/2017
- Second Prize in Shanghai Computer Design Competition 05/2017
- National Scholarship 10/2016
- Third Prize of National College Student Mathematics Modeling Competition 10/2016
- Tongji University Outstanding College Student 10/2015

## PEER-REVIEWED PUBLICATIONS

- [1] **Cheng, X.** and Kontou, E., 2023. Estimating the electric vehicle charging demand of multi-unit dwelling residents in the United States. *Environmental Research: Infrastructure and Sustainability*, 3(2), p.025012.
- [2] **Cheng, X.** and Lin, J., 2024. Is Electric Truck a Viable Alternative to Diesel Truck in Long-Haul Operation? *Transportation Research Part D: Transport and Environment*, 129, 104119. <https://doi.org/10.1016/j.trd.2024.104119>
- [3] **Cheng, X.** and Lin, J., 2024, February. Network Equilibrium Modeling for Long-Haul Electric Trucks. In *2024 Forum for Innovative Sustainable Transportation Systems (FISTS)* (pp. 1-6). IEEE.
- [4] **Cheng, X.**, Shen, H., Huang, Y., Cheng, Y.L. and Lin, J., 2024, February. Using Mobile Charging Drones to Mitigate Battery Disruptions of Electric Vehicles on Highways. In *2024 Forum for Innovative Sustainable Transportation Systems (FISTS)* (pp. 1-6). IEEE.
- [5] **Cheng, X.**, Mamalis, T., Bose, S., and Varshney, L., On Carsharing Platforms with Electric Vehicles as Energy Service Providers. *IEEE Transactions on Intelligent Transportation Systems*, doi: 10.1109/TITS.2024.3386708.
- [6] **Cheng, X.**, Nie, Y. and Lin, J. (2024) An Autonomous Modular Public Transit Service, *Transportation Research Part C: Emerging Technologies, Special issue on ISTTT25*, 104746
- [7] Su, G., **Cheng, X.**, Feng, S., Liu, K., Song, J., Chen, J., Zhu, C., and Lin, H. (accepted) Flight Path Optimization with Optimal Control Method. *The 27th IEEE International Conference on Intelligent Transportation Systems*.
- [8] Liu, K., Hu, F., Lin, H., **Cheng, X.**, Chen, J., Song, J., Feng, S., Su, G., and Zhu, C. (accepted) Deep Reinforcement Learning for Real-Time Ground Delay Program Revision and Corresponding Flight Delay Assignments. *The 27th IEEE International Conference on Intelligent Transportation Systems*.
- [9] Xu, G., Wang, X., Yao, R., Liao, Y., Sun, J., **Cheng, X.**, Fan, H., Wang, Z., Ozpineci, B., Sprinkle, J., Hao, P., and Barth, M. (accepted) Improving Dynamic Wireless Charging System Performance For Electric Vehicles Through Variable Speed Limit Control Integration. *The 27th IEEE International Conference on Intelligent Transportation Systems*.
- [10] Xu, G., Wang, Z., Chen, J., **Cheng, X.**, and Gayah, V. (under review) Intelligent Traffic Systems for Evacuation Management: Enhancing Existing Solutions through Unmanned Aerial Vehicles. *Transportation Research Record*.
- [11] Guo, G., Li, X., Zhu, C., Wu, Y., Chen, J., Chen, P., and **Cheng, X.**, (under review) Establishing carbon emission benchmarks to determine the embodied environmental performance of high-speed rail system. *Renewable and Sustainable Energy Reviews*.

## WORKING PAPERS

- [12] **Cheng, X.**, Shafiee, A., Rastegar, H., and Lin, J., On-demand Ridesharing with Autonomous Modular Vehicles, *to be submitted*.
- [13] **Cheng, X.**, Zeng, X., Shafiee, A., Rastegar, H., Xie, C., and Lin, J., Combined Large-Scale Charging Station Location and Long-Haul Electric Truck Routing Problem Incorporating The Effects Of Temperature Variation, *to be submitted*.

## CONFERENCE PRESENTATIONS

- **Cheng, X.**, Nie, Y. (Marco), and Lin, J. An Autonomous Modular Public Transit Service, Podium Presentation at *the 25th International Symposium on Transportation and Traffic Theory (ISTTT)*, Ann Arbor, MI, July 15–17, 2024.
- **Cheng, X.** and Lin, J. Network Equilibrium Modeling for Long Haul Electric Trucks, *4th IEEE Forum for Innovative Sustainable Transportation Systems (FISTS)*, Riverside, CA, February 26-28, 2024.
- **Cheng, X.**, Shen, H., Huang, Y., and Lin, J. Mitigating Battery Disruption of Electric Vehicles on Highways, *4th IEEE Forum for Innovative Sustainable Transportation Systems (FISTS)*, Riverside, CA, February 26-28, 2024.
- **Cheng, X.** and Lin, J. On-demand Ridesharing with Autonomous Modular Vehicles, *the 103rd Transportation Research Board Annual Meeting*, Washington D.C., January 7-11, 2024.
- **Cheng, X.** and Lin, J. On-demand ridesharing with autonomous modular vehicles, *INFORMS Annual Meeting 2023, TSL Urban Transportation Cluster*, Phoenix, AZ, October 15-18, 2023.
- **Cheng, X.**, Nie, Y. (Marco), and Lin, J. An Autonomous Modular Public Transit Service, *2023 Transportation Science and Logistics Society (TSL) conference, INFORMS*, Chicago, IL, July 23- 26, 2023.
- **Cheng, X.** and Lin, J. Long-haul Electric Truck Routing and Driver Scheduling with Coordinated Charging Scheduling, *2023 Transportation Science and Logistics Society (TSL) conference, INFORMS*, Chicago, IL, July 23-26, 2023.
- **Cheng, X.** and Lin, J. Long-haul Electric Truck Routing with Coordinated Driver Schedule and Charging Activities: When and Where to Charge, *the 8th International Electric Vehicle Conference*, Edinburgh, UK, June 21-23, 2023.
- **Cheng, X.** and Lin, J. Long-haul Electric Truck Routing and Driver Scheduling with Coordinated Charging Scheduling, *the 102nd Transportation Research Board Annual Meeting*, Washington D.C., January 8-12, 2023.
- **Cheng, X.**, Nie, Y. (Marco), and Lin, J. “Autonomous Modular Vehicle Technology Based Public Transit Paradigm: A Preliminary Investigation”, *the 102nd Transportation Research Board Annual Meeting*, workshop on “Moving Together: Promises and Challenges in Co-Modal Passenger-Freight Transport”, Washington D.C., January 8, 2023.
- **Cheng, X.** and Kontou, E. Estimating the electric vehicle charging demand of multi-unit dwelling residents in the United States, *the 102nd Transportation Research Board Annual Meeting*, Washington D.C., January 8-12, 2023.
- **Cheng, X.**, Mamalis, T., Bose, S., and Varshney, L., On Carsharing Platforms with Electric Vehicles as Energy Service Providers, *the 102nd Transportation Research Board Annual Meeting*, Washington D.C., January 8-12, 2023.
- **Cheng, X.** and Lin, J. (invited talk) An Autonomous Modular Vehicle Technology Based Public Transit Paradigm, *INFORMS Annual Meeting 2022, TSL*, Indianapolis, IN, October 16-19, 2022.
- **Cheng, X.**, Su, G., and Feng, S. Flight Path Optimization with Constrained Finite Time Optimal Control (CFTOC), *The 8th International Symposium on Dynamic Traffic Assignment 2020*.

## SKILLS

- Programming Language: Python, MATLAB, C++, JAVA, R, VB.NET, SQL Server, JavaScript, PHP, Html
- Engineering Software: AutoCAD, Revit, SAP2000, Unigraphics NX, SUMO, ArcGIS, PreScan