

EDUCATION

Purdue University, West Lafayette, USA	08/2019 – 08/2023
Ph.D. in Environmental and Ecological Engineering	
Dissertation: <i>How do emerging technologies reshape urban mobility? Integrating system interactions into sustainability assessment</i>	
Advisor: Hua Cai	
Purdue University, West Lafayette, USA	08/2017 – 05/2019
Master of Science in Environmental and Ecological Engineering	
Thesis: <i>Environmental impact assessment and improved design of bike sharing systems from the life cycle perspective</i>	
Advisors: Hua Cai	
Hohai University, Nanjing, China	08/2013 – 06/2017
Bachelor of Engineering in Environmental Engineering	

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher	02/2024 – 02/2025
Environmental and Ecological Engineering Purdue University, West Lafayette, USA.	
Advisor: Fu Zhao	
<ul style="list-style-type: none">Conducted life cycle assessment for critical materials production, including Indium, Gallium, and GermaniumMentored graduate students on their research work at Prof. Zhao's lab	

CERTIFICATION

- LEED Green Associate, 2022
- Certificate of Foundations in College Teaching, Purdue University, 2022

AWARD & SCHOLARSHIP

- Outstanding Graduate Student Research** (awarded to only 1 applicant per school), Purdue University, 2023
- Bilsland Dissertation Fellowship, Purdue University, 2022
- Outstanding Reviewer**, *Transportation Research Part D: Transport and Environment*, 2022
- INFORMS Student Scholarship, Seth Bonder Foundation, 2022
- Russell O. Blosser Environmental Travel Grant, Purdue University, 2022
- Best Poster Presentation Award, CAPEES student e-poster competition, 2021
- International Conference on Resource Sustainability (icRS) Travel Grant, 2021
- Frederick N. Andrews Environmental Travel Grant, Purdue University, 2020
- First Place Best Poster Award** (awarded to only 1 out of 120 applicants), International Conference on Cleaner Production & Sustainability, 2019
- International Conference on Cleaner Production & Sustainability (CPS) Travel Grant, 2019

JOURNAL PUBLICATIONS

Published/accepted papers

- Luo, H.**, Chahine, R., Gkritza, K., Cai, H. (2023). What motivates the use of shared mobility and their integration with public transit: evidence from a mode choice study. *Transportation Research Part C: Emerging Technologies*, 155, 104286. [\[link\]](#)
- Li, Y., **Luo, H.**, Cai, H. (2023). Photovoltaic-battery powered bike share stations are not necessarily energy

self-sufficient, *Applied Energy*, 348, 121505. [\[link\]](#)

3. Chahine, R., **Luo, H.**, Cai, H., Gkritza, K., A Comparative Analysis of Bike-Sharing and E-Scooter Sharing Services in a College Town during COVID-19. *Case Studies on Transport Policy*.
4. **Luo, H.**, Zhang, Z., Gkritza, K., & Cai, H. (2021). Are shared electric scooters competing with buses? a case study in Indianapolis. *Transportation Research Part D: Transport and Environment*, 97, 102877. [\[link\]](#)
5. **Luo, H.**, Zhao, F., Chen, W. Q., & Cai, H. (2020). Optimizing bike sharing systems from the life cycle greenhouse gas emissions perspective. *Transportation Research Part C: Emerging Technologies*, 117, 102705. [\[link\]](#)
6. **Luo, H.**, Kou, Z., Zhao, F., & Cai, H. (2019). Comparative life cycle assessment of station-based and dock-less bike sharing systems. *Resources, Conservation and Recycling*, 146, 180-189. [\[link\]](#)
7. You, G., Hou, J., Wang, P., Xu, Y., Wang, C., Miao, L., & **Luo, H.** (2016). Effects of CeO₂ nanoparticles on sludge aggregation and the role of extracellular polymeric substances—explanation based on extended DLVO. *Environmental Research*, 151, 698-705. [\[link\]](#)

Manuscripts in Preparation and Under Review

1. Chahine, R., **Luo, H.**, Cai, H., Gkritza, K., A Comparative Analysis of Bike-Sharing and E-Scooter Sharing Services in a College Town. *Transportation Research Part A: Policy and Practice*. (Under review)
2. Sun, R., **Luo, H.**, Kou, Z., Cai, H. Estimating the Rebalancing Activities and Vehicle Use for Existing Station-based Bike Share Systems. *Journal of Cleaner Production*. (Under review)
3. **Luo, H.**, Chahine, R., Gkritza, K., Cai, H., Assessing the travel demand impact of shared mobility adoption using an agent-based model. *Environmental Science and Technology*. (In preparation)
4. **Luo, H.**, Chahine, R., Deodhar, S., Gkritza, K., Cai, H., Estimating the potential impact of e-commerce on travel demand. *Sustainable Cities and Society*. (In preparation)
5. Genc, U., **Luo, H.**, Cai, H. Assessing transportation equity considering individual travel demand and the feasibility of trip mode alternatives. *Transportation Research Part A: Policy and Practice*. (In preparation)

Media Post

1. **Luo, H.** (2022) Poison or Cure? A lifecycle evaluation of shared micro-mobility's contribution to climate change. Graduate School InnovatED (InnovatED is Purdue University's graduate research magazine).[\[link\]](#)

CONFERENCE PRESENTATIONS (Referenced by abstract)

1. **Luo, H.**, Cai, H., Gkritza, K., How to plan shared mobility for a sustainable transportation system, *11th International Conference on Industrial Engineering (ISIE2023)*, July, 2023, Leiden, Netherlands (Oral)
2. Genc, U., **Luo, H.**, Cai, H., How do active travel modes enhance transportation equity and why people don't use them? *11th International Conference on Industrial Engineering (ISIE2023)*, July, 2023, Leiden, Netherlands (Oral)
3. Li, Y., **Luo, H.**, Cai, H., Evaluating energy self-sufficiency of photovoltaic-battery powered bike share stations. *International Symposium on Sustainable Systems and Technology*, June, 2023. Fort Collins, CO (Oral)
4. **Luo, H.**, Cai, H., Gkritza, K., Assessing the Travel Demand and Mobility Impacts of Transformative Transportation Technologies, *2023 AEESP Distinguished Lecturer Conference*, Mar 2023, University of Notre Dame, South Bend, IN (Poster)
5. Li, Y., **Luo, H.**, Cai, H., Are Photovoltaic-battery powered bike share stations self-sufficient? *2023 Purdue ESE Symposium*, February, 2023, West Lafayette, IN (Poster) (Received **People's Choice Award**)
6. **Luo, H.**, Chahine, R., Gkritza, K., Cai, H., What motivates the use of shared mobility and their integration with public transit: evidence from a mode choice study, *2023 Transportation Research Board (TRB) Annual Meeting*, Jan 2023, Washington, D.C. (Poster)
7. **Luo, H.**, Chahine, R., Gkritza, K., Cai, H., How Will Shared Mobility Reshape the Travel Demand: Evidence from Indianapolis, *Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Oct 2022, Indianapolis, IN (Poster) (Received **Student Scholarship**)
8. **Luo, H.**, Cai, H., "A modeling framework to evaluate global bike-sharing environmental impacts", *Gordon Research*

Conference: Industrial Ecology, June 2022, ME (Oral & Poster)

9. **Luo, H.**, Chahine, R., Gkritza, K., Cai, H., “Assessing the Travel Demand and Mobility Impacts of Transformative Transportation Technologies in Indiana”, *2022 Purdue Road School Transportation Conference*, Feb 2022, West Lafayette, IN (Poster)
10. Sun, R., **Luo, H.**, Kou, Z., Cai, H., “Estimating the bike share rebalancing operations for U.S. cities”, *2022 Transportation Research Board (TRB) Annual Meeting*, Jan 2022, Washington, D.C. (Poster)
11. **Luo, H.**, Cai, H., “Life cycle carbon emission of shared micro-mobility in global cities”, *Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Oct 2021, Los Angeles, CA (Oral)
12. **Luo, H.**, Cai, H., “How does COVID-19 have impacts on the environmental sustainability of shared micro-mobility?”, *2021 International Conferences on Resource Sustainability (icRS)*, July 2021, Dublin, Ireland (Oral)
13. **Luo, H.**, Zhang, Z., Gkritza, K., & Cai, H., “Understanding the relationship between shared micro-mobility and public transit system”, *2021 Chinese-American Professors in Environmental Engineering & Science (CAPEES) Student Poster Competition*, July 2021, Virtual (Poster) (Received **Best Poster Award**)
14. **Luo, H.**, Zhang, Z., Gkritza, K., & Cai, H., “Are shared e-scooters competing with the bus?”, Poster Presentation, *2021 Transportation Research Board (TRB) Annual Meeting*, Jan 2021, Virtual (Poster)
15. **Luo, H.**, Zhao, F., Chen, W. Q., & Cai, H., “Optimizing the environmental impacts of bike sharing system”, Poster Presentation, *2020 AEESP Distinguished Lecturer Conference*, Feb 2021, West Lafayette, IN (Poster)
16. **Luo, H.**, Zhao, F., Chen, W. Q., & Cai, H., “Bike sharing optimization from life cycle perspective”, *2020 Transportation Research Board (TRB) Annual Meeting*, Jan 2020, Washington D.C. (Poster)
17. **Luo, H.**, Zhao, F., Chen, W. Q., & Cai, H., “Optimizing the bike sharing system: system design and operation”, *2019 International Conference on Cleaner Production & Sustainability*, Oct 2019, Hong Kong, China (Poster) (Received **First place Best Poster Award**)
18. **Luo, H.**, Kou, Z., Zhao, F., & Cai, H., “Comparative life cycle assessment of station-based and dock-less bike sharing system”, *26th CIRP Conference on Life Cycle Engineering*, May 2019, West Lafayette, IN (Poster)

INVITED TALKS

1. Rethink the carbon mitigation technology: A systematical analysis of shared micro-mobility, Invited seminar speaker, Environmental and Ecological Engineering, Purdue University, March 2023, West Lafayette, IN
2. Transforming carbon mitigation through transportation revolution, Invited lecture, Institute of Urban Environment, Chinese Academy of Sciences, Dec 2022, Xiamen, China

TEACHING EXPERIENCES

At Purdue University

- **Graduate Teaching Assistant**

- EEE530, Life Cycle Assessment: Principles and Applications, Fall 2018, Fall 2019

This course covers the basic concept of life cycle thinking, framework and computational structure of process and economic input-output based LCA, state-of-the-art LCA software tools, industrial case studies, and recent advances in LCA methodology. With 40 graduate students enrolled each semester.

- Delivered lectures on System Boundary and Life Cycle Impact Assessment (LCIA)
- Led lab sessions on using SimaPro to build the LCA models
- Designed LCA software demos
- Led course project design and discussion
- Hold office hours and grade homework assignments

- **Guest Lecturer**

- CE/EEE355, Engineering Environmental Sustainability, Spring 2023

An introduction to the examination of global-scale resource utilization, food, energy and commodity production, population dynamics,

and their ecosystem impacts. With 48 undergraduate students enrolled each semester.

- Introduced degrowth and shared economy for a sustainable future

STUDENT MENTORING

At Purdue University

- Fernandez Leidy, Civil Engineering, National University of Colombia, Visiting undergraduate student, 2021-2022
 - Developed an excel-tool to calculate the carbon footprint of bike-sharing systems in 20 U.S. cities
- Utkuhan Genc, Industrial Engineering, Master thesis student, 2020-present
 - Designed an algorithm to extract trip information from a large set of mobile phone data
- Chartsiri Jirachotkulthorn, Department of Computer Science, Undergraduate student, 2019-2022
 - Built a web-based data collector for global shared micro-mobility systems to track the system usage
 - Delivered a training session on scrapping data from websites to a Purdue Research Team
 - Investigated how crime rate would affect shared micro-mobility system usage based on a time-series model
- Rachael Snow, Industrial Engineering, Undergraduate student, 2021
 - Evaluated the environmental impacts of five bike-sharing systems in U.S. cities using a life cycle assessment approach
- Bijon Rafie, Environmental and Ecological Engineering, Undergraduate student, 2019
 - Built a life cycle assessment model for station-based bike-sharing systems

PROFESSIONAL AFFILIATION & SERVICES

- **Reviewer (Journal)**
 - *Journal of Cleaner Production*
 - *Transportation Research Part A: Policy and Practice*
 - *Transportation Research Part D: Transport and Environment*
 - *Transportation Research Part E: Logistics and Transportation Review*
 - *Transportation Research Record*
 - *International Journal of Transportation Science and Technology*
 - *Frontiers of Engineering Management*
 - *Transportation Engineering*
- **Reviewer (Conference)**
 - Transportation Research Board (TRB) Annual Meeting, Washington DC, 2020-2024
 - International Symposium on Sustainable Systems and Technology (ISSST 2019), Portland, OR
- **Conference service**
 - **Scientific committee**
 - The 1st Urban Science and Sustainability (USS) conference, 2023
 - **Volunteer**
 - Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, 2022
 - 26th College International pour la Recherche en Productique (CIRP) Conference on Life Cycle Engineering, 2019
- **Membership**
 - Chinese Society for Industrial Ecology (CSIE), Student Member, 2023-present
 - Association of Environmental Engineering and Science Professors (AEESP), Student Member, 2023-present
 - Open Mobility Foundation, Member, 2021-present
 - Chinese-American Professors in Environmental Engineering & Science (CAPEES), Student Member, 2020-present
 - International Society for Industrial Ecology (ISIE), Student Member, 2019-present

- Institute for Operations Research and the Management Sciences (INFORMS), Student Member, 2019-present
- Transportation Research Board, Student Member, 2019-present