Hua Cai, Ph.D., P.E.

Industrial Engineering | Environmental and Ecological Engineering
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EDUCATION

University of Michigan, Ann Arbor, MI
Joint Ph.D. in Environmental Engineering & Natural Resources and Environment, August 2015
　with Graduate Certificate in Complex Systems, offered by Center for the Study of Complex Systems
　　　Graduate Certificate of Science, Technology, and Public Policy, offered by Gerald R. Ford School of Public Policy

Santa Fe Institute, Santa Fe, NM
Complex Systems Summer School, May-June 2013

The Pennsylvania State University, University Park, PA
M.S. in Environmental Engineering, May 2007

Tsinghua University, Beijing, China
B.E. in Environmental Engineering, July 2005

PROFESSIONAL EXPERIENCE

Purdue University, West Lafayette, IN, 2015 - present
- Thomas and Jane Schmidt Rising Star Associate Professor, joint appointment in Industrial Engineering and Environmental and Ecological Engineering, 2024- present
- Associate Professor, joint appointment in Industrial Engineering and Environmental and Ecological Engineering, 2021- 2024
- Assistant Professor, joint appointment in Industrial Engineering and Environmental and Ecological Engineering, 2015-2021
- Faculty Affiliate, Purdue Institute for a Sustainable Future
- Faculty Affiliate, Ecological Sciences & Engineering
- Faculty Affiliate, Institute for Control, Optimization and Networks
- Faculty Affiliate, Applied AI Research Center

ETH Zurich, Zurich, Switzerland, January – July, 2023
- Visiting Professor, Ecological Systems Design, Institute of Environmental Engineering

Institute of Urban Environment, Chinese Academy of Sciences, Xiamen, China, July-December, 2022
- Visiting Professor, Urban Resources, Environment, and Ecology Group

University of Michigan, Ann Arbor, MI, 2011-2015
- Graduate Research Assistant, Center for Sustainable Systems

Camp Dresser & McKee (CDM, now CDM Smith), Bellevue, WA, 2007-2011
- *Laboratory Manager of CDM Environmental Treatability Laboratory* (2008-2011)
- *Project Engineer* (2007-2011)

The Pennsylvania State University, University Park, PA, 2005 - 2007
- Graduate Research Assistant, Department of Civil and Environmental Engineering

CERTIFICATION

- Licensed Professional Engineer (P.E.), registered in the State of Michigan, 2012
- LEED® Green Associate, 2010

AWARDS AND HONORS

- CAPEES Founding President Best Paper Award, 2024
- Teaching for Tomorrow Fellow, Purdue University, 2023
- CAPEES Founding President Best Paper Award, 2022
- Best Paper Award, *Resources, Conservation & Recycling*, 2020
- Faculty Early Career Development (CAREER) Award, National Science Foundation, 2020 (NSF's "*most prestigious award in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations*")
- Best Paper Award, Chinese Society for Industrial Ecology (CSIE), 2018
- CAPEES/Nanova Young Investigator Award, Chinese-American Professors in Environmental Engineering and Science (CAPEES), 2018 (for "*outstanding junior professor in environmental science and engineering*")
- School of Industrial Engineering Outstanding Mentor for Graduate Students, Purdue University, 2018
- IMPACT (Instruction Matters: Purdue Academic Course Transformation) Fellow, Purdue University, 2017
- The 3M Prize for Outstanding Achievement in Industrial Ecology, University of Michigan School of Natural Resources and Environment, 2015
- The Samuel Trask Dana Award, University of Michigan School of Natural Resources and Environment, 2015
- Dow Sustainability Doctoral Fellowship, University of Michigan, 2014-2015
- Student Paper Competition, 3rd Place, International Symposium on Sustainable Systems and Technology (ISSST), 2014
- Link Foundation Energy Fellowship Honorable Mention, Link Foundation, 2014
- Rackham International Research Award, University of Michigan, 2014
- Rosina M. Bierbaum Award in Climate Adaptation and Mitigation, University of Michigan School of Natural Resources and Environment, 2014
- Second Place Poster Award, University of Michigan Energy Institute Symposium, 2013
- Best Poster Award, 3rd place, AEESP 50th Anniversary Conference, 2013
- First Place Poster Award, 7th International Conference of the International Society for Industrial Ecology, 2013
- Second Place Poster Award, Symposium on Industrial Ecology for Young Professionals, 2013
- Barbour Scholarship, University of Michigan, 2013
- ERM Foundation Sustainability Fellowship, ERM Group Foundation, 2013
- Rackham International Student Fellowship, University of Michigan, 2012
- Ayers Brinser Award, Outstanding Ph.D. student in Natural Resource Policy and Management; University of Michigan School of Natural Resources and Environment, 2012
- Climate Adaptation Fellowship, University of Michigan School of Natural Resources and Environment, 2011
- McKee Groundwater Protection, Restoration or Sustainable Use Award, Water Environment Federation, 2011
- Superior Achievement Award for Environmental Engineering Excellence (project key participant), American Academy of Environmental Engineers, 2010
- IWA Project Innovation Awards Global Grand Honor Award – Applied Research Projects (project key participant), International Water Association, 2010
- Quick Hit Awards, CDM, 2008 and 2010
- Technical Awards, Best Paper Honorable Mention, CDM, 2010

PROFESSIONAL AFFILIATION & SERVICE

- *Editorship:*
  Guest Editor, Special Issue on Urban Management: Developing Sustainable, Resilient, and Equitable Cities，*Frontiers of Engineering Management* (Springer), 2022 - 2024
  Guest Editor, Special Issue on Environmental implications of emerging transportation technologies, *Transportation Research Part D: Transport and Environment* (Elsevier), 2020 - 2022

Editorial Board, *Transportation Research Part D: Transport and Environment* (Elsevier), 2020 - present
Associate Editor, *Journal of Cleaner Production* (Elsevier), 2018 - present
Guest Editor, Special Issue on Information and Communication Technologies (ICT)-based Innovations for Sustainable Production and Service Operations Management, *Journal of Cleaner Production* (Elsevier), 2019 – 2021
Guest Editor, Special Issue on Data Analytics for Energy, Water, and Environment, *IEEE Transactions on Engineering Management* (IEEE), 2018-2019
Co-Editor, *Michigan Journal of Sustainability* (Michigan Publishing), 2014-2015

- *Invited Referee (Ad hoc reviewer and panelist):*
  Department of Energy (DOE)
  Israeli Smart Transportation Research Center (ISTRC)
  Kuwait University
  Northern Illinois University
  National Center for Sustainable Transportation, UC Davis
  National Renewable Energy Laboratory
  U.S. National Science Foundation (NSF)
  United Nations Environment Programme (UNEP)

- *Service to Government and International Organization*
  Technical Workgroup member, New York State Climate Impacts Assessment, 2021-present
  Multidisciplinary Expert Group, Enabling Innovation Unit, Science Division, UNEP, 2021-present

- *Reviewer (Book proposal, book manuscript, and teaching tools):*
  Elsevier
  MIT Press
  Oxford University Press
  Pearson

- *Reviewer (Journal manuscripts):*
  - Applied Energy
  - Cities
  - Clean Technologies and Environmental Policy
  - Complexity
  - Energies
  - Energy Policy
  - Energy, Ecology, and Environment
  - Energy Strategy Reviews
  - Environmental Science & Technology
  - European Journal of Operational Research
  - Frontiers of Environmental Science and Engineering
  - Geocarto International
  - IEEE Access
  - IEEE Transactions on Intelligent Transportation Systems
  - International Journal of Sustainable Transportation
  - Journal of Cleaner Production
  - Journal of Environmental Management
  - Journal of Industrial Engineering
  - Journal of Mechanical Design
  - Journal of Transportation Engineering
  - Journal of Transport Geography
  - Land Use Policy
  - Nature Sustainability
  - Physica A: Statistical Mechanics and its Applications
  - Procedia CIRP
  - Renewable & Sustainable Energy Reviews
  - Resources, Conservation & Recycling
  - Scientific Data
  - Sustainable Cities and Society
  - Technological Forecasting & Social Change
  - The Open Fuels & Energy Science Journal
  - Transactions on Knowledge Discovery from Data
  - Transport Policy
  - Transportation Research Part A: Policy and Practice
  - Transportation Research Part B: Methodological
  - Transportation Research Part C: Emerging Technologies
  - Transportation Research Part D: Transport and Environment
  - Transportation Research Part E: Logistics and Transportation Review
  - Transportmetrica A: Transport Science

- *Reviewer (Conferences):*
  Transportation Research Board Annual Meeting (TRB 2023), Washington DC, USA
  Transportation Research Board Annual Meeting (TRB 2022), Washington DC, USA

Transportation Research Board Annual Meeting (TRB 2020), Washington DC, USA
International Society for Industrial Ecology Biannual Conference (ISIE 2019), Beijing, China
International Symposium on Sustainable Systems and Technology (ISSST 2019), Portland, OR, USA
Transportation Research Board Annual Meeting (TRB 2018), Washington DC, USA
Transportation Research Board Annual Meeting (TRB 2017), Washington DC, USA
ASME Manufacturing Science and Engineering Conference (MSEC 2017), Los Angeles, CA, USA
ASME Joint Rail Conference (JRC 2017), Philadelphia, PA, USA
International Symposium on Sustainable Systems and Technologies (ISSST 2016), Phoenix, AZ, USA
International Conference on Industrial Engineering and Management (ICIEM 2015), Chiang Mai, Thailand
International Conference on Engineering and Applied Sciences (ICEAS 2015), Jakarta, Indonesia

- *Membership and Professional Service*
  Institute of Industrial and Systems Engineers (IISE), Member, 2018 – present
  Institute for Operations Research and the Management Sciences (INFORMS), Member 2016 - present
  American Society of Civil Engineers (ASCE), Member, 2014-present
  The American Association for the Advancement of Science (AAAS), Member, 2014-present
  International Society for Industrial Ecology (ISIE), Member, 2011-present (Board Member and Secretary for the Sustainable Urban System section, 2017-2021; Co-Chair for the Sustainable Urban System section, 2022-present)
  The Association of Environmental Engineering and Science Professors (AEESP), Member, 2011-present
  Chinese-American Professors in Environmental Engineering & Science (CAPEES), Member, 2013-present

- *Conference Committee*
  Scientific Committee, The 12th International Conference on Industrial Ecology, 2024-2025
  Co-Chair, Scientific Committee, 1st International Conference of Urban Science and Sustainability, December, 2023
  IISE ESD Young Investigator Award Review Committee, 2022-2023
  INFORMS ENRE (Energy, Natural resources, and Environment) Best Paper Award Committee, 2022 - present
  Session Chair, INFORMS 2021
  International Organizing Committee, International Society for Industrial Ecology Biannual Conference, Beijing, China, July 2019
  Organizing Committee, Urban Metabolism Seminar, Beijing, China, July 2019
  Organizing Committee, the 26th CIRP Life Cycle Engineering Conference, West Lafayette, IN, May 2019
  Program Committee, the 1st ACM SIGSPATIAL Workshop on Advances in Resilient and Intelligent Cities (ARIC 2018), Seattle, Washington, November 6th, 2018.
  Scientific Committee, International Conference on Resource Sustainability (icRS), June 27-29, 2018, Beijing, China
  INFORMS ENRE (Energy, Natural resources, and Environment) Young Researcher Prize Committee Member, December 2017 - 2019
  Abstract Reviewing Committee, International Society for Industrial Ecology-International Symposium on Sustainable Systems and Technology (ISIE-ISSST) 2017 Joint Conference, Chicago, IL, USA
  Student Poster Competition Chair, International Symposium on Sustainable Systems and Technologies (ISSST 2016), Phoenix, AZ, USA
  Session Chair for the Transportation and Biofuel Session, International Symposium on Sustainable Systems and Technologies (ISSST 2016), Phoenix, AZ, USA
  Session Chair for the Sustainability V session, INFORMS 2016 Annual Meeting, Nashville, TN USA

- *Internal Service*
  Faculty Search Committee (Chair), Industrial Engineering, Purdue University, 2024 – present
  IE Undergraduate Student Awards Review, Industrial Engineering, Purdue University, 2024 Spring
  Faculty Search Committee, Industrial Engineering, Purdue University, 2023 – 2024
  Seminar Committee, Industrial Engineering, Purdue University, 2023 – 2024
  Award Committee (Chair), Environmental and Ecological Engineering, Purdue University, 2023 – present
  Faculty Awards Selection Committee, College of Engineering, Purdue University, 2023 – present

Faculty Search Committee, Environmental and Ecological Engineering, Purdue University, 2021 - 2022
School Head Search Committee, Industrial Engineering, Purdue University, 2021
Academic Committee, Environmental and Ecological Engineering, Purdue University, 2020-2022
Faculty Search Committee, Industrial Engineering, Purdue University, 2019-2022
Graduate Committee, Ecological Sciences & Engineering, Purdue University, 2018-2019
Graduate Committee, Environmental and Ecological Engineering, Purdue University, 2015-2019
Staff Hiring Committee, Environmental and Ecological Engineering, Purdue University, December 2018
Undergraduate Committee, Industrial Engineering, Purdue University, 2016-2018
Graduate Committee, Industrial Engineering, Purdue University, 2016
Staff Hiring Committee, Environmental and Ecological Engineering, Purdue University, December 2015
Co-Coordinator, Rackham Interdisciplinary Workshop on Interdisciplinary Science and Policy Initiative for Research Engagement (InSPIRE), University of Michigan, 2012-2015
Ph.D. Committee, School of Natural Resources and Environment, University of Michigan, 2011-2012; 2013-2014
Graduate Council Student Representative, Pennsylvania State University, 2006-2007

TEACHING EXPERIENCE

At Purdue University
- **IMPACT** (Instruction Matters: Purdue Academic Course Transformation) **Fellow**, Spring 2017
- **Teaching Innovation Project** – "Developing an AI-powered "TA" Tool for IE 343 (Engineering Economics)"
    - Developed machine learning models trained using historical graded assignments to provide real-time and customized feedback to students
    - Highlighted as an example of teaching/learning innovations in a presentation to the Academic and Student Affairs Committee of the Board of Trustees on July 29, 2022
    - Highlighted by Purdue Today article "A new kind of teaching assistant"
    - Invited to present to the Undergraduate Advisory Council on February, 2024
- **Instructor**, IE 590 / EEE595, Urban Mobility Optimization, Spring 2018 -2022, 2024
    - Developed the course from scratch to discuss how to develop optimization and simulation models to inform the design, operation, and evaluation of emerging transportation and shared mobility systems for economic, environment, and social sustainability impacts
    - Enrollment: 6-12 students
- **Instructor**, CE/EEE 355, Engineering Environmental Sustainability, Spring 2017 – 2022, 2024
    - IMPACT course, redesigned for student-centered active learning
    - Discuss the engineering and non-technical aspects of environmental sustainability for food, water, and energy problems
    - Enrollment: 96-98, from 22 different engineering disciplines
    - Supervise one graduate teaching assistant and six to eight peer teaching assistants
- **Instructor**, EEE 560 Environmental Data Science, Fall 2021
    - One credit module, developed from scratch
    - Teach students the fundamentals of data science and how data science has been applied in environmental field
    - Enrollment: 32
- **Instructor**, IE 343, Engineering Economics, Fall 2015 – 2020, 2023 – 2024
    - IMPACT course, redesigned for student-centered active learning
    - Discuss the time value of money, cash flow analysis, capital depreciation, tax, and, cost-benefit analysis and their application in real world case studies
    - Enrollment: 175-178
    - Supervise two to three graduate teaching assistants
- **Instructor**, EEE 595, The Internet of Sustainability, Fall 2016 - 2017 (Co-taught with Dr. Chad Jafvert)
    - Co-developed instructional materials from scratch to teach students the environmental sustainability and energy implications of the cyber-physical systems (CBS) and the Internet of Things (IOT), including sensors, data, connectivity and collaboration, modeling, and algorithms.
    - Enrollment: 23-28

- **Guest Lecturer,** FS 591 Principles of Sustainability in Food Processing, "LCA Modeling using SimaPro" April, 2017
    - Hands on training session to teach the students to use the SimaPro Software to conduct life cycle assessment for a food system
- **Instructor**, EEE 595 / IE 590, Transportation, Energy, and Sustainability, Spring 2016
    - Developed the course from scratch to teach students the links and feedbacks among energy system, ecosystem, and the different transportation systems.
    - Enrollment: 16 students

At Institute of Urban Environment, Chinese Academy of Sciences, Xiamen, China,
- **Co-Instructor** (with Dr. Wei-Qiang Chen), Urban Sustainable Development, Fall 2022
    - Developed the course from scratch, lectures with hands-on group-based research projects
    - Enrollment: 6 Ph.D. students (with another 12 auditing the course)

At University of Michigan
- **Facilitator for Teaching Practice,** Engineering Instructor Aid and Graduate Student Instructor Orientation, Fall 2014
- **Teaching Assistant**, NRE 501.036, Consumption, Trade, and Environmental Input-Output Analysis, Winter 2013
- **Teaching Assistant,** Environ 367 Global Enterprise and Sustainable Development, Fall 2011

STUDENT MENTORING

At Purdue University
- **Postdoctoral advisees**
    o Ting Liu, 2020 – 2021, co-advised with Dr. Inez Hua (CE/EEE)
- **Ph.D. students**
    o As committee chair/co-chair
        1. Zhuoli Yin, Industrial Engineering, expected May, 2026
        2. Yiming Liu, Environmental and Ecological Engineering, expected May, 2026
        3. Yue (Shirley) Li, Environmental and Ecological Engineering, expected May, 2025
        4. Kendrick Hardaway, Environmental and Ecological Engineering, expected May, 2025, co-advised with Dr. Roshi Nateghi (IE)
        5. Fang Chen, Industrial Engineering, expected May 2025, co-advised with Dr. Hong Wan (IE, North Carolina State University)
        6. Xiaoquan Gao, Industrial Engineering, Dec., 2024, co-advised with Dr. Nan Kong (BME)
        7. Daniel Felipe Uribe Echeverri, Industrial Engineering, expected May, 2024, co-advised with Dr. Steve Landry (IE, Penn State University)
        8. Hao Luo, Environmental and Ecological Engineering, Aug., 2023, dissertation title "How Emerging Technologies Reshape Urban Mobility? Integrating System Interactions into Sustainability Assessment"
        9. Li Song, Environmental and Ecological Engineering, May, 2022, dissertation title "Towards Sustainable Consumption: Assessing the Environmental Impacts of Food Consumption and the Effectiveness of Ecolabels" (immediate placement: Senior Engineer Data Analyst, GlobalFoundries)
        10. Ruoxi Wen, Industrial Engineering, May, 2022, dissertation title "Environmental Impacts of Private and Shared Autonomous Vehicles: Integrated Modeling Considering Individual Preferences from a Life Cycle Perspective" (immediate placement: Ford Motor Company)
        11. Zhaoyu Kou, Industrial Engineering, Dec, 2020, dissertation title "Bike Share System Modeling: Travel Patterns, Environmental Benefits, System Expansion and Impacts of System Types" (immediate placement: Machine Learning Engineer, Instacart)
        12. Mustafa Lokhandwala, Industrial Engineering, Ph.D., Aug, 2019, dissertation title "Assessing the Environmental Impacts of Shared Autonomous Electric Vehicle Systems with Varying

Adoption Levels Using Agent-based Models" (immediate placement: Senior Operations Research Analyst, NetJets)

13. Tian Ni, Industrial Engineering, Ph.D., May, 2019, co-advised with Dr. Hong Wan (IE), dissertation title "Supply Chain Relationship for Quality Improvement: Empirical Tests on Principal Agent Theory" (immediate placement: Senior Advanced Analytics Researcher, General Motors)

o As Committee Member
1. Seung Ho Woo, Industrial Engineering (Dr. Young-jun Son), Dec., 2025 (expected)
2. Jae Heo, Construction Management Technology (Dr. Soowon Chang), Aug., 2025 (expected)
3. Xiaoyu Zhou, Environmental and Ecological Engineering (Dr. John Sutherland, TBD
4. Yue Jiang, Industrial Engineering (Dr. Ana Maria Estrada Gomez), May 2025 (expected)
5. Yonggab Kim, Industrial Engineering (Dr. Seokcheon Lee), May 2025 (expected)
6. Miriam Stevens, Environmental and Ecological Engineering (Dr. Shweta Singh), TBD
7. Thomas Maani, Environmental and Ecological Engineering (Dr. John Sutherland), May 2024 (expected)
8. Xiaowei Chen, Civil Engineering (Dr. Satish Ukkusuri), May 2024 (expected)
9. Rajat Verma, Civil Engineering (Dr. Satish Ukkusuri), Dec. 2023 (expected)
10. Jesús R. Pérez-Cardona (Dr. John Sutherland) Environmental and Ecological Engineering, May 2025 (expected)
11. Cong Zhang, Civil Engineering (Dr. Yiheng Feng) – qualifying exam committee
12. Yilin Wang, Civil Engineering (Dr. Yiheng Feng) – qualifying exam committee
13. Jun Ying, Civil Engineering (Dr. Yiheng Feng) – qualifying exam committee
14. Praditya Ajidarma, Industrial Engineering (Dr. Shimon Nof), expected May 2025 (expected)
15. Sharon Hughes, Environmental and Ecological Engineering, May 2023 (expected)
16. Ibrahim Alturki, Industrial Engineering, expected Aug. 2023 (expected)
17. Zhouyang Lou, Industrial Engineering, Expected May 2023 (expected)
18. Juan Camilo Paz Roa, Industrial Engineering, expected Aug. 2023 (expected)
19. Cansu Doganay, Mechanical Engineering, TBD
20. Chahine, Ricardo, Civil Engineering, expected May 2025 (expected)
21. Pratik Walimbe, Mechanical Engineering, expected Aug., 2 025 (expected)
22. Ho Young Jeong, Industrial Engineering, expected 2023 (expected)
23. Cansu Agrali, Industrial Engineering, May, 2022
24. Matt Triebe, Environmental and Ecological Engineering, Dec. 2021
25. Theodora Konstantinou, Civil Engineering, expected Dec. 2021
26. Nehika Mathur, Environmental and Ecological Engineering, expected Aug., 2021
27. Debora Maia Silva, Environmental and Ecological Engineering, May, 2021
28. Sungbum Jun, Industrial Engineering, expected May, 2020
29. Christos Gkartzonikas, Civil Engineering, expected May, 2020
30. Enze Jin, Environmental and Ecological Engineering, Ph.D., May, 2019
31. Yu Qiao, Civil Engineering, Ph.D., May, 2019
32. Wenbo Zhang, Civil Engineering, Ph.D., Dec., 2018
33. Chul Hun (Chris) Choi, Industrial Engineering, Ph.D., May 2018

- **Master thesis students**
  o As committee chair/co-chair
  1. Laura Almeida Tinjaca, Environmental and Ecological Engineering, May 2025 (expected)
  2. Utkuhan Genc, Industrial Engineering, May 2022
  3. Zhuoli Yin, Industrial Engineering, Aug., 2021, thesis title "Dynamic bike sharing rebalancing: a hybrid framework based on deep reinforcement learning and mixed integer programming"
  4. Ruihua Sun, Industrial Engineering, May, 2021, thesis title "Bike share system: rebalancing estimation and system optimization"

5. Zequn Li, Industrial Engineering, May, 2021, co-advised with Dr. Vaneet Aggarwal (IE), thesis title "Integrating reinforcement learning-based vehicle dispatch algorithm into agent-based autonomous taxi fleet system simulation"
6. Juan Carlos Orozco, Industrial Engineering, M.S., May, 2019, thesis title "Energy efficient drone-truck delivery systems"
7. Hao Luo, Environmental and Ecological Engineering, M.S., May, 2019, co-advised with Dr. Fu Zhao (ME/EEE), thesis title "Environmental Impact Assessment and Improved Design of Bike Sharing Systems from the Life Cycle Perspective"
8. Yue Zhou, Industrial Engineering, M.S., May, 2018, thesis title "Optimizing electric vehicle battery ranges considering stochastic individual charging decisions"

- o As Committee Member
  1. Jayasurya Ragupathi, Industrial Engineering, M.S., May 2023 (expected)
  2. Juliette F. Bermúdez Camelo, Environmental and Ecological Engineering, M.S., Aug., 2023
  3. Saloni Deodhar, Civil Engineering, May 2023
  4. Kelsey Biscocho, Mechanical Engineering, May 2023
  5. Yinding Zang, Industrial Engineering, M.S., May 2023
  6. Matthew J Gozun, Environmental and Ecological Engineering, M.S., Aug., 2022
  7. Yonggab Kim, Industrial Engineering, M.S., May, 20221
  8. Ashutosh Singh, Industrial Engineering, M.S., Dec., 2020
  9. Kaushik Manchella, Industrial Engineering, M.S., Dec, 2020
  10. Tara Radvand, Civil Engineering, Dec., 2020 (expected)
  11. Runjia Du, Civil Engineering, Aug., 2020
  12. Maria Belen Salazar Tijerino, Food Science, May 2020
  13. Maria Emilia Ponton, Civil Engineering, expected May, 20020
  14. Abeer Abdelhadi, Industrial Engineering, expected May, 2020
  15. Aiyshwariya Paulvannan Kanmani, Industrial Engineering, M.S., Aug, 2019
  16. Jackson Bennett, Industrial Engineering, M.S., Aug 2019
  17. Praneet Singh Arshi, Mechanical Engineering, M.S., Dec., 2017
  18. Huiting Su, Industrial Engineering, M.S., Dec., 2018,
  19. Theodora Konstantinou, Civil Engineering, M.S., Dec., 2018
  20. Archit Mokashi, Industrial Engineering, M.S., May, 2018
  21. Ho Young Jeong, Industrial Engineering, M.S., May, 2018
- **Master non-thesis students (Independent Studies)**
  - o Gifty Shaju, Ecological Sciences and Engineering, May 2023 (expected)
  - o Bijon Ali Rafie, Environmental and Ecological Engineering, Fall 2019
  - o Divinitha Sreenivas, Environmental and Ecological Engineering, Fall 2019
  - o Yifan Tong, Environmental and Ecological Engineering, Oct 2016 – Aug 2018
  - o Li Song, Civil Engineering, Jan 2016 – May 2016
- **Master non-thesis students (Committee member)**
  - o Runjia Du, Civil Engineering, expected May, 2020
  - o Boting Hou, Environmental and Ecological Engineering, Oct 2016 – May 2018
  - o Raul Elizondo, Civil Engineering
- **Students from Colombia UREP-C program**
  - o Carolina Fernández (Master's student), Universidad Nacional de Colombia, Fall 2021-Spring 2022
  - o Laura Almeida Tinjaca (undergraduate student), Universidad Nacional de Colombia, Fall 2022-present
- **Industrial Engineering Senior Design Projects**
  - o VA Hospital Transport (Spring 2018)
  - o Streamline Material Flow for Discount Filters (Fall 2018)
  - o Supply Chain Analysis of the Wabash Refrigerated Vans (Fall 2018)
  - o Inventory optimization for Southwire (Spring 2019)
  - o Program Registration Improvement for Purdue RecWell (Fall 2019)

- o Space Allocation Tool Development for Northrup Grumman (Fall 2019)
- o Improve Energy Star Program Reporting (Spring 2020)
- o Simulation for energy efficient DC circuit components (Spring 2020)
- o Waste Reduction at Secondary Packaging for Clif Bar (Fall 2021)
- o Standard Operation Procedure Development for ThinkerLabs (Fall 2023)
- o Determination of the Optimum Market of Alternate Fuel Use for Eagle Materials (Spring 2024)
- o Operational Dashboarding – Supply Chain Reporting for PepsiCo (Spring 2024)
- **Undergraduate students - independent study**
  - o Savni Maheshwari, Fall 2024
  - o Sarah Deniz, Industrial Engineering, Spring 2024 - present
  - o Quan The Dinh, Computer Science, Fall 2023
  - o Pratheek saibhavan Saibhavan Kotla, Mathematics, Fall 2023
  - o Oscar Terán, Industrial Engineering, Fall 2021-Spring 2023
  - o Rachel Snow, Industrial Engineering, Spring 2021
  - o Chartsiri Jirachotkulthorn, Data Science, Summer 2020 – Spring 2022
  - o Oscar Terán, Industrial Engineering, Fall 2021-present
  - o Nicholas Ryu Mori, Industrial Engineering, Summer 2019--Fall 2020
  - o Mokammel Hossain Sanju, Environmental and Ecological Engineering, Summer 2019- Fall 2021
  - o Nihar Vallem, Industrial Engineering, Spring 2019
  - o Ana M Diaz Abad, Industrial Engineering, Spring 2019 – Fall 2019
  - o Weizhou Zhang, Industrial Engineering, Fall 2018 – Fall 2019
  - o Delzin Navroze Gamir, Industrial Engineering, Fall 2018
  - o Laurel Elizabeth Stevenson, Environmental and Ecological Engineering, Fall 2018
  - o Richard Wolfschoon, Industrial Engineering, Spring 2018 – Fall 2018
  - o Alison Whitehead, Environmental and Ecological Engineering, Fall 2018
  - o Nikhil Carnereiro, First-year Engineering, Spring 2018
  - o Shivam Duhan, Computer Engineering, Spring 2018
  - o Deep Sandeep Mehta, Industrial Engineering, Spring 2018
  - o Anthony Neimic, First-year Engineering, Fall 2017
  - o Jessica Kurniawan, Industrial Engineering, Fall 2017
  - o Junxue Zhang, Mechanical Engineering, Fall 2017 – Spring 2018
  - o Xiayu Cai, Industrial Engineering Fall 2017 – Spring 2018
  - o Anna Andreyevna Poznyak, Industrial Engineering, Fall 2017 – Summer 2018
  - o Jackson Bennett, Environmental and Ecological Engineering, Fall 2017
  - o Emily Johncox, Industrial Engineering, Fall 2017
  - o Ertica Susanto, Civil Engineering, Fall 2017
  - o Ruth Zhong, Electrical Engineering, Summer 2017
  - o Junran Xu, Computer Science, Summer 2017
  - o Lingyou Pang, Math and Statistics, Summer 2017
  - o Fajar Ausri, Industrial Engineering, Summer 2017 – Spring 2019
  - o Yibo Gou, Computer Science, Summer 2017
  - o Jiaqi Zhu, Computer Science, Summer 2017 - Spring 2018
  - o David H Park, Industrial Engineering, Spring 2017 – Spring 2018
  - o Pengyu Chang, Industrial Engineering, Spring 2017 – Spring 2018
  - o Kirsten Lynne Castelli, Industrial Engineering, Spring 2017
  - o Katherine Elizabeth Leinenbach, Industrial Engineering, Spring 2017
  - o Jackson Reed Honnold, Industrial Engineering, Spring 2017
  - o Wen Li, Industrial Engineering, Spring 2016 – Spring 2019
  - o Koichiro Hadiprajitno, Industrial Engineering, Fall 2016 – Spring 2017
  - o Mingyu Zhang, Environmental and Ecological Engineering, Summer 2016 – Spring 2018
  - o Yechan Lim, Environmental and Ecological Engineering, Summer 2016 – Fall 2016
  - o Jian Pan, Industrial Engineering, Fall 2015 – Fall 2016

- o Xiao Shi, Industrial Engineering, Fall 2015 – Fall 2016
- o Yingnan Guo, Industrial Engineering, Fall 2015-Fall 2016
- o Yichen Zhong, Environmental and Ecological Engineering, Fall 2015 – Spring 2016
- o Henry Shi, First-year Engineering, Sep - Fall 2015
- **High school teacher (RET training)**
  - o Emily Lawson, McCutcheon High School, Summer 2019, co-advised with Dr. Inez Hua (CE/EEE)

At University of Michigan
- Research mentoring for 2 master's students, 1 undergraduate student, and 1 visiting scholar (3 out of these 4 students are women)

Student/Postdoc Achievements
- 2024-2025 IISE Future Faculty Fellow (Zhuoli Yin)
- 2024 NABSA Meddin Emerging Researcher Scholarship (Shirley Yue Li)
- 2024 CAPEES Founding President Best Paper Award (Shirley Yue Li)
- 2024 High Profile Project Recognition (Kendrick Hardaway)
- 2024 EEE Magoon Award for Excellence in Teaching (Kendrick Hardaway)
- 2024 ESE Teaching Award (Kendrick Hardaway)
- 2024 ISF Travel Grant (Yiming Liu)
- 2024 InnovatED Magazine Research Highlight (Kendrick Hardaway)
- 2024 InnovatED Magazine Research Highlight (Zhuoli Yin)
- 2024-2025 Bilsland Dissertation Fellowship (Kendrick Hardaway)
- Lee A. Chaden Fellowship in Industrial Engineering (Zhuoli Yin)
- Fulbright Scholar (Kendrick Hardaway)
- 2023 Institute for a Sustainable Future Travel Grant (Kendrick Hardaway)
- 2023 EEE Outstanding Graduate Student Research Award (Hao Luo)
- 2023 Graduate School Summer Research Grant (Zhuoli Yin)
- 2023 Frederick N. Andrews Environmental Travel Grant Award (Zhuoli Yin)
- 2023 Blosser Environmental Travel Award (Kendrick Hardaway)
- 2023-2024 Bilsland Dissertation Fellowship (Xiaoquan Gao)
- 2022 Purdue Engineering Virtual Graduate Showcase Poster Award Honorable Mention (Zhuoli Yin)
- 2022 CAPEES Founding President Best Paper Award (Li Song)
- 2022 IISE Future Faculty Fellow (Xiaoquan Gao)
- 2022 INFORMS Doctoral Student Colloquia (Xiaoquan Gao)
- 2022 Office of Interdisciplinary Graduate Programs Summer Research Grant (Kendrick Hardaway)
- 2021 EEE Excellence in Graduate Student Research Award (Li Song)
- 2021 Magoon Award for Excellence in Teaching (Kendrick Hardaway)
- InnovatED Magazine Research Highlight (Hao Luo)
- Russell O. Blosser Environmental Travel Grant (Hao Luo)
- 2022-2023 Bilsland Dissertation Fellowship (Hao Luo)
- 2021 Inaugural Trailblazers in Engineering Fellow (Kendrick Hardaway)
- Best poster presentation award, 2021 virtual CAPEES student e-poster competition (Hao Luo)
- 2020-2021 Bilsland Fellowship (Li Song)
- First Place Best Poster Award (Hao Luo), International Conference on Cleaner Production and Sustainability (CPS 2019), Oct 30 – Nov 2, 2019, Hong Kong
- 2019-2020 Hugh W. and Edna M. Donnan Dissertation Fellowship (Zhaoyu Kou)
- Honorable Mention (Zhaoyu Kou), Student Poster Competition, Sustainable Urban Systems Section, 2019 International Society for Industrial Ecology (ISIE) Biannual Conference, July 9, 2019, Beijing, China.
- Honorable Mention (Li Song), Student Poster Competition, Life Cycle Sustainability Assessment Section, 2019 International Society for Industrial Ecology (ISIE) Biannual Conference, July 9, 2019, Beijing, China.
- 2018-19 Bilsland Dissertation Fellowship (Mustafa Lokhandwala)

- Fourth place Student Poster Competition (Mustafa Lokhandwala), 2017 Joint Conference for International Society for Industrial Ecology (ISIE) and International Symposium on Sustainable Systems and Technology (ISSST), June 25-29, 2017, Chicago, IL

ENTREPRENEURSHIP RECOGNITION
- Michigan Business Challenge Semi-finalist (Top 8), University of Michigan, 2014
- Chinese Business Challenge Finalist (Top 10), China Entrepreneur Network Michigan, 2013
- Mayleben Venture Shaping Grant, Zell Lurie Institute for Entrepreneurial Studies, Univ. of Michigan, 2013

FUNDING
- **Co-PI** (PI: I. Hua, CE/EEE), "Collaborative Research: NRT: Next Generation Technology and Talent Driven by Environmental Sustainability", National Science Foundation (NSF), $1,500,000, 01/01/2024-12/31/2026
- **Co-PI** (PI: N. Gkritza, CE/ABE), "Development of Indiana-Specific Trip Generation Procedures and Models for E-commerce Demand: Implications for INDOT's Travel Demand Modeling and Investment Planning", Indiana Department of Transportation (INDOT), 8/19/2024-8/18/2026, $303,847
- **Single PI**, "Enhancing environmental education with virtual reality", Innovation Hub, Purdue University, 10/01/2023 – 12/01/2024, $46,847
- **PI** (Co-PI: Larry Nies, EEE), "Rethinking teaching and learning in the era of ChatGPT: Redesigning EEE/CE355 assignments", Innovation Hub, Purdue University, 07/01/2023 – 08/01/2024, $77,249
- **PI** (Co-PI: Erhan Karakaya, IE), "Developing an AI-powered "TA" Tool for IE 343 (Engineering Economics)", Innovation Hub, Purdue University, 05/01/2022 – 12/31/2022, $41,481
- **Single PI**, "Quantification of Potential Greenhouse Gas Emission Reduction using Renewable Natural Gas", Purdue Technical Assistance Project (TAP), 7/12/2021 to 4/7/2022, $3,018
- **Co-PI** (PI: N. Gkritza, CE/ABE), "Forecasting shifts in long-term passenger and micro-freight travel demand in Indiana", Indiana Department of Transportation (INDOT), 10/01/2021 to 09/30/2023, $342,386
- **Single PI**, "CAREER: Risk Modified Life Cycle Assessment", National Science Foundation (NSF), 8/15/2020-8/14/2025, $502,917
- **PI** (Co-PI: N. Gkritza, CE/ABE), "Assessing the economic, safety, transit and/or travel demand impacts of Transformative Transportation technology in Indiana", Indiana Department of Transportation (INDOT), 8/1/2019-4/30/2022, $244,101
- **Co-PI** (PI: A. Mitchell, Indiana Recycling Coalition), "Identify the recycling infrastructure and demands in Indiana WHIN counties", Wabash Heartland Innovation Network (WHIN), 5/1/2019-4/30/2020, $95,110
- **PI** (Co-PI: I. Hua, CE/EEE), "Understanding the Industrial Water Consumption for Smart Cities", Purdue COE EFC Smart City, 6/1/2019-5/30/2020, $75,000
- **Single PI**, "Bike Share System Simulation", Chicago Department of Transportation (CDOT), 2/15/2019 – 5/15/2019, $12,000
- **Single PI**, "Understanding the Greenhouse Gas Emission Impacts of Smart Transportation Systems", Ford Motor Company, 05/01/2018 - 04/30/2020, $199,516
- **Co-PI** (PI: J.-Y. Huang, Food Science) "Assessment of Life Cycle Environmental Impacts of Nano-packaging for Food Waste Reduction", Purdue Center for Environment Seed Grant, 1/8/2018-7/7/2018, $19,886
- **Single PI**, "Identify the Gaps and Opportunities in Bike Sharing Systems for Sustainable Transportation", Purdue EEE Summer Exploratory Research Grant, 5/15/2017 – 8/5/2017, $9,866

INVITED TALKS
- AI Showcase, Innovation Hub, Purdue University, 4/15/2024
- Institute for a Sustainable Future, Purdue University, 3/22/2024
- Panel discussion, Resilient, Sustainable, and Efficient Supply Chains, Purdue Engineering Distinguished Panel, 2/20/2024
- ICON Seminar, Institute for Control, Optimization and Networks (ICON), Purdue University, 1/26/2024
- 2023 International Conference on Intelligent Decision-making and Big Data Application (IDBDA 2023), online, 7/15/2023

- Panel discussion, Sustainable travel - new ways of mobility in culture, auawirleben Theater Festival (Bern, Switzerland), 5/19/2023
- LCC-City Climate Action Seminar Series, China-UK Low Carbon College, Shanghai Jiaotong University, online, 5/17/2023
- Center for Sustainable Future Mobility, ETH Zurich, 4/20/2023
- Public Forum of Frontiers of Engineering Management, online, 10/14/2022
- Institute of Urban Environment, Chinese Academy of Sciences, 8/31/2022
- Department of Industrial Engineering, University of Clemson, 2/11/2022
- Panelist, Making Shared Micromobility Count, 2021 Virtual NABSA Conference, 10/28/2021
- Planning Committee Meeting, Mid America Association of State Transportation Officials (MAASTO), 9/14/2021
- Keynote Talk, 2021 International Conference on Intelligent Decision-making and Big Data Application (IDBDA 2021), 7/17/2021
- Robotics and Mobility Research Group, Ford Motor Company, 5/13/2021
- Kent Seminar, University of Illinois at Urbana-Champaign, 4/15/2021
- Resources, Conservation & Recycling "New Academic Forum", 3/18/2021
- School of Science, Engineering, and Technology, Penn State Harrisburg, 11/17/2020 (Guest lecture)
- Transportation Research Board (TRB) Sustainability and Emerging Transportation Technology (SETT) Virtual Forum: Decarbonization, Energy, and Emissions and Urban Planning and TDM, 11/5/2020
- Transportation Active Safety Institute; and Department of Electrical and Computer Engineering, IUPUI, 2/20/2020
- Department of Environmental Science and Engineering, Fudan University, 7/18/2019
- Institute of Urban Environment, China Academy of Science, 7/15/2019
- International Cleaner Production Workshop, Beijing Normal University, 7/12/2019
- School of Civil and Transportation Engineering, Beijing University of Civil Engineering and Architecture, 7/12/2019
- Panelist, Moving Forward Together Conference, North American Bikeshare Association, 9/6/2018
- Product Development and Sustainability Analytics, Ford Motor Company, 6/23/2017
- Purdue Institute of Transportation Engineers, Purdue University, 11/8/2016
- INFORMS Purdue Chapter Seminar, Purdue University, 11/3/2016
- Department of Industrial Engineering, Tsinghua University, 12/23/2015
- Department of Civil and Environmental Engineering, Carnegie Mellon University, 3/17/2015
- Division of Environmental and Ecological Engineering, Purdue University, 2/5/2015
- School of Environment, Tsinghua University, 9/26/2014

MEDIA COVERAGE

- Green Car Congress, "Big data" analysis of Beijing taxi fleet suggests maximum electrification subsidy benefit from targeting medium-range plug-in hybrids (web), 2013 (https://www.greencarcongress.com/2013/08/cai-20130802.html)
- Grist, The radical history and dockless future of bikeshares (video), 2018 (https://grist.org/article/the-radical-history-and-dockless-future-of-bikeshares/)
- MarketWatch, 3 ways to shrink your carbon footprint the next time you're grocery shopping (web), 2021 (https://www.marketwatch.com/story/3-ways-to-shrink-your-carbon-footprint-the-next-time-youre-grocery-shopping-11635957991)
- InfoTrak, Three Simple Steps to Cut Your Carbon Footprint (radio), 2021, (https://www.talkzone.com/episodes/156/11414.html)
- Fast Company, Eating meat has a big impact on your carbon footprint. So does eating junk food (web), 2021 (https://www.fastcompany.com/90694557/the-hidden-food-choice-that-can-have-a-big-impact-on-your-carbon-footprint-junk-food)
- Chicago Booth Review, Want to Lower Food's Carbon Footprint? Cut Out Snacks and Drinks (web), 2021 (https://www.chicagobooth.edu/review/want-lower-food-s-carbon-footprint-cut-out-snacks-drinks)
- National Geographic, How to grocery shop to help the environment, 2022 (https://www.nationalgeographic.com/magazine/article/3-easy-ways-to-reduce-your-groceries-carbon-footprint)

- Chicago Booth Review, How small households contribute to food's high carbon footprint, summer 2022 issue (page 26-27) (https://www.chicagobooth.edu/review/summer-2022#sort=%40articledate%20descending)
- Purdue University Student Success Programs, A new kind of teaching assistant, 2023 (https://www.purdue.edu/studentsuccess/news/09_07_23.html)

PUBLICATION

Google scholar profile: https://scholar.google.com/citations?hl=en&authuser=1&user=CQAc4DkAAAAJ

Published/accepted papers

1. Zhang, R., Zhou, T., Jing, R., **Cai, H.**, Lin, T., Wang, K., He H, Zhang G, Wu X, Ye, H. (2024). Granular Insights into Occupant Behaviours and CO2 Emissions in the UK. *Journal of Cleaner Production*, 143923.
2. Chahine, R., Luo, H., **Cai, H.**, Gkritza, K., (2024) "A Comparative Analysis of Bike-sharing and E-scooter Sharing Users and Services in a College Town during COVID-19", *Case Studies on Transport Policy*, 15, 101130
3. Li, Z., Wang, X., **Cai, H.**, Xu, H., "Novel hybrid spatiotemporal convolution neural network model for short-term passenger flow prediction in a large-scale metro system", *Journal of Transportation Engineering, Part A: Systems*, 150 (5), 04024016
4. Li, Z., Lokhandwala, M., Al-Abbasi, A.O., Aggarwal, V., **Cai, H.** (2023) "Integrating reinforcement-learning-based vehicle dispatch algorithm into agent-based modeling of autonomous taxis", *Transportation*, 1-27
5. Yin, Z., Hardaway, K., Feng, Y., Kou, Z., **Cai, H.**, (2023) "Understanding the demand predictability of bike share systems: a station-level analysis", *Frontiers of Engineering Management*, 10(4), 551-565
6. Luo, H., Chahine, R., Gkritza, K., **Cai, H.**, (2023) "What motivates the use of shared mobility systems and their integration with public transit: evidence from a choice experiment study", *Transportation Research Part C: Emerging Technologies*, 155:104286
7. Wang, J., Wang, R., **Cai, H.**, Li, L., Zhao, Z. (2023) "Smart Household Electrical Appliance Usage Behavior of Residents: Converging the theory of planned behavior, Value-belief-Norm theory and External Information", *Energy & Buildings*, 296, 113346
8. Schweizer, V., Jamieson-Lane, A., **Cai, H.**, Lehnere, S., Smerlak, M. (2023) "Pathways for socio-economic system transitions expressed as a Markov chain", *PLOS One*, 18 (7), e0288928
9. Li, Y., Luo, H., **Cai, H.**, (2023) "Photovoltaic-battery powered bike share stations are not necessarily energy self-sufficient", *Applied Energy*, 348:121505 (received 2024 CAPEES Founding President **Best Paper Award**)
10. Li, L., Li, T., **Cai, H.**, Zhang, J., Wang, J., (2023) "I will only know after using it: The repeat purchasers of smart home appliances and the privacy paradox problem", *Computers & Security*, 128:103156
11. Bozeman, J.F., Chopra, S.S., James, P., Muhammad, S., **Cai, H.**, Tong, K., Carrasquillo, M., Rickenbacker, H., Nock, D., Ashton, W., Heidrich, O., Derrible, S., and Bilec, M., (2023) "Three research priorities for just and sustainable urban systems: now is the time to refocus", *Journal of Industrial Ecology*, 1–13.
12. Song, L., **Cai, H.**, Zhu, T. (2021) "Large-scale Micro-analysis of U.S. Household Food Carbon Footprint and Reduction Potential", *Environmental Science & Technology*, 55(22), 15323-15332 (received 2022 CAPEES Founding President **Best Paper Award**)
13. Li, L., Zhang, J., **Cai, H.**, Wang, J., Zhang, J., (2021) "Being 'smart' differently: implications of profiling the worldwide smart grids based on a two-dimensional smartness framework", *Energy Science & Engineering*, 9(10), 1787-1806.
14. 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.
15. Salazar T.M.B., Martín-González, M.F.S., **Cai, H.**, Huang, J.Y. (2021) "Economic and environmental performance of instantaneous water heating system for craft beer production", *Food and Bioproducts Processing*, 127, 472-481.
16. Kou, Z., **Cai, H.**, (2021) "Comparing the Performance of Different Types of Bike Share Systems", *Transportation Research Part D: Transport and Environment*, 94, 102823.
17. Chen, F., Cheng, G., **Cai, H.**, (2021) Wan, H., "Machine Learning in/for Blockchain: Future and Challenges", *The Canadian Journal of Statistics*, 49(4):1364-1382
18. Liang, Y., **Cai, H.**, Zou, G., (2021) "Configuration and system operation for battery swapping stations in Beijing." *Energy*, 214: 118883

19. Lokhandwala, M., **Cai, H.**, (2020) "Understanding the impact of heterogeneous rider preferences on a shared autonomous vehicle system", *Transportation Research Part F: Psychology and Behaviour*, 75:120-133

20. Luo, H., Zhao, F., Chen, W., **Cai, H.**, (2020) "Optimizing bike sharing systems from the life cycle greenhouse gas emissions perspective", *Transportation Research Part C: Emerging Technologies*, 117: 102705

21. Wang, J., Li, L., Guo, S., **Cai, H.**, Zhang, J., Ni, Y., "Can China's BEV market sustain without government subsidies?: an explanation using cues utilization theory", *Journal of Cleaner Production*, 272(1): 122589

22. Xiao, D., An, S., **Cai, H.**, Wang, J., Cui, J. (2020) "An optimization model for electric vehicle charging infrastructure planning considering queuing behavior with finite queue length", *Journal of Energy Storage,* 29:101317

23. Lokhandwala, M., **Cai, H.**, (2020) "Siting Charging Stations Considering Increasing Adoption of Electric Vehicles, Ride Sharing and Autonomous Driving using Simulation Optimization", *Transportation Research Part D: Transport and Environment*, 80:102231

24. Zhou, Y., Wen, R., Wang, H., **Cai, H.** (2020) "Optimal Battery Electric Vehicles Range: A Model Considering Heterogeneous Travel Patterns, Charging Behaviors, and Access to Charging Infrastructure", *Energy*, 116945

25. Pang, Y., He, Y., Jiao, J., **Cai, H.**, (2020) "Power load demand response potential of secondary sectors in China: the case of western Inner Mongolia", *Energy*, 192:116669

26. Kou, Z., Wang, X., Chiu, A., **Cai, H.** (2020) "Quantifying the Environmental Benefits of Bike Share Systems", *Resources, Conservation & Recycling*, 153:1045347 (Received 2020 *Resources, Conservation & Recycling* **Best Paper Award**)

27. Zhang, B.Y., Tong, Y., Singh, S., **Cai, H.**, Huang, J.-Y., (2019) "Assessment of life cycle environmental impacts of nano-packaging considering food waste reduction", *Resources, Conservation & Recycling,* 149:322-331

28. Salazar, M. B., **Cai, H.**, Bailey, R., Huang, J.-Y., (2019) "Defining nutritionally and environmentally healthy dietary choices of omega-3 fatty acids", *Journal of Cleaner Production*, 228(10):1025-1033

29. Pang, Y., He, Y., **Cai, H.**, (2019) "Business model of distributed photovoltaic energy integrating investment and consulting services in China", *Journal of Cleaner Production*, 218:943-965

30. Li, L., Wang, J., Zhang, J., Gallachoir, B.O., **Cai, H.**, (2019) "Energy-intensive industries in China: Policy priorities for achieving climate mitigation and energy conservation targets", *Climate Policy*, 19(5):598-610

31. Luo, H., Kou, Z., Zhao, F., **Cai, H.** (2019) "Comparative Life Cycle Assessment of Station-based and Dock-less Bike Sharing Systems", *Resources, Conservation & Recycling,* 146:180-189

32. **Cai, H.**, Wang, X., Adrianes, P., Xu, M. (2019) "Environmental implications of ride sharing", *Energy,* 174:503-508

33. Song, L., Lim, Y., Chang, P., Guo, Y., Zhang, M., Wang, X., Yu, X., Lehto, M., **Cai, H.** (2019) "Ecolabel's Role in Informing Sustainable Consumption: A Naturalistic Decision Making Study", *Journal of Cleaner Production*, 218:685-695

34. Chapa, J., Salazar, M. B., Kipp, S., **Cai, H.**, Huang, J.-Y., (2019) "A Comparative Life Cycle Assessment of Fresh Imported and Frozen Domestic Organic Blueberries Consumed in Indiana", *Journal of Cleaner Production*, 217:716-723

35. Shi, X., Pan, J., Wang, H., **Cai, H.** (2019) "Battery Electric Vehicles: What are the Minimum Ranges Required?", *Energy,* 166:352-358

36. Kamyabniyaa, A., Lotfia, M. M.,*, **Cai, H.**, Hosseininasab, H., Yaghoubib, S., Yih, Y. (2019) "A two-phase coordinated platelets logistics planning for humanitarian relief operations", *IISE Transactions* 51(1):1-21

37. Kou, Z., **Cai, H.** (2019) "Understanding Bike Sharing Travel Patterns: An Analysis of Trip Data from Eight Cities", *Physica A*: *Statistical Mechanics and its Applications*, 515:785-797

38. Sun, W., **Cai, H.**, Wang, Y. (2018), "Refined Laspeyres Decomposition Based Analysis of Relationship between Economy and Electric Carbon Productivity from the Provincial Perspective", *Energies,* 11(12), 3426

39. Liu, J., Xu, F., Lin, S., **Cai, H.**, Yan, S. (2018) "A multi-agent based optimization model for microgrid operation using dynamic guiding chaotic search particle swarm optimization", *Energies*, 11(12), 3286

40. Lokhandwala, M., **Cai, H.**, (2018) "Dynamic Ride Sharing using Traditional Taxis and Shared Autonomous Taxis: A Case Study of NYC", *Transportation Research Part C: Emerging Technologies,* 97:45-60

41. Li, L., Gu, Y., Ge, X., Yang, Y., **Cai, H.**, Hang, J., Zhang, J. (2018) "Exploring the residents' intention to separate MSW in Beijing and understanding the reasons: An explanation by extended VBN theory", *Sustainable Cities and Society*, 37:637-648.

42. Sun, J.-Q., Xu, L., Liu, X.-Y., Zhao, G.-F., **Cai, H.**, Nie, Y., Wu, X.-L., (2018) "Functional genetic diversity and culturability of petroleum-degrading bacteria isolated from oil-contaminated soils", *Frontiers in Microbiology, section Microbiotechnology, Ecotoxicology and Bioremediation*, 9(1332)

43. Rao, R., **Cai, H.**, Xu, M. (2018) "Modeling charging behavior for electric vehicles", International Journal of Sustainable *Transportation*, 0(0):1-9.

44. Wang, X., **Cai, H.**, H. Keith Florig (2016) "Energy-Saving Implications from Supply Chain Improvement: An Exploratory Study on China's Consumer Goods Retail System", *Energy Policy*, 95: 411–420.

45. **Cai, H.**,* Zhan, X., Zhu, J., Chiu, A., Jia, X., Xu, M. (2016) "Understanding taxi travel patterns", *Physica A: Statistical Mechanics and its Applications*, 457:590-597.

46. Shahraki, N., **Cai, H.**,* Turkay, M., Xu, M. (2015) "Optimization of Public Charging Station Locations based on Big-Data Informed Travel Patterns", *Transportation Research Part D: Transport and Environment*, 41:165-176

47. Xu, M., **Cai, H.**, Liang, S. (2015) "Big Data and Industrial Ecology", *Journal of Industrial Ecology*, 19(2): 205-210.

48. Pontaua, P., Hou, Y., **Cai, H.**, Zhen, Y., Jia, X., Chiu, A., Xu, M. (2015) "Assessing Land Use Impacts by Clean Vehicle Systems", *Resources, Conservation & Recycling*, 95:112–119.

49. **Cai, H.**, Jia, X., Chiu, A., Hu, X., Xu, M. (2014) "Siting Public Electric Vehicle Charging Stations using Big-Data Informed Travel Patterns", *Transportation Research Part D: Transport and Environment*, 33:39-46.

50. Pan, X.C., Geng, S., Mei, R., Wang, Y.N., **Cai, H**, Liu, X.Y., Tang, Y.Q., Nie, Y., Ye, S.Y., Wu, X.L. (2014) "Nitratireductor shengliensis sp. nov., isolated from an oil-polluted saline soil", *Current Microbiology*, 69(4):561-566.

51. Choudhary, S., Liang, S., **Cai, H**., Keoleian, G.A., Miller, S.A., Kelly, J., Xu, M. (2014) "Reference and functional unit can change bioenergy pathway choices", *The International Journal of Life Cycle Assessment*, 19:796-805.

52. Wang, Y., Wang, W., Mao, G., **Cai, H.**, Zuo, J., Wang, L., Zhao, P. (2013) "Industrial CO_2 Emissions in China Based on the Hypothetical Extraction Method: Linkage Analysis". *Energy Policy*, 62:1238–1244.

53. **Cai, H**, Xu, M. (2013) "Greenhouse Gas Implications of Fleet Electrification based on Big Data-Informed Individual Travel Patterns". *Environmental Science and Technology*, 47(16): 9035-9043.

54. **Cai, H.**, Hu, X., Xu, M. (2013) "Impact of Emerging Clean Vehicle System on Water Stress". *Applied Energy*, 111: 644–651.

55. Cai, M., Wang, L., **Cai, H.**, Li, Y., Tang, Y.Q., Wu, X.L. (2011) " Rubrimonas shengliensis sp. nov. and Polymorphum gilvum gen. nov., sp. nov., novel members of Alphaproteobacteria from crude oil contaminated saline soil." *Systematic and Applied Microbiology*, 34(5):321-7.

56. Cai, M.#, Wang, L. #, **Cai, H.** #, Li, Y., Wang, Y.N., Tang, Y.Q., Wu, X.L. (2011) " Salinarimonas ramus sp. nov. and Tessaracoccus oleiagri sp. nov., isolated from a crude oil contaminated saline soil." *International Journal of Systematic and Evolutionary Microbiology*. 61(8):1767-75.

57. **Cai, H**., Eramo, A.G., Evans, P.J., Fricke, R., Brennan, R.A. (2010) "In situ bioremediation of perchlorate in vadose zone soil using gaseous electron donors: microcosm treatability study." *Water Environment Research*, 82 (5): 409 - 417.

58. Wang, Y.-N., **Cai, H**., Yu, S.-L., Wang, Z.-Y, Liu, J., Wu, X.L. (2007) "Halomonas gudaonensis sp. nov., isolated from a saline soil contaminated by crude oil". *International Journal of Systematic and Evolutionary Microbiology*. 57(5):911-915.

59. Gu, J., **Cai, H**., Qu, R., Yin, B., Guo, Y.-F., Zhao, J.-Y., Wu, X.L.(2007) "Marinobacter gudaonensis sp. nov., isolated from an oil-polluted saline soil in a Chinese oilfield", *International Journal of Systematic and Evolutionary Microbiology*.57(2):250-254.

60. Wang, Y.-N., **Cai, H**., Yu, S.-L., Lu, A-H, Lin, X-G, Jiang, Z-F., Wu, X.L. (2007) "Halomonas shengliensis sp. nov., a moderately halophilic, denitrifying, crude-oil-utilizing bacterium". *International Journal of Systematic and Evolutionary Microbiology*. 57(6):1222-1226.

Note: # - co-first authorship

Technical report

1. Macdonald, A., McDonald, J., Schmitt, T., **Cai, H.**, Ceponis, J., Cullen, C., Dutta, P., McVoy, G., & Ruiz, A. C. (2024). New York State Climate Impacts Assessment Chapter 09: Transportation, Annals of the New York Academy of Sciences. https://doi.org/10.1111/nyas.15198

2. Verma, R., Luo, H., Deodhar, S., Ka, E., Chahine, R., Natu, P., Malhotra, H., & Polisetty, V., Thakkar, D. J., Ukkusuri, S. V., **Cai, H.,** Dunlop, S. R., Iyer, A. V., & Gkritza, K. (2023). "Forecasting shifts in Hoosiers' travel demand and behavior", *Joint Transportation Research Program,* Publication No. FHWA/IN/JTRP-2023/28. West Lafayette, IN: Purdue University. https://doi.org/10.5703/1288284317685

3. Luo, H., Chahine, R., Rambaram, A., Rosenzweig, E.T., Gkritza, K., **Cai, H.** (2022) "Assessing the Travel Demand and Mobility Impacts of Transformative Transportation Technologies in Indiana", *Joint Transportation Research Program,* Publication No. FHWA/IN/JTRP-2022/11. West Lafayette, IN: Purdue University. https://doi.org/10.5703/1288284317374

4. Whelton, A. J., Gill, J., Song, L., Froderman, B., Teimouri, M., **Cai, H.** (2016) "Lack of Data for Predicting Storm Water Pollutant Removal by Post-Construction Best Management Practices", *Joint Transportation Research Program Publication*, No. FHWA/IN/JTRP-2016/09

5. Evans, P., **Cai, H**., Hopfensperger, K., Oppitz, E., Titus, T., Brennan, R. (2009) "In Situ Bioremediation of Perchlorate in Vadose Zone Soil Using Gaseous Electron Donors". *ESTCP Project ER-0511 Final Report*, Environmental Security Technology Certification Program, November.

Refereed conference proceedings
1. Chen, F, **Cai., H.**, Wan, H., (2023) "An Intelligent Framework To Maximize Individual Driver Income", *2023 Winter Simulation Conference (WSC 2023),* San Antonio, TX, December 10-13.

2. Yin, Z., Kou, Z., **Cai, H**. (2023) "A Deep Reinforcement Learning Model for Large-Scale Dynamic Bike Share Rebalancing with Spatial-Temporal Context", *The 12th International Workshop on Urban Computing* (UrbComp 2023), Long Beach, CA, August 6.

3. Hardaway, K., Teran, O., & **Cai, H.** (2022, June). Assessing the Environmental Implications of Autonomous Vehicle Data Management. In 2022 IEEE 31st International Symposium on Industrial Electronics (ISIE) (pp. 639-642). IEEE.

4. Wen, R., Jiang, Z., Liang, C., Telenko, C., Wang, B., Fu, Y., **Cai, H.** (2020) "A New Approach of Generating Travel Demands for Smart Transportation Systems Modeling", (No. 2020-01-1047). SAE Technical Paper.

5. **Cai, H**., Xu, M. (2014) "Informing Electric Vehicle Public Charging Infrastructure Development using Travel Patterns Mined from Big-Data." *Oral paper presentation*, International Symposium on Sustainable Systems and Technology (ISSST), Oakland, CA, May 20.

6. **Cai, H**., Xu, M. (2012) "Assessing Clean Vehicle Systems under Constraints of Freshwater Resource." *Oral paper presentation*, IEEE International Symposium on Sustainable Systems and Technology, Boston, MA, May 17.