

# John Paul Helveston, Ph.D.

Engineering Management and Systems Engineering

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## Academic Appointments

- 2018 - Present    **George Washington University**, Washington, D.C.  
Assistant Professor, Engineering Management and Systems Engineering
- 2016 - 2018    **Boston University**, Boston, MA  
Postdoctoral Fellow, Institute for Sustainable Energy

## Education & Training

- 2016    Carnegie Mellon University, Pittsburgh, PA    Ph.D. Engineering and Public Policy  
Dissertation: *Development and Adoption of Plug-in Electric Vehicles in China: Markets, Policy, and Innovation*  
Doctoral Committee: *Jeremy Michalek, Erica Fuchs, Elea McDonnell Feit, & Valerie Karplus*
- 2015    Carnegie Mellon University, Pittsburgh, PA    M.S. Engineering and Public Policy  
2010    Virginia Tech, Blacksburg, VA    B.S. Engineering Science and Mechanics
- Mandarin Chinese Training**
- 2010    National Taiwan University, Taipei, Taiwan    Business Chinese (Huayu Scholarship)  
2009    Heilongjiang University, Harbin, China    Intensive Chinese (Critical Language Scholarship)  
2008    Liaoning Normal University, Dalian, China    Independent Study (Horton Scholarship)

## Research Interests

- **Sustainable Technology Change:** Study how consumers, firms, markets, and policy affect the nature & pace of transitioning to sustainable energy and transportation technologies.
- **Market Analytics for Decision Making:** Measure and model consumer preferences to assess policy and product design and simulate consumer choice behavior.
- **Electric Vehicles & Sustainable Transportation Technologies:** Assess barriers and opportunities to accelerating the development & adoption of sustainable transportation technologies.
- **U.S.-China Climate Relationship:** Study the critical relationship between the US and China in developing and mass producing low carbon energy technologies.

## Teaching Interests

- **Programming & Data Analytics:** Programming in R and Python; exploratory data analysis; data visualization; reproducibility.
- **Choice Modeling:** Discrete choice modeling; consumer preferences and choice behavior; conjoint analysis; design decisions.

- **Team Projects:** Open-ended, team-based projects that emphasize critical thinking and real-world data collection and analysis.

## Publications

Citations: 782 • h-index: 8 • i10-index: 8

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\*indicates student advised by Helveston

### A. Peer Reviewed Articles

1. \*Kaplan, Leah & **Helveston, John P.** (2023) "Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S." *Transportation Research Record*. DOI: [10.1177/03611981231208976](https://doi.org/10.1177/03611981231208976)
2. \*Zhao, L., \*Ottinger, E., Yip, A., & **Helveston, J.P.** (2023) "Quantifying electric vehicle mileage in the United States" *Joule*. 7, 1–15. DOI: [10.1016/j.joule.2023.09.015](https://doi.org/10.1016/j.joule.2023.09.015)
3. \*Zhao, L., Szajnfarter, Z., Broniatowski, D.A., & **Helveston, J.P.** (2023) "Using conjoint analysis to incorporate heterogeneous preferences into multimodal transit trip simulations" *Systems Engineering*. DOI: [10.1002/sys.21670](https://doi.org/10.1002/sys.21670)
4. **Helveston, John P.** (2023) "logitr: Fast Estimation of Multinomial and Mixed Logit Models with Preference Space and Willingness to Pay Space Utility Parameterizations" *Journal of Statistical Software*. 105(10), 1-37. DOI: [10.18637/jss.v105.i10](https://doi.org/10.18637/jss.v105.i10)
5. **Helveston, J.P.**, He, G., & Davidson, M.R. (2022) "Quantifying the cost savings of global solar photovoltaic supply chains" *Nature*. 612 (7938), pg. 83-87. DOI: [10.1038/s41586-022-05316-6](https://doi.org/10.1038/s41586-022-05316-6)
6. \*Roberson, Laura A. & **Helveston, John P.** (2022) "Not all subsidies are equal: Measuring preferences for electric vehicle financial incentives" *Environmental Research Letters*. 17(084003). DOI: [10.1088/1748-9326/ac7df3](https://doi.org/10.1088/1748-9326/ac7df3)
7. Szajnfarter, Z., Groover, J.A., Wei, Z., Broniatowski, D.A., Chernicoff, W., & **Helveston, J.P.** (2021) "Evolvability Analysis Framework: Adding Transition Path and Stakeholder Diversity to Infrastructure Investment Decisions" *Systems Engineering*. 25(1):35-50. DOI: [10.1002/sys.21600](https://doi.org/10.1002/sys.21600)
8. Feinberg, F., Bruch, E., Braun, M., Hemenway Falk, B., Fefferman, N., Feit, E.M., **Helveston, J.P.**, Larremore, D., McShane, B.B., Patania, A., & Small, M.L. (2020) "Choices in networks: a research framework" *Marketing Letters*. 31(4), 349-359. DOI: [10.1007/s11002-020-09541-9](https://doi.org/10.1007/s11002-020-09541-9)
9. \*Roberson, Laura A. & **Helveston, John P.** (2020) "Electric vehicle adoption: can short experiences lead to big change?" *Environmental Research Letters*. 15(0940c3). DOI: [10.1088/1748-9326/aba715](https://doi.org/10.1088/1748-9326/aba715)
10. **Helveston, John P.** & Nahm, Jonas (2019) "China's key role in scaling low-carbon energy technologies" *Science*. 366(6467), pg. 794-796. DOI: [10.1126/science.aaz1014](https://doi.org/10.1126/science.aaz1014)
11. **Helveston, J.P.**, Seki, S., Min, J., Fairman, E., Boni, A.A., Michalek, J.J., & Azevedo, I. (2019) "Choice at the Pump: Measuring Preferences for Lower-Carbon Combustion Fuels" *Environmental Research Letters*. 14(8). DOI: [10.1088/1748-9326/ab2bd2](https://doi.org/10.1088/1748-9326/ab2bd2)
12. **Helveston, J.P.**, Wang, Y., Karplus, V.J., & Fuchs, E.R.H. (2019) "Institutional Complementarities: The Origins of Experimentation in China's Plug-in Electric Vehicle Industry" *Research Policy*. 48(1), pg. 206-222. DOI: [10.1016/j.respol.2018.08.006](https://doi.org/10.1016/j.respol.2018.08.006)

13. **Helveston, J.P.**, Feit, E.M., & Michalek, J.J. (2018) "Pooling Stated and Revealed Preference Data in the Presence of Endogeneity" *Transportation Research Part B: Methodological*. 109, pg. 70-89. DOI: [10.1016/j.trb.2018.01.010](https://doi.org/10.1016/j.trb.2018.01.010)
14. **Helveston, J.P.**, Liu, Y., Feit, E.M., Fuchs, E.R.H., Klampfl, E., & Michalek, J.J. (2015) "Will subsidies drive electric vehicle adoption? Measuring consumer preferences in the U.S. and China" *Transportation Research Part A: Policy and Practice*. 73, 96–112. DOI: [10.1016/j.tra.2015.01.002](https://doi.org/10.1016/j.tra.2015.01.002)

## B. Full Length Conference Publications

1. \*Kaplan, Leah, Szajnfarter, Z., & **Helveston, John P.** (2023) "Shifting, Not Shrinking? Exploring Labor Roles in Traditional and Automated Door-to-Door Transportation Service" *Proceedings of the IISE Annual Conference & Expo 2023*. New Orleans, LA, USA, May 20-23, 2023, 3125.
2. **Helveston, John P.** (2022) "The Rise of Chinese Leadership in the Plug-in Electric Vehicle Industry" *Chinese Industrial Policy: Sectors and Resources*. UCSD Institute on Global Conflict and Cooperation, San Diego, CA. Sep. 30.
3. **Helveston, John P.** (2022) "The cbcTools Package: Tools for Designing and Testing Choice-Based Conjoint Surveys in R" *Sawtooth Software Conference*. Orlando, FL. May 6.
4. **Helveston, John P.** (2021) "Obtaining Willingness to Pay Estimates from Preference Space and Willingness to Pay Space Utility Models" *Sawtooth Software Conference*. San Antonio, TX. Apr. 19.
5. Liang, Z., Li, D., Fu, X., Beltekian, D., **Helveston, J.P.** (2018) "The Co-evolution of MNE R&D Strategies and China's National Innovation System: A Case Study on Siemens" *IEEE International Symposium on Innovation and Entrepreneurship (TEMS-ISIE)*. Beijing, PRC, pp. 1-9. DOI: [10.1109/TEMS-ISIE.2018.8478558](https://doi.org/10.1109/TEMS-ISIE.2018.8478558)
6. **Helveston, J.P.**, Wang, Y., Karplus, V.J., & Fuchs, E.R.H. (2016) "Up, Down, and Sideways: Innovation in China and the Case of Plug-in Electric Vehicles" *Academy of Management Annual Meeting*. Anaheim, CA. Aug. 5.
7. **Helveston, J.P.**, Liu, Y., Feit, E.M., Fuchs, E.R.H., Klampfl, E., & Michalek, J.J. (2014) "Will subsidies drive electric vehicle adoption? Measuring consumer preferences in the U.S. and China" *National Academies Transportation Research Board Annual Meeting*. Washington, D.C. Jan. 13.

## C. Working Papers & Papers Under Review

1. \*Kaplan, Leah, \*Nurullaeva, L., & **Helveston, J.P.** (2023) "Modeling the Hidden Labor Costs of Autonomous Vehicle Taxi Services" *Under review*.
2. \*Roberson, Laura A., \*Pantha, S., \*Zhao, L., & **Helveston, J.P.** (2023) "Battery-Powered Bargains? Assessing Electric Vehicle Resale Value in the United States" *Working paper*.
3. Murphree, M., **Helveston, J.P.**, & Breznitz, D. (2023) "Intellectual Property as a Production Input: Expanding Theories of Institutional Change and Profiting from Innovation" *Under review*.

## D. Magazine Publications

1. \*Kaplan, Leah, Szajnfarter, Z., & **Helveston, John P.** (2023) "Driverless – but not humanless – vehicle systems" *IISE Magazine*. November.
2. **Helveston, John P.** (2021) "Why the US Trails the World in Electric Vehicles" *Issues in Science and Technology*. 37, no. 2 (Winter 2021).

3. **Helveston, John P.** (2017) "Perspective: Navigating an Uncertain Future for US Roads" *Issues in Science and Technology*. 34, no. 1 (Fall 2017).

## E. Books / Book Chapters

1. **Helveston, John P.** (2022) "Programming for Analytics in R."
2. Ren, Justin Z. & **Helveston, John P.** (2019) "Measuring Electric Vehicle Infrastructure Among Cities: A Multi-Dimensional Approach" *Melting the ICE: Lessons from China and the West in the Transition from the Internal Combustion Engine to Electric Vehicles*. Ed. Fox-Penner, P., Ren, Z.J., & Jermain, D.O.. Harvard University Press.
3. Hatch, Jennifer & **Helveston, J.P.** (2019) "Brookline, MA: A Small Town seeking to lead in a Broader EV Charging Network" *Melting the ICE: Lessons from China and the West in the Transition from the Internal Combustion Engine to Electric Vehicles*. Ed. Fox-Penner, P., Ren, Z.J., & Jermain, D.O.. Harvard University Press.

## F. Opinion Editorials

1. **Helveston, John P.** (2023) "Electric Vehicle Owners Are Not Driving Enough—And That's Bad" *Scientific American*.
2. **Helveston, J.P.**, He, G., & Davidson, M.R. (2022) "The Cost of Going Solo in Solar" *New Security Beat*.
3. **Helveston, John P.** (2022) "To boost solar, the US should use more carrots and fewer sticks" *The Hill*.
4. **Helveston, John P.** (2022) "Tariffs won't build a robust US solar industry" *The Hill*.

## G. Other Publications

1. **Helveston, John P.** (2019) "Podcast: GWU Professor John Helveston on EVs in China" *The Future Car: A Siemens Podcast*. May 13, 2019.
2. **Helveston, John P.** (2019) "China's looser rules may usher in a new era for EV and AV companies" *Axios*. February 1, 2019.
3. Hatch, Jennifer & **Helveston, J.P.** (2018) "Will Autonomous Vehicles be Electric?" *Institute for Sustainable Energy Blog*. August 8, 2018.

## G. Theses

1. **Helveston, John P.** (2016) "Development and Adoption of Plug-in Electric Vehicles in China: Markets, Policy, and Innovation" *Ph.D. Dissertation*. Carnegie Mellon University, Pittsburgh, PA.

## Software

1. **Helveston, John P.** (*aut, cre, cph*) (2021) "logitr: Fast Estimation of Multinomial and Mixed Logit Models with Preference Space and Willingness to Pay Space Utility Parameterizations" R package version 0.8.0.

2. **Helveston, John P.** (*aut, cre, cph*) & Aden-Buie, Garrick (*aut*) (2021) "`renderthis`: Render Slides To Different Formats" R package version 0.2.0.
3. **Helveston, John P.** (*aut, cre, cph*) (2021) "`cbcTools`: Tools For Designing Choice-Based Conjoint Survey Experiments" R package version 0.0.3.

## Honors / Awards

- 2023: SEAS Outstanding Early Career Teaching Award.
- 2023: IOP Outstanding Reviewer Award.
- 2022: Awarded an "IOP Trusted Reviewer" status for a 5/5 rated review for Environmental Research Letters.
- 2022: Best poster award, Integrated Assessment Modeling Consortium.
- 2022: PhD student Laura Roberson awarded First Prize for Studies in Engineering and Data Analysis at the GW Research Showcase.
- 2022: PhD student Laura Roberson awarded Sustainability and Resiliency Prize at the GW Research Showcase.
- 2018: Finalist, Coase Dissertation Award, [Society for Institutional & Organizational Economics](#).
- 2017: Best Dissertation Award, [Industry Studies Association](#).
- 2016: Best Paper in Innovation & Entrepreneurship Research, [Industry Studies Association](#).
- 2013: Herbert Toor Award for Best Engineering and Public Policy Qualifying Examination Paper.
- 2002: Eagle Scout Award, BSA Troop 11, Valrico, FL, July 7, 2002.

## Fellowships / Scholarships

- 2019: [Energy Innovation Policy and Management Scholar](#), Innovation and Information Technology Foundation.
- 2014: [Link Energy Foundation Fellowship](#).
- 2011: [NSEP Boren Fellowship](#) (Award Declined).
- 2010: Taiwan Huayu Mandarin Enrichment Scholarship.
- 2009: Department of State [Critical Language Scholarship](#) for Mandarin Chinese.
- 2007: [Horton Honors Scholarship](#) for 6-month independent study abroad in China.
- 2005: Eleanor Davenport Leadership Scholarship, Virginia Tech: Full tuition and Fees (2005 - 2009).

## External Grants

### A. Principal Investigator

1. Alfred P. Sloan Foundation Energy & Environment Program. "Quantifying the Benefits and Constraints of Plug-In Electric Vehicle Smart Charging Adoption". Sep. 2023 - Aug. 2026. \$516,677.
2. DOE Vehicle Technologies Office (VTO). "Quantifying New and Used Plug-in Electric Vehicle Market Dynamics in Disadvantaged Communities". Oct. 2023 - Jun. 2026. \$474,517.
3. Electric Power Research Institute. "Investigation of used electric vehicle movements, sales and availability". Jul. 2022 - Jun. 2023. \$109,743.
4. Alfred P. Sloan Foundation Energy & Environment Program. "Identifying More Efficient and Equitable Plug-In Electric Vehicle Financial Incentives Through Consumer-Centric Design". Sep. 2021 - Aug. 2022. \$31,268.
5. Toyota Mobility Foundation. "Evolvability Analysis Framework Dashboard Development". Jul. 2021 - Jun. 2022. \$24,963.
6. New Venture Fund Public Interest Technology University Network. "GW Coders Scholarship & Internship Program: Building Coding Capacity for Public Interest Technology Engagement". Jul. 2021 - Jun. 2022. \$88,960.
7. NSF East Asia Pacific Summer Institute Fellowship. "Environmental Implications of Consumer Preferences and Policy Incentives for Plug-in Vehicles in China". May. 2014 - Aug. 2014. \$5,000.

### B. Co-Principal Investigator

1. Toyota Mobility Foundation. "Evolvability for Mobility Systems". Jul. 2019 - Jun. 2021. \$361,176.

### C. Affiliated

1. National Science Foundation Graduate Research Fellowship (to Ph.D. student Leah Kaplan). "Planning for Technological Disruptions: The Case of Autonomous Vehicles". Aug. 2020 - Jul. 2023. \$147,000.

## Internal Grants

1. GWU University Facilitating Fund. "Measuring Consumer Preferences for Used Alternative Fuel Vehicles". Jul. 2021 - Jun. 2022. \$14,210.
2. GWU University Facilitating Fund. "Spatial and Temporal Mapping of Technological Progress In Electric Vehicle Powertrain Technologies". Jul. 2019 - Jun. 2020. \$16,929.

## Presentations / Conferences

### A. Invited Speaker

1. "China's EV Future", with Marianne Ryghaug and Maciej Mazur. EV: Plugging Into The Future. University of Pittsburgh. Pittsburgh, PA. Apr 22, 2022.

2. "China's key role in scaling low-carbon energy technologies", with Barry Naughton. 2020 Fall Speaker Series on US-China Relations in the 21st Century. Confucius Institute at the University of Albany. Albany, NY. Oct 09, 2020.
3. "China's key role in scaling low-carbon energy technologies". Center for Security and Emerging Technology, Georgetown. Washington, DC. Feb 28, 2020.
4. "Development and Adoption of Plug-in Electric Vehicles in China". Center for Security and Emerging Technology, Georgetown. Washington, DC. Dec 02, 2019.
5. "Institutional Complementarities: The Origins of Experimentation in China's Plug-in Electric Vehicle Industry". Center for Global Sustainability, U. of Maryland School of Public Policy. College Park, MD. Oct 07, 2019.
6. "Visualizing Information". Engineering & Public Policy Department. Pittsburgh, PA. Apr 12, 2019.
7. "Trends in Vehicle Electrification: China, Policy, & Car Sharing". Seminar Series. Institute for Sustainable Energy. Boston, MA. Feb 14, 2018.
8. "Vehicle Electrification in China: Preferences, Policy, and Technology Trajectories". Energy Policy Seminar Series. Harvard Kennedy School. Cambridge, MA. Oct 02, 2017.
9. "Development and Adoption of Plug-in Electric Vehicles in China". Center for International Environment and Resource Policy, The Fletcher School, Tufts. Medford, MA. Sep 18, 2017.
10. "Development and Adoption of Plug-in Electric Vehicles in China: Markets, Policy, and Innovation". Tsinghua University Technology Policy Research Center (清华大学中国科技政策研究中心). Beijing, China. May 12, 2017.
11. "Development and Adoption of Plug-in Electric Vehicles in China: Markets, Policy, and Innovation". State Information Center (国家信息中心). Beijing, China. May 04, 2017.
12. "Innovation in China's Plug-in Electric Vehicle Industry". Chinese Politics Research Workshop. Cambridge, MA. Mar 08, 2017.
13. "Electric Vehicles in China: A Nexus of Consumer Preferences, Policy, Innovation, and the Environment". Shanghai Jiaotong University. Shanghai, China. Jun 15, 2015.
14. "Electric Vehicles in China: A Nexus of Consumer Preferences, Policy, Innovation, and the Environment". Beijing Energy Network. Beijing, China. Jun 25, 2014.

## **B. Invited Panelist**

1. "Future of ZEV & EVSE Panel". 2023 Fedfleet Annual Meeting. Washington, DC. Jan 26, 2023.
2. "Why the US needs to collaborate with China on solar", with Scott Sklar. US-China cooperation and competition in alternative energy industries. Elliott School of International Affairs. Washington, DC. Mar 23, 2022.
3. "China's Impact on the Solar Industry: Lessons for the Future of Clean Energy". Information Technology and Innovation Foundation. Washington, DC. Oct 30, 2019.
4. "Early Career Scholar Panel". Atlanta Conference on Science & Innovation Policy. Atlanta, GA. Oct 16, 2019.
5. "Lessons from China: Rapid EV Adoption in a Dynamic Policy Landscape". GWU Law Transportation Electrification Conference. Washington, DC. Apr 03, 2019.



### **C. Discussant**

1. "Economics of Energy Use in Transportation, Spring 2023". NBER. Boston, MA. May 22, 2023.
2. "15th Annual Conference on China's Economic Development and U.S.-China Economic Relations". GWU Elliott School of International Affairs. Washington, D.C.. Nov 04, 2022.

### **D. Conference Panel Organizer / Chair**

1. "Special Session 11: Economics and Decision-making in the Transition to Electric Vehicles", with Eric Hittinger. 2020 IEEE Vehicular Power and Propulsion Conference (VPPC). Gijón, Spain. Oct 26, 2020.
2. "Accelerating plug-in electric vehicle adoption and achieving climate goals". Industry Studies Association Annual Conferencej. Virtual. Apr 04, 2020.
3. "Innovation in China From an Individual, Firm, and National Perspective". Academy of Management Annual Meeting. Anaheim, CA. Aug 05, 2016.
4. "Tensions Between Government, Industrial Innovation, and Energy Efficiency in China". Academy of Management Annual Meeting. Philadelphia, PA. Aug 05, 2014.

### **E. Conference Presentations**

1. "Coming of Age: An Investigation of Electric Vehicle (EV) Use Over Time", with Allan Zhao, Erin Costigliolo, Laura Roberson, Eliese Ottinger, Lujin Zhao, Jamie Dunckley. EVS36 Symposium. Sacramento CA. Jun 15, 2023.
2. "Going the Distance: Quantifying Electric Vehicle Mileage in the United States", with Lujin Zhao. Industry Studies Association Annual Conference. Columbus, OH. May 31, 2023.
3. "Quantifying the effect of subsidies on the residual value of plug-in vehicles in the United States", with Laura Roberson. Industry Studies Association Annual Conference. Columbus, OH. May 31, 2023.
4. "Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S.", with Leah Kaplan. National Academies Transportation Research Board Annual Meeting. Washington, D.C.. Jan 09, 2023.
5. "Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S.", with Leah Kaplan. Association for Public Policy Analysis & Management Annual Conference. Washington, D.C.. Nov 19, 2022.
6. "Quantifying the Role of Globalized Solar Photovoltaic Supply Chains in Reaching Climate Targets", with Gang He and Michael Davidson. Association for Public Policy Analysis & Management Annual Conference. Washington, D.C.. Nov 18, 2022.
7. "Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S.", with Leah Kaplan. Industry Studies Association Annual Conference. Philadelphia, PA. Jun 25, 2022.
8. "Not All Subsidies Are Equal: Identifying More Efficient and Equitable Plug-in Electric Vehicle Subsidies", with Laura Roberson. Industry Studies Association Annual Conference. Philadelphia, PA. Jun 25, 2022.
9. "The Role of Open Online Labor Platforms in the Future of Intellectual Work", with Suparna Mukherjee and Zoe Szajnfarder. Industry Studies Association Annual Conference. Philadelphia, PA. Jun



25, 2022.

10. "Quantifying the Role of Globalized Solar Photovoltaic Supply Chains in Reaching Climate Targets", with Gang He and Michael Davidson. Industry Studies Association Annual Conference. Philadelphia, PA. Jun 25, 2022.
11. "The renderthis Package: Render Slides To Different Formats". useR! 2022: The R Conference. Virtual. Jun 22, 2022.
12. "The cbcTools Package: Tools for Designing and Testing Choice-Based Conjoint Surveys in R". Sawtooth Software Conference. Orlando, FL. May 06, 2022.
13. "Measuring and Modeling Multi-Modal Trip Choices with Uncertain Arrival Times", with Lujin Zhao. CESUN Annual Conference. Charlottesville, VA. Oct 07, 2021.
14. "Healthier & Happier Hands: Software and Hardware Solutions for More Ergonomic Typing". useR! 2021: The R Conference. Virtual. Jul 06, 2021.
15. "Intellectual Property as a Production Input: Reconsidering Theories of Institutional Change & Profiting from Innovation", with Michael Murphree, Dan Breznitz. Industry Studies Association Annual Conference. Virtual. Jun 04, 2021.
16. "Obtaining Willingness to Pay Estimates from Preference Space and Willingness to Pay Space Utility Models". Sawtooth Software Conference Turbo Choice Modeling Seminar. NA. Apr 20, 2021.
17. "Using formr to create R-powered surveys with individualized feedback". RStudio Global Conference. Virtual. Jan 21, 2021.
18. "Reflection on Government Subsidies for Clean Energy Technologies: The Case of Electric Vehicles", with Hittinger, E., Nealer, R., Dunckley, J., & Berube, M.. APPAM Fall Research Conference. Virtual. Nov 11, 2020.
19. "Economic and Behavioral Dimensions of Urban Transport Policy - How Does Consumer Experience & Knowledge Affect Willingness to Adopt Plug-in Electric Vehicles?", with Laura Roberson. APPAM Fall Research Conference. Virtual. Nov 11, 2020.
20. "Influence of knowledge and direct experience on the willingness to consider purchasing an EV", with Laura Roberson. Industry Studies Association Annual Conference. Virtual. Jun 04, 2020.
21. "Influence of knowledge and direct experience on the willingness to consider purchasing an EV", with Laura Roberson. International EV Policy Council Workshop at the National Academies Transportation Research Board Annual Meeting. Washington, DC. Jan 16, 2020.
22. "Influence of knowledge and direct experience on the willingness to consider purchasing an EV", with Laura Roberson. Solar Power International Conference. Salt Lake City, UT. Sep 23, 2019.
23. "China's EV Future: The Good, The Bad, and The Ugly". International EV Policy Council Workshop at the National Academies Transportation Research Board Annual Meeting. Washington, DC. Jan 17, 2019.
24. "Institutional Complementarities: The Origins of Experimentation in China's Plug-in Electric Vehicle Industry". APPAM Fall Research Conference. Washington, DC. Nov 08, 2018.
25. "Intellectual Property as a Production Input: Expanding Theories of Institutional Change and Profiting from Innovation", with Michael Murphree, Dan Breznitz. International Business, Economic Geography and Innovation (iBEGIN). Philadelphia, PA. Oct 26, 2018.
26. "Intellectual Property as a Production Input: Expanding Theories of Institutional Change and Profiting from Innovation", with Michael Murphree, Dan Breznitz. Industry Studies Association Annual

Conference. Seattle, WA. May 31, 2018.

27. "The Institutional Origins of Experimentation in China's Plug-in Electric Vehicle Industry", with Michael Murphree, Dan Breznitz. Frontiers in International Business Symposium, The Darla Moore School of Business, University of South Carolina. Columbia, SC. Feb 02, 2018.
28. "The Institutional Origins of Domestic Experimentation in China's Plug-in Electric Vehicle Industry". Atlanta Conference on Science & Innovation Policy. Atlanta, GA. Oct 08, 2017.
29. "Innovating Up, Down, and Sideways: The (Unlikely) Institutional Origins of Experimentation in China's Plug-in Electric Vehicle Industry". Industry Studies Association Annual Conference. Washington, DC. May 25, 2017.
30. "Policy, Strategy, and the Emergence of Electric Car Sharing in China". Industry Studies Association Annual Conference. Washington, DC. May 25, 2017.
31. "Up, Down, and Sideways: Innovation in China and the Case of Plug-in Electric Vehicles". Consortium For Cooperation And Competition (CCC). Milan, Italy. Jun 12, 2016.
32. "Up, Down, and Sideways: Innovation in China and the Case of Plug-in Electric Vehicles". DRUID Annual Conference. Copenhagen, Denmark. Jun 10, 2016.
33. "Up, Down, and Sideways: Innovation in China and the Case of Plug-in Electric Vehicles". Industry Studies Association Annual Conference. Minneapolis, MN. May 25, 2016.
34. "Consumer Preferences for Hybrid and Electric Vehicles in China and the U.S.". National Academies Transportation Research Board Annual Meeting. Washington, DC. Jan 14, 2014.
35. "Consumer Preferences for Hybrid and Electric Vehicles in China and the U.S.". INFORMS Annual Meeting. Minneapolis, MN. Oct 07, 2013.
36. "Who is more willing to adopt electrified vehicle: China or the U.S.?". Technology Management and Policy Consortium. Boston, MA. Jun 18, 2013.
37. "Comparing Consumer Preferences for Electrified Vehicles in China and the U.S.". Industry Studies Association Annual Conference. Kansas City, MO. May 30, 2013.
38. "Consumer Preferences for Electrified Vehicles in China and the U.S.". Center for Climate and Energy Decision Making Annual Meeting. Pittsburgh, PA. May 21, 2013.

## **F. Posters**

1. "Not All Subsidies are Equal: Measuring Preferences for Electric Vehicle Financial Incentives", with Laura Roberson. National Academies Transportation Research Board Annual Meeting. Washington, DC. Jan 09, 2023.
2. "Identifying more efficient & equitable plug-in electric vehicle (PEV) financial incentives through consumer-centric design", with Laura Roberson. CESUN Annual Conference. Charlottesville, VA. Oct 07, 2021.
3. "Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S.", with Leah Kaplan. CESUN Annual Conference. Charlottesville, VA. Oct 07, 2021.
4. "Consumer Preferences for Electrified Vehicles in China and the U.S.". 32nd Annual USAEE / IAEE North American Conference. Anchorage, AK. Jul 28, 2013.

## Media Coverage

1. Dec 04, 2023, **CNN**: Study featured in article ["New US rules on Chinese batteries could push up price of electric cars"](#).
2. Nov 17, 2023, **GW Engineering**: Study featured in GW Engineering post ["Systems Engineering Team Reveals How Automated Vehicles Are Transforming Labor in Taxi Services"](#).
3. Nov 13, 2023, **cleantechnica.com**: Study featured in article ["New Study Finds Electric Vehicles Are Driven Less Than Gas Cars"](#).
4. Nov 08, 2023, **GW Today**: Study featured in article ["New Study Finds Electric Vehicles Are Driven Less Than Gas Cars"](#).
5. Nov 07, 2023, **Scientific American**: Study featured in article ["Electric Vehicles Might Not Yet Have Replaced as Much Car Mileage as Hoped"](#).
6. Nov 07, 2023, **Axios**: Study featured in article ["EVs are driven less than gas-powered models: study"](#).
7. Nov 07, 2023, **Climatewire**: Study featured in article ["EVs are driven less than gas cars. That's an issue for climate policy."](#).
8. Nov 06, 2023, **Watt's Up With That**: Study featured in article ["Study: EV's are Cars for People Who Don't Need to Drive \(as much\)"](#).
9. Nov 06, 2023, **Politico**: Study featured in article ["Three questions for Gavin Newsom's climate guru"](#).
10. Oct 06, 2023, **U.S. Dept of Treasury**: Study featured in U.S. Department of the Treasury Press Release: ["IRS Release Guidance to Expand Access to Clean Vehicle Tax Credits, Help Car Dealers Grow Businesses"](#).
11. Oct 06, 2023, **CNN**: Study featured in article ["Car buyers can get their EV tax credits up front at the dealership starting in January"](#).
12. Oct 06, 2023, **Forbes**: Study featured in article ["Electric Vehicle Buyers Can Soon Get Rebates At The Dealer"](#).
13. Oct 06, 2023, **Politico**: Study featured in article ["Will an instant tax credit spark more EV sales?"](#).
14. Oct 06, 2023, **E&E News**: Study featured in article ["Treasury lays out rules for instant EV rebate"](#).
15. Sep 20, 2023, **Fox 5 DC**: Helveston interviewed on Fox 5 DC TV story ["Demand for charging stations rises across DMV as more EVs hit the road"](#).
16. Apr 26, 2023, **Boston Globe**: Quoted in article ["Why killing the Chevy Bolt was the right move for GM — but it still hurts"](#).
17. Apr 13, 2023, **Hearst TV**: Helveston interviewed on Hearst TV on EPA's new vehicle pollution standards..
18. Nov 11, 2022, **Chinese Academy of Sciences**: Study featured in article ["全球化生产有望降低太阳能成本"](#).
19. Nov 07, 2022, **GW Hatchet**: Study featured in article ["Solar panel costs drop with global trading, SEAS professor finds"](#).
20. Oct 27, 2022, **E&E News**: Study featured in article ["How Biden's made-in-America solar strategy may backfire"](#).
21. Oct 26, 2022, **Bloomberg**: Study featured in article ["Tariffs Threaten to Undermine Global Shift to Clean Energy"](#).
22. Oct 26, 2022, **PV Magazine**: Study featured in article ["Globalized supply chains saved \\$67 billion in solar panel production costs"](#).
23. Oct 26, 2022, **Times of San Diego**: Study featured in article ["Open Trade Saves Billions Worldwide on Solar Panels, Study Involving UCSD Finds"](#).
24. Oct 26, 2022, **GW Today**: Study featured in article ["Global Collaboration Saved Countries \\$67 Billion in Solar Panel Production Costs"](#).

25. Oct 26, 2022, **UCSD News**: Study featured in article ["Open Trade Saves Countries Billions in Solar Panel Production"](#).
26. Oct 26, 2022, **Stonybrook U News**: Study featured in article ["Global Collaboration is Key to Saving Billions for Solar Module Production"](#).
27. Aug 12, 2022, **Time**: Quoted in ["What Experts Say About How Valuable The Inflation Reduction Act's Green Subsidies Will Be"](#).
28. Aug 11, 2022, **NPR**: Featured in ["All Things Considered"](#) segment.
29. Aug 11, 2022, **NPR**: Quoted in article ["3 ways the Inflation Reduction Act would pay you to help fight climate change"](#).
30. Jul 29, 2022, **Green Car Reports**: Study featured in article ["EV tax credit extension with \\$7,500 point-of-sale rebate, \\$4,000 for used EVs could pass Senate soon"](#).
31. Jul 14, 2022, **dotLA**: Featured in [Electric Vehicle Tax Rebates Favor the Wealthy](#).
32. Jul 12, 2022, **Green Car Reports**: Study feature article: ["Study: Point-of-sale EV rebates buyers prefer could have saved \\$2 billion vs. tax credits"](#).
33. Jul 11, 2022, **The Drive**: Featured in [The Drive](#).
34. Jul 07, 2022, **Politico**: Quoted in [The Manchin show: What's in, what's out?](#).
35. Apr 29, 2022, **CGTN**: Interview with CGTN Full Frame: [Going Green](#).
36. Apr 26, 2022, **GW Today**: EMSE Student Eliese Ottinger [highlighted in GW Today article](#) on SEAS research showcase.
37. Mar 25, 2022, **Reuters**: Quoted in [Inside China's electric drive for swappable car batteries](#).
38. Jan 26, 2022, **Intelligencer**: Quoted in [To Fight Climate Change, Bring Back State Planning](#).
39. Oct 27, 2021, **RWeekly**: Blog post on simulating the Squid Game bridge scene [showcased on the RWeekly podcast](#).
40. May 30, 2021, **The Wire China**: Quoted in ["The Competition Conundrum"](#).
41. Apr 23, 2021, **CNN Climate Town Hall**: Asked question to U.S. Secretary of State John Kerry ([Watch](#)).
42. Mar 21, 2021, **Market Scale**: Interview: [Can Geely Join the Ranks of Luxury EV Brands?](#).
43. Jul 25, 2020, **Forbes**: Quoted in ["This Is A Big Reason Electric Cars Still Aren't Popular With Americans: Study"](#).
44. Mar 03, 2020, **Associated Press**: Interview: ["China's emissions drop amid coronavirus outbreak"](#).
45. Nov 21, 2019, **NPR Climate Cast**: Quoted in ["Trade dispute with China could slow transition to low-carbon power"](#).
46. Nov 15, 2019, **Xinhua News**: Quoted in ["美能源专家呼吁美加强与中国合作以实现减排目标"](#).
47. Nov 15, 2019, **GW Today**: Interview, ["Collaboration with China Is Critical to Achieving Climate Goals"](#).
48. Oct 28, 2019, **Physics World**: Interview, ["US motorists prepared to pay more for fuel to lower emissions"](#).
49. May 19, 2015, **CMU Engineering**: Interview, ["What do American and Chinese consumers want in an electric vehicle?"](#).

## Teaching & Education

### A. Courses Taught at George Washington University

Sem.	Course	Level	N. Resp. / N. Enrolled	Instr. FCE* / Dept Mean
S19	EMSE 6035: Marketing Analytics for Design Decisions	Grad	13 / 18	5 / 4.3
F19	EMSE 6574: Intro. to Programming for Analytics	Ugrad	16 / 23	5 / 4.3
S20	EMSE 4197: Exploratory Data Analysis	Ugrad	NA / 21	NA / NA
F20	EMSE 4574: Intro. to Programming for Analytics	Ugrad	9 / 18	4.8 / 4.4
S21	EMSE 4575: Exploratory Data Analysis	Ugrad	13 / 22	5 / 4.4
F21	EMSE 6035: Marketing Analytics for Design Decisions	Grad	18 / 21	4.9 / 4.4
S22	EMSE 4571: Intro. to Programming for Analytics	Ugrad	24 / 32	4.9 / 4.4
F22	EMSE 4572: Exploratory Data Analysis	Ugrad	24 / 28	5 / 4.5
F22	EMSE 6035: Marketing Analytics for Design Decisions	Grad	18 / 20	4.9 / 4.5
S23	EMSE 4571: Intro. to Programming for Analytics	Ugrad	24 / 31	5 / 4.4
F23	EMSE 4572: Exploratory Data Analysis	Ugrad	NA / 28	NA / NA
F23	EMSE 6035: Marketing Analytics for Design Decisions	Grad	NA / 20	NA / NA

\* Faculty Course Evaluations (FCE) are scored by students (1 = worst, 5 = best).

### B. Educational Contributions

#### 1. Courses developed at GWU

- **EMSE 4571 / 6571: Intro to Programming for Analytics.** Developed new open source introductory level programming course that provides a foundation in programming for data analytics using the [R programming language](#) with a comparison to [Python](#).
- **EMSE 4572 / 6572: Exploratory Data Analysis.** Developed new open source course that provides a foundation in exploring data using the [R programming language](#), including how to source, manage, wrangle, explore, and visualize a wide variety of data types. All analyses are reproducible from raw data to results using [RMarkdown](#) and [Quarto](#). Students demonstrate mastery of these skills through a semester-long research project of their own design, culminating in a reproducible final report and a 10-minute presentation of their findings.
- **EMSE 6035: Marketing Analytics for Design Decisions.** Developed a new open source course that introduces data analysis techniques to inform design decisions in an uncertain, competitive market. Over the course of the semester, students learn and apply theory and methods to a team project to assess the market competitiveness of an emerging product or technology. Students learn how to design and field conjoint surveys as well as how to source, manage, and visualize data and modeling results using the [R programming language](#). Students demonstrate mastery of these skills through a semester-long research project of their own design, culminating in a final report and a 10-minute presentation of their design insights.

#### 2. Course resources and tools

- **Textbook:** "[Programming for Analytics in R](#)", written for [EMSE 4571 / 6571: Intro to Programming for Analytics](#).
- **Video lecture series** for [EMSE 6035: Marketing of Technology](#). Six-lecture series on conjoint survey theory and practice. [View on youtube](#).
- **Autograder** for [EMSE 4571 / 6571: Intro to Programming for Analytics](#). Students can test and receive automated feedback on their programming assignments.

- **Course website:** <http://p4a.seas.gwu.edu/>, for *EMSE 4571 / 6571: Intro to Programming for Analytics*. Open source lessons on the fundamentals of programming for data analytics in R with a comparison to Python.
- **Course website:** <http://eda.seas.gwu.edu/>, for *EMSE 4572 / 6572: Exploratory Data Analysis*. Open source lessons on sourcing, managing, transforming, and exploring a wide variety of data types in R.
- **Course website:** <http://madd.seas.gwu.edu/>, for *EMSE 6035: Marketing Analytics for Design Decisions*. Open source lessons on designing conjoint surveys and choice modeling in R.

## Advising

### A. Primary Research Advisor

#### 1. Ph.D. Students

1. Pingfan Hu, "Measuring preferences for EV smart charging and integrating them into grid simulation models", George Washington University (2023 to present).
2. Michael Rossetti, "Machine Learning Techniques for Text Analysis", George Washington University (2023 to present).
3. Leah Kaplan, "AI Behind the Wheel: Work, Economics, and Preferences in the Era of Autonomous Vehicles", George Washington University (2020 to present).
4. Lujin Zhao, "A Path to Sustainable Transportation: Essays on Transit Adoption and Electric Vehicle Usage and Supply Patterns in the U.S.", George Washington University (2020 to present).
5. Laura Roberson, "Accelerating Electric Vehicle Adoption in the United States: The Impact of Experience, Knowledge, and Financial Incentives", George Washington University (2019 to present).

#### 2. Masters Students

1. Saurav Pantha, George Washington University (2020 to 2021).
2. Lujin Zhao, "Estimating Consumer WTP for Hybrid Vehicles", George Washington University (2020 to 2021).

#### 3. Undergraduate Students

1. Lola Nurullaeva, George Washington University (2023 to 2024).
2. Michael O'Keefe, George Washington University (2022 to 2022).
3. Eliese Ottinger, George Washington University (2021 to 2023).
4. Kazi Ashrafi, George Washington University (2021 to 2021).
5. Jennifer Kim, George Washington University (2021 to 2021).
6. Helena Rowe, George Washington University (2021 to 2021).

#### 4. High School Students

1. Charles Melchior-Fisher, "Senior Project: Electric Vehicles", School Without Walls (2019 to 2020).

### B. Ph.D. Committee Member

1. Lydia Gleaves, George Washington University (2023 to present).

2. Suparna Mukherjee, George Washington University (2022 to present).
3. Dian Hu, "Rapidly Testing Policymakers' Assumptions Using Social Media: A Systematic Approach Applied to Public Health", George Washington University (2021 to 2022).
4. Xiaoying Yang, "Essays on Transportation and Environmental Regulations: EV incentives, fuel standards and air quality, and bike share substitution with transit", George Washington University (2020 to 2023).
5. Vikram Rao, "Investigation of Decision Processes in Chemical Substitution Decision Making", George Washington University (2019 to 2020).
6. Ilaria Mazzocco, "Electric Dreams: Industrial Policy, New Energy Vehicles, and the Persistent Role of Local Government in China", School of Advanced International Studies, Johns Hopkins University (2019 to 2020).

## **Service**

### **A. University Service (GWU)**

1. Director, Data Analytics MS Program, George Washington University (2023 - present).
2. SEAS Strategic Research Planning Committee Member, George Washington University (2021 - 2022).
3. SEAS Computing Committee Member, George Washington University (2020 - 2022).
4. EMSE Department Undergraduate Curriculum Committee Member, George Washington University (2020 - present).
5. EMSE Department Doctoral Qualifying Exam Committee Member, George Washington University (2019).

### **B. Service to Conferences / Associations**

1. Conference Organizing Committee Member, Industry Studies Association (2023).
2. Dissertation Award Committee Chair, Industry Studies Association (2020 & 2021).
3. Dissertation Award Committee Member, Industry Studies Association (2018 & 2019).
4. Conference Organizing Committee Member, Technology, Management, & Policy Consortium (June 2019).

## **C. Reviewer**

### **1. Journals**

1. Climate Policy
2. Energies
3. Energy Policy
4. Environmental Research Letters
5. Environmental Research: Infrastructure and Sustainability
6. Joule
7. Journal of Environmental Management
8. Journal of International Business
9. Journal of International Business Studies
10. Journal of Systems Science and Systems Engineering
11. Nature Communications



12. Nature Energy
13. Proceedings of the ASME International Design Engineering Technical Conferences
14. Research Policy
15. Science
16. Science Advances
17. Technovation
18. The Electricity Journal
19. Transactions in GIS
20. Transactions on Engineering Management
21. Transport Policy
22. Transportation Research Part A: Policy and Practice
23. Transportation Research Part D: Transport and Environment
24. World Electric Vehicle Journal

## **2. Conferences**

1. IISE conference (2023).
2. IEEE Vehicular Power and Propulsion Conference (2020).
3. 18th annual Systems and Information Engineering Design Symposium (SIEDS) (2019).
4. ASME International Design Engineering Conference (2019).
5. National Academies Transportation Research Board (2019).

## **3. Funding**

1. Dept. of Energy Vehicle Technology Office Annual Merit Review (2021).
2. NSF Future Manufacturing (2021).
3. PITUN Internal Review for GWU Proposals (2021).
4. Dept. of Energy Vehicle Technology Office Annual Merit Review (2020).
5. National Center for Sustainable Transportation RFP (2019).
6. UC Davis Institute of Transportation Studies USDOT Research Grants (2019).
7. UCLA Institute of Transportation Studies RFP (2019).

## **Memberships in Professional Organizations**

- Transportation Research Board
- Industry Studies Association
- Academy of Management
- INFORMS
- U.S. Association for Energy Economics (USAEE / IAEE)
- Tau Beta Pi
- Phi Beta Kappa
- Beijing Energy Network

## Industry Experience

- Intern, Electric Vehicle Charging Policy. Innovation Center for Energy & Transportation (iCET), Beijing, China (Jan. - May., 2011).
- Engineering Intern, Wind Power Advanced Technology Operations. General Electric Company, Shanghai, China (Aug. - Dec., 2008).
- Engineering Intern, Wind Power Advanced Technology Operations. General Electric Company, Greenville, SC, USA (Jun. - Aug., 2007).

## Leadership, Volunteer, and Community Activities

- *Co-Founder and Organizer*, [GW Coders](#): Informal study group to apply computational and data analytics skills in research (2020-present).
- *Analyst & Committee Member*, Boston University Climate Action Plan Task Force (2016 - 2018).
- *Violinist*, Carnegie Mellon All University Orchestra, 1st Violin Section (2011 - 2015). \_ Dance Instructor\_, Tartan Swing (CMU Swing Dance Club) (2011 - 2015).
- *Head Dance Instructor*, Solely Swing, Virginia Tech Swing Dance Club (2007 - 2010).
- *Concert Master*, New River Valley Symphony Orchestra, Virginia Tech (2005 - 2010).
- *Volunteer*, Virginia Tech Alternative Breaks Service Programs for Tau Beta Pi, Appalachia Service Project, & Presbyterian Campus Ministries (2006 - 2009).

## Skills

- **Language**: Mandarin Chinese (speaking: *fluent*, reading / writing: *intermediate*).
- **Modeling & Analysis**: Discrete Choice Modeling, Conjoint Analysis, Decision Analysis, Monte Carlo Simulation, Consumer Preferences, Quantitative Policy Analysis, Process-Based Cost Modeling, Optimization, Regression.
- **Data Collection**: Survey Design, Qualitative Interviews.
- **Programming**: R, Python, Git, MatLab, LaTeX, Shiny, Stata, Mathematica, HTML, Wordpress.
- **Software**: Adobe Photoshop, Adobe Illustrator, Microsoft Office, Analytica.

## Dance Awards

### A. Lindy Hop

- **1st Place**: 2016 Advanced Jack & Jill w/Banban, *China Lindy Hop Championships*, Beijing, China.
- **3rd Place**: 2013 Open Jack & Jill, *Rocktober*, Columbus, OH.
- **5th Place**: 2012 Open Jack & Jill, *Boston Tea Party*, Boston, MA.
- **2nd Place**: 2012 Open Jack & Jill w/Akemi Kinukawa, *Babble*, New York, NY.
- **1st Place**: 2011 Open Strictly Lindy w/Annabel Truesdell Quisao, *International Lindy Hop Championships*, Washington, D.C.
- **Finals**: 2011 Open Jack & Jill, *Lindy Focus X*, Asheville, NC.
- **Finals**: 2011 Open Jack & Jill, *International Lindy Hop Championships*, Washington, D.C.

## B. Solo Jazz / Charleston

- **1st Place:** 2012 Solo Jazz, *Sparx*, Cleveland, OH.
- **3rd Place:** 2012 Solo Charleston, *Stompology*, Rochester, NY.

## C. Balboa

- **Finals:** 2014 Strictly Balboa w/Jennifer Lee, *International Lindy Hop Championships*, Washington, D.C.
- **3rd Place:** 2013 Amateur Strictly Balboa w/Annabel Truesdell Quisao, *All Balboa Weekend*, Independence, OH.
- **4th Place:** 2013 Amateur Jack & Jill, *All Balboa Weekend*, Independence, OH.
- **Finals:** 2012 Amateur Jack & Jill w/Nina Galicheva, *All Balboa Weekend*, Independence, OH.

## D. Blues

- **Finals:** 2013 Solo Riffin' Competition, *Steel City Blues*, Pittsburgh, PA.
- **1st Place:** 2012 Solo Riffin' Competition, *Steel City Blues*, Pittsburgh, PA.
- **Finals:** 2010 Open Jack & Jill, *Steel City Blues*, Pittsburgh, PA.

## References

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