JEREMY J. MICHALEK CURRICULUM VITAE

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ACADEMIC APPOINTMENTS

Professor, Carnegie Mellon University Mechanical Engineering (July 2014 – *present*) Engineering and Public Policy (July 2014 – *present*)

Associate Professor, Carnegie Mellon University Mechanical Engineering (July 2010 – June 2014) Engineering and Public Policy (July 2011 – June 2014) Engineering and Public Policy, affiliated (July 2010 – June 2011)

Assistant Professor, Carnegie Mellon University Mechanical Engineering (July 2005 - June 2010) Engineering and Public Policy, affiliated (June 2007 – June 2010)

Director, Carnegie Mellon Vehicle Electrification Group (Jan 2012 – *present*) Co-Director, Carnegie Mellon Vehicle Electrification Group (Jan 2009 – Jan 2012) http://www.cmu.edu/cit/veg

Research Economist National Bureau of Economic Research (Apr 2018 – Mar 2019)

Visiting Professor University of California, Berkeley (Jan – May 2016)

Visiting Professor Instituto Superior Téchnico, Lisbon, Portugal (Nov – Dec 2015)

Director, Carnegie Mellon Design Decisions Laboratory (July 2005 - 2014) http://www.cmu.edu/me/ddl

Postdoctoral Research Fellow (Jan 2005 - June 2005) Department of Mechanical Engineering University of Michigan, Ann Arbor, MI

EDUCATION

Ph.D. Mechanical Engineering, University of Michigan, 2005M.S. Mechanical Engineering, University of Michigan, 2001B.S. Mechanical Engineering, Minor in Engineering Design, Carnegie Mellon University, 1999

Research Interests

Energy and transportation: Technical, economic, environmental, social, behavioral, logistical, strategic and policy aspects of vehicle, transportation and energy systems Vehicle electrification, automation, and sharing Optimization methods and applications Consumer choice models

TEACHING INTERESTS

Engineering, economic, and environmental modeling, analysis, and decision-making Mathematical modeling, numerical methods, and optimization Energy and transportation: Economic, environmental, social, technical, behavioral, and policy aspects of vehicle and transportation systems Innovation and critical thinking in design, defining and working with open-ended problems

PUBLICATIONS

Citations: 7,900 • h-index¹: 43 • i10-index²: 80 • Source: <u>Google scholar</u> Underlined name indicates a primary research advisee

Peer-Reviewed Journal Publications

- <u>Burns, A., C. Forsythe</u>, J.J. Michalek and K. Whitefoot (2025) "Estimating the potential for dynamic parking reservation systems to increase delivery vehicle accommodation," *Transportation Research Part A: Policy and Practice*, v193, 104380.
- [2] Bruchon, M. Z. Chen and J.J. Michalek (2024) "Cleaning up while changing gears: The role of battery design, fossil fuel power plants, and vehicle policy for reducing emissions in the transition to electric vehicles," *Environmental Science & Technology*, online Feb 13, 2024.
- [3] <u>Burns, A.</u>, J.J. Michalek and C. Samaras (2024) "Estimating the potential for optimized curb management to reduce delivery vehicle double parking, traffic congestion and energy consumption," *Transportation Research Part E: Logistics and Transportation Review*, 187 103574.
- [4] <u>Cobb, A.</u>, A. Mohan, C. Harper, D. Nock and J. Michalek (2024) "Ride-hailing technology mitigates effects of driver racial discrimination, but effects of residential segregation persist," *Proceedings of the National Academy of Sciences*, 121 (41) e2408936121.
- [5] <u>Cheng, A.L., E.R.H. Fuchs, V.J. Karplus and J.J. Michalek (2024)</u> "Electric vehicle battery chemistry affects supply chain disruption vulnerabilities," *Nature Communications* 15 2143.
- [6] <u>Cheng, A.</u>, E. Fuchs and J. Michalek (2024) "U.S. industrial policy may reduce electric vehicle battery supply chain vulnerabilities and influence technology choice," *Nature Energy*, https://doi.org/10.1038/s41560-024-01649-w.
- [7] <u>Forsythe, C.R.</u>, C.D. Harper and J.J. Michalek (2024) "Bringing home the bacon: Estimating willingness to pay for autonomous grocery delivery across U.S. households," *Transportation Research Interdisciplinary Perspectives* 26 101118.

¹ Maximum number h such that h publications have each been cited at least h times each

² Number of publications that have been cited at least 10 times

- [8] Gowharji, W., K. Whitefoot and J.J. Michalek (2024) "Implications of context effects in consumer utility models for optimal product design and differentiation," ASME Journal of Mechanical Design, 146(9) 091706.
- [9] Singh, M., T. Yuksel, J. Michalek and I. Azevedo (2024) "Ensuring greenhouse gas reductions from electric vehicles compared to hybrid gasoline vehicles requires a cleaner US electricity grid," *Scientific Reports (Nature Portfolio)* 14, 1639.
- [10] Case, S., J.J. Michalek and K.S. Whitefoot (2023) "Global product design platforming: a comparison of two equilibrium solution methods," ASME Journal of Mechanical Design, in 145(6): 061702 (15 pages).
- [11] <u>Forsythe, C., K. Gillingham, J.J. Michalek and K. Whitefoot (2023)</u> "Technology advancement is driving electric vehicle adoption" *Proceedings of the National Academy of Sciences*, 120(3) (7 pages).
- [12] Ladak, A., R.J. Hajjar, S. Murali, J.J. Michalek and C.N. Riviere (2023) "Cable tension optimization for an epicardial parallel wire robot," *Journal of Medical Devices*, 17 (2) 021006.
- [13] Lezcano, M., C. Harper, D. Nock, G. Lowry and J.J. Michalek (2023) "Online grocery delivery: Sustainable practice, or congestion generator and environmental burden?" *Transportation Research Part D: Transport and Environment* 119 (18 pages).
- [14] Mohan, A., M. Bruchon, J. Michalek and P. Vaishnav (2023) "Life cycle air pollution, greenhouse gas and traffic externality benefits and costs of electrifying Uber and Lyft," *Environmental Science & Technology*, 57(23) 8524-8535.
- [15] <u>Forsythe, C.</u>, A. Jha, J.J. Michalek and K.S. Whitefoot (2022) "Externalities of Policy-Induced Scrappage: The Case of Automotive Regulations," NBER Working Paper #30546.
- [16] <u>Yip, A.</u>, J.J. Michalek and K. Whitefoot (2022) "Implications of competitor representation for profitmaximizing design," *ASME Journal of Mechanical Design*, 144 (1) 011705.
- [17] Bruchon, M., I. Azevedo and J.J. Michalek (2021) "Effects of air emission externalities on optimal ridesourcing fleet electrification and operations," *Environmental Science & Technology*, 55 (5) 3188-3200.
- [18] He, Guannan, J. Michalek, S. Kar, Q. Chen, D. Zhang and J. Whitacre (2021) "Utility-scale portable energy storage systems," *Joule* v5 n2 p379-392.
- [19] Ward, J., J.J. Michalek, C. Samaras, I. Azevedo, A. Henao, C. Rames, T. Wenzel (2021) "The impact of Uber and Lyft on vehicle ownership, fuel economy & transit across U.S. cities," *iScience* v21 n1 p101933.
- [20] Ward, J., J.J. Michalek and C. Samaras (2021) "The air pollution, greenhouse gas and traffic externality benefits and costs of shifting private vehicle travel to ridesourcing services," *Environmental Science & Technology* v55 n19 p13174-13185.
- [21] Ward. J., J.J. Michalek, I.L. Azevedo, C. Samaras, P. Ferreira (2019) "Effects of on-demand ridesourcing on vehicle ownership, fuel consumption, vehicle miles traveled, and emissions per capita in US states," *Transportation Research Part C: Emerging Technologies* v108 p289-301.
- [22] <u>Helveston, J.P.</u>, S.M. Seki, J. Min, E. Fairman, A.A. Boni, J.J. Michalek, I.M.L. Azevedo (2019) "Choice at the pump: measuring preferences for lower-carbon combustion fuels," *Environmental Research Letters*, v14 n8 084035.
- [23] Jenn, A., I.L. Azevedo and J.J. Michalek (2019) "Alternative-fuel-vehicle policy interactions increase U.S. greenhouse gas emissions," *Transportation Research Part A: Policy and Practice*, v124 p397-407.
- [24] Ward, J.W., J.J. Michalek, I.L. Azevedo, C. Samaras, P. Ferreira (2019) "Effects of on-demand ridesourcing on vehicle ownership, fuel consumption, vehicle miles traveled, and emisssions per capita in U.S. states," *Transportation Research Part C: Emerging Technologies*, v108 p289-301.
- [25] <u>Helveston, J</u>., E. Feit and J.J. Michalek (2018) "Pooling stated and revealed preferences in the presence of endogeneity," *Transportation Research Part B: Methodological*, v109 p70-89.

- [26] <u>Yip, A., J.J. Michalek and K. Whitefoot (2018)</u> "On the implications of using composite vehicles in choice model prediction," Transportation Research Part B: Methodological, v116 p163-188.
- [27] <u>Sakti, A.</u>, I.M.L. Azevedo, E.R.H. Fuchs, J.J. Michalek, K.G. Gallagher and J.F. Whitacre (2017) "Consistency and robustness of forecasting for emerging technologies: the case of Li-ion batteries for electric vehicles," *Energy Policy* v106 p415-426.
- [28] Yuksel, T., S. Litster, V. Viswanathan, and J.J. Michalek (2017) "Plug-in hybrid electric vehicle LiFePO₄ battery life implications of thermal management, driving conditions, and regional climate" *Journal of Power Sources*, v338 n15 p49-64.
- [29] <u>Haaf, C.G.</u>, W.R. Morrow, I. Azevedo, E. Feit and J.J. Michalek (2016) "Forecasting light-duty vehicle demand using alternative-specific constants for endogeneity correction vs. calibration," *Transportation Research Part B: Methodology*, v84 p182-210.
- [30] Jenn, A., I.L. Azevedo and J.J. Michalek (2016) "Alternative fuel vehicle adoption increases fleet gasoline consumption and greenhouse gas emissions under United States corporate average fuel economy policy and greenhouse gas emissions standards," *Environmental Science & Technology*, v50 n5 p.2165-2174.
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- [32] <u>Yuksel, T., M. Tamayao</u>, C. Hendrickson, I. Azevedo and J.J. Michalek (2016) "Effect of regional grid mix, driving patterns and climate on the comparative carbon footprint of electric and gasoline vehicles," *Environmental Research Letters*, v11 n4 044007.
- [33] <u>Helveston, J.P.</u>, Y. Liu, E. Feit, E. Fuchs, E. Klampfl, and J.J. Michalek (2015) "Will subsidies drive electric vehicle adoption? Measuring consumer preferences in the U.S. and China," *Transportation Research Part A: Policy and Practice*, v73 p96-112.
- [34] <u>Sakti, A.</u>, J.J. Michalek, E.R.H. Fuchs, and J.F. Whitacre (2015) "A techno-economic analysis and optimization of Li-ion batteries for light-duty passenger vehicle electrification," *Journal of Power Sources* v273 p966-980.
- [35] Sylcott, B., J.J. Michalek, and J. Cagan (2015) "Exploring the role of interaction effects in visual conjoint analysis," ASME Journal of Mechanical Design, v137 n9 p094503 1-5.
- [36] <u>Tamayao, M.</u>, J.J. Michalek, C. Hendrickson and I. Azevedo (2015) "Regional variability and uncertainty of electric vehicle life cycle CO₂ emissions across the United States," *Environmental Science* & Technology, v49 n14 p8844-8855.
- [37] Weis, A., J.J Michalek, P. Jaramillo and R. Lueken (2015) "Emissions and cost implications of controlled electric vehicle charging in the US PJM interconnection," *Environmental Science & Technology*, v49 n9 p5813-5819.
- [38] <u>Yuksel, T.</u> and J.J. Michalek (2015) "Effects of regional temperature on electric vehicle efficiency, range, and emissions in the United States," *Environmental Science and Technology*, v49 n6 p3974-3980.
- [39] Griffin, W.M., J.J. Michalek, H.S. Matthews and M.N.A. Hassan (2014) "Availability of biomass residues for co-firing in peninsular Malaysia: implications for cost and GHG emissions in the electricity sector," v7 n2 p804-823.
- [40] <u>Haaf, C.G.</u>, J.J. Michalek, W.R. Morrow, and Y. Liu (2014) "Sensitivity of vehicle market share predictions to discrete choice model specification," *ASME Journal of Mechanical Design* v136 121402 p1-9.
- [41] <u>Khajavirad, A.</u>, J.J. Michalek and N.V. Sahinidis (2014) "Relaxations of factorable functions with convex-transformable intermediates," *Mathematical Programming*, DOI 10.1007/s10107-012-0618-8, p1-34.

- [42] Min, J., I. Azevedo, J.J. Michalek and W. Bruine de Bruin (2014) "Labeling energy cost on light bulbs lowers implicit discount rates," *Ecological Economics* v97 p42-50.
- [43] Weis, A., P. Jaramillo and J.J. Michalek (2014) "Estimating the potential of controlled electric vehicle charging to reduce operational and capacity expansion costs for electric power systems with high wind penetration," *Applied Energy* v115 p190-204.
- [44] Traut, E., T.W. Cherng, C. Hendrickson, and J.J. Michalek (2013) "US residential charging potential for electric vehicles," *Transportation Research Part D: Transport and Environment* v25 p139-145.
- [45] <u>Karabasoglu, O.</u> and J.J. Michalek (2013) "Influence of driving patterns on life cycle cost and emissions of hybrid and plug-in electric vehicle powertrains," *Energy Policy*, v60 p445-461.
- [46] Peterson, S. and J.J. Michalek (2013) "Cost effectiveness of plug-in hybrid electric vehicle battery capacity and charging infrastructure investment for reducing US gasoline consumption," *Energy Policy*, v52 p429-438.
- [47] <u>Sakti, A.</u>, J.J. Michalek, S-E Chun and J.F. Whitacre (2013) "A validation study of lithium-ion cell constant C-rate discharge simulation with Battery Design Studio[®]," *International Journal of Energy Research* v37 n12 p1562-1568.
- [48] <u>Resende, C.B., C.G. Heckmann</u> and J.J. Michalek (2012) "Robust design for profit maximization with aversion to downside risk from parametric uncertainty in consumer choice models," *ASME Journal of Mechanical Design*, v134 100901 p1-12.
- [49] <u>Traut, E., C. Hendrickson, E. Klampfl, Y. Liu and J.J. Michalek (2012) "Optimal design and allocation of electrified vehicles and dedicated charging infrastructure for minimum life cycle greenhouse gas emissions and cost," *Energy Policy*, v51 p524-534.</u>
- [50] Michalek, J.J., M. Chester, P. Jaramillo, C. Samaras, <u>C.S. Shiau</u>, and L. Lave (2011) "Valuation of plugin vehicle life cycle air emissions and oil displacement benefits" *Proceedings of the National Academy of Sciences*, v108 n40 p16554-16558.
- [51] Michalek, J.J., F.M. Feinberg, P. Ebbes, F. Adigüzel and P.Y. Papalambros (2011) "Enhancing marketing with engineering: optimal product line design for heterogeneous markets," *International Journal of Research in Marketing*, v28 p1-12. [Best Article Award]
- [52] <u>Shiau, C.-S.</u> and J.J. Michalek (2011) "Global optimization of plug-in hybrid vehicle design and allocation to minimize life cycle greenhouse gas emissions," *ASME Journal of Mechanical Design*, v133 n8 p084502 1-6.
- [53] <u>Shiau, C-S, N. Kaushal</u>, C.T. Hendrickson, S. Peterson, J. Whitacre, and J.J. Michalek (2010) "Optimal plug-in hybrid electric vehicle design and allocation for minimum life cycle cost, petroleum consumption, and greenhouse gas emissions," *ASME Journal of Mechanical Design, Special Issue on Sustainability*, v132 n9 p091013 1-11.
- [54] <u>Khajavirad, A</u> and J.J. Michalek (2009) "A deterministic Lagrangian-based global optimization approach for quasiseparable nonconvex mixed-integer nonlinear programs," *ASME Journal of Mechanical Design*, v131 p051009 1-8
- [55] <u>Khajavirad, A.</u>, J.J. Michalek and T.W. Simpson (2009) "An efficient decomposed multi-objective genetic algorithm for solving the joint product family selection and design problem with generalized commonality," *Structural and Multidisciplinary Optimization*, v39 p187-201.
- [56] Shiau, C.-S. and J.J. Michalek (2009) "Optimal product design under price competition," ASME Journal of Mechanical Design, v131 071003 p1-10.
- [57] <u>Shiau, C.-S.</u>, J.J. Michalek, and C.T. Hendrickson (2009) "A structural analysis of vehicle design responses to corporate average fuel economy policy," *Transportation Research Part A: Policy and Practice*, v43 p814-828.

- [58] <u>Shiau, C.-S.</u>, C. Samaras, <u>R. Hauffe</u> and J.J. Michalek (2009) "Impact of battery weight and charging patterns on the economic and environmental benefits of plug-in hybrid vehicles," *Energy Policy* v37 p2653-2663.
- [59] <u>Shiau, C.-S.</u> and J.J. Michalek (2009) "Should designers worry about market systems?" ASME Journal of Mechanical Design, v131 011011 p1-9.
- [60] <u>Khajavirad, A.</u> and J.J. Michalek (2008) "A decomposed approach for solving the joint product family selection and design problem with generalized commonality," *ASME Journal of Mechanical Design*, v130 p071101.
- [61] Li, Y., Z. Lu and J.J. Michalek (2008) "Diagonal quadratic approximation for parallelization of analytical target cascading." ASME Journal of Mechanical Design v130 n5 p051402-1-11.
- [62] Michalek, J.J., O. Ceryan, P.Y. Papalambros, and Y. Koren (2006) "Balancing marketing and manufacturing objectives in product line design," ASME Journal of Mechanical Design, v128 n6 p1196-1204.
- [63] Michalek, J.J., F.M. Feinberg and P.Y. Papalambros (2005) "Linking marketing and engineering product design decisions via analytical target cascading," *Journal of Product Innovation Management*, v22 p42-62.
- [64] Michalek, J.J. and P.Y. Papalambros (2005) "An efficient weighting update method to achieve acceptable consistency deviation in analytical target cascading," *ASME Journal of Mechanical Design*, v127 p206-214.
- [65] Michalek, J.J. and P.Y. Papalambros (2005) "Technical brief: weights, norms, and notation in analytical target cascading," *ASME Journal of Mechanical Design*, v127 p499-501.
- [66] Michalek, J.J., P.Y. Papalambros, and S.J. Skerlos (2004) "A study of fuel efficiency and emission policy impact on optimal vehicle design decisions," *ASME Journal of Mechanical Design*, v126 p1062-1070.
- [67] Michalek, J.J., R. Choudhary and P.Y. Papalambros (2002) "Architectural layout design optimization," *Engineering Optimization*, v34 n5 pp461-484.
- [68] Michalek, J.J. and P.Y. Papalambros (2002) "Interactive design optimization of architectural layouts," *Engineering Optimization*, v34 n5 pp485-501.

Full-length Peer-Reviewed Conference Publications

- [69] <u>Yip, A.H.C.</u>, J.J. Michalek and K.S. Whitefoot (2019) "Implications of competitor representation on optimal design," *ASME International Design Engineering Technical Conferences*, Aug 2019, Anaheim, CA.
- [70] <u>Heckmann, C.G.</u>, J.J. Michalek, W.R. Morrow, and Y. Liu (2013) "Sensitivity of vehicle market share predictions to alternative discrete choice model specifications," *ASME International Design Engineering Technical Conferences*, August 2013, Portland, OR.
- [71] Sylcott, B, J.J. Michalek and J. Cagan (2013) "Understanding the role of interaction effects in visual conjoint analysis," ASME International Design Engineering Technical Conferences, August 2013, Portland, OR.
- [72] Yuksel, T. and J.J. Michalek (2012) "Development of a simulation model to analyze the effect of thermal management on battery life," *Society of Automotive Engineers World Congress*, April 24-26, Detroit, MI.
- [73] Yuksel, T. and J.J. Michalek (2012) "Evaluation of the effects of thermal management on battery life in plug-in hybrid electric vehicles," *The Battery Congress*, April 23-24, Ann Arbor, MI.

- [74] Michalek, J.J., C.T. Hendrickson and J. Cagan (2011) "Using economic input-output life cycle assessment to guide sustainable design," ASME International Design Engineering Technical Conferences, August 28-31, Washington DC.
- [75] <u>Resende, C., C.G. Heckmann</u> and J.J. Michalek (2011) "Robust design for profit maximization under uncertainty of consumer choice model parameters using the delta method," *ASME International Design Engineering Technical Conferences*, August 28-31, Washington DC.
- [76] Sakti, A., S. Khan, T. Langer, J.J. Michalek, and J.F. Whitacre (2011) "Techno-economic analysis of Lithium-ion batteries for personal vehicle electrification," *National Academies Transportation Research Board Annual Meeting*, January 23-27, Washington D.C.
- [77] <u>Traut, E.,</u> C.T. Hendrickson, E. Klampfl, Y. Liu and J.J. Michalek (2011) "Optimal Design and Allocation of Electrified Vehicles and Dedicated Charging Infrastructure for Minimum Greenhouse Gas Emissions," *National Academies Transportation Research Board Annual Meeting*, January 23-27, Washington D.C.
- [78] Shiau, C.-S., S. Peterson and J.J. Michalek (2010) "Optimal plug-in hybrid electric vehicle design and allocation for minimum life cycle cost, petroleum consumption and greenhouse gas emissions," *Proceedings of the ASME International Design Engineering Technical Conferences, Advance Vehicle and Tire Technologies Conference*, August 15-18, Montreal, Quebec, Canada.
- [79] Shiau, C.-S. and J.J. Michalek (2010) "A mixed-integer nonlinear programming model for deterministic global optimization of plug-in hybrid vehicle design and allocation," *Proceedings of the ASME International Design Engineering Technical Conferences, Design Automation Conference*, August 15-18, Montreal, Quebec, Canada.
- [80] <u>Kaushal, N., C.-S. Shiau</u> and J.J. Michalek (2009) "Optimal plug-in hybrid electric vehicle design and allocation for diverse charging patterns," *Proceedings of the International Design Engineering Technical Conferences*, Aug 30 – Sept 2, San Diego, CA, USA.
- [81] <u>Shiau, C.-S.</u>, J.J. Michalek and C. T. Hendrickson (2009) "A structural analysis of vehicle design responses to corporate average fuel economy standards," *Transportation Research Board Annual Meeting*, Washington D.C.
- [82] <u>Shiau, C.-S.</u>, C. Samaras, <u>R. Hauffe</u> and J.J. Michalek (2009) "Impact of battery weight and charging patterns on the economic and environmental benefits of plug-in hybrid vehicles," *Transportation Research Board Annual Meeting*, Washington D.C.
- [83] <u>Hauffe, R.</u>, C. Samaras and J.J. Michalek (2008) "Plug-in hybrid vehicle simulation: How battery weight and charging patterns impact cost, fuel consumption, and CO2 emissions," *Proceedings of the ASME International Design Engineering Technical Conferences*, August 3-6, Brooklyn, NY, USA.
- [84] <u>Khajavirad, A.</u> and J.J. Michalek (2008) "A deterministic Lagrangian-based global optimization approach for large scale decomposable problems," *Proceedings of the ASME International Design Engineering Technical Conferences*, August 3-6, Brooklyn, NY, USA.
- [85] McGaughey, A. and J. J. Michalek (2008) "Wiki-based learning in the mechanical engineering classroom," American Society for Engineering Education Annual Conference, June 22-25, Pittsburgh, PA, USA.
- [86] <u>Shiau, C.-S.</u> and J.J. Michalek (2008) "Should designers worry about market systems?" *Proceedings of the ASME International Design Engineering Technical Conferences*, August 3-6, Brooklyn, NY, USA.
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- [89] <u>Khajavirad, A.</u> and J.J. Michalek (2007) "A single-stage gradient-based approach for solving the joint product family platform selection and design problem using decomposition," *Proceedings of the 2007* ASME International Design Engineering Technical Conferences, Sept 4-6, Las Vegas, NV, USA.
- [90] <u>Khajavirad, A.</u> and J.J. Michalek (2007) "An extension of the commonality index for product family optimization," *Proceedings of the 2007 ASME International Design Engineering Technical Conferences*, Sept 4-6, Las Vegas, NV, USA.
- [91] Orsborn, S., S. Swamy, J. Michalek and J. Cagan (2007) "Measurement of headlight form preference using choice-based conjoint analysis," *Proceedings of the 2007 ASME International Design Engineering Conferences*, Sept 4-6, Las Vegas, NV, USA.
- [92] Shiau, C.S., I.H. Tseng, D. Heutchy and J. Michalek (2007) "Design optimization of a laptop computer using aggregate and mixed logit demand models with consumer survey data." *Proceedings of the 2007* ASME International Design Engineering Conferences, Sept 4-6, Las Vegas, NV, USA.
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- [95] Michalek, J.J., O. Ceryan, P.Y. Papalambros, and Y. Koren (2005) "Manufacturing investment and allocation in product line design decision-making," *Proceedings of the 2005 ASME International Design Engineering Technical Conferences*, DETC2005-84812, Sept. 26-28, Long Beach, CA, USA. [Best Paper Award]
- [96] Choudhary, R. and J. Michalek (2005) "Design optimization in computer aided architectural design," International Conference of the Association for Computer Aided Architectural Design Research In Asia, April 28-30, 2005, New Delhi, India.
- [97] Michalek, J.J., F.M. Feinberg and P.Y. Papalambros (2004) "An optimal marketing and engineering design model for product development using analytical target cascading," *Proceedings of the 2004 Tools* and Methods for Competitive Engineering Conference, Lausanne, Switzerland, April 12-16, 2004.
- [98] Michalek, J.J. and P.Y. Papalambros (2004) "An efficient weighting update method to achieve acceptable consistency deviation in analytical target cascading," *Proceedings of the 2004 ASME Design Engineering Technical Conferences*, DETC2004-57134, Sept. 28 - Oct. 2, Salt Lake City, Utah, USA.
- [99] Michalek, J.J., P.Y. Papalambros and S.J. Skerlos (2003) "A study of emission policy effects on optimal vehicle design decisions," *Proceedings of the ASME Design Engineering Technical Conferences*, DETC2003/DAC-48767, September 2-6, Chicago, IL, USA.

Other Conference Publications

- [100] <u>Khajavirad, A.</u>, J.J. Michalek and T.W. Simpson (2007) "An efficient decomposed genetic algorithm for joint product family selection and optimization," *Proceedings of the 2007 ALAA Multidisciplinary Design Optimization Specialists Conference*, April 23-26, Honolulu, Hawaii, USA.
- [101] Cooper, A.B., P. Geortiopoulos, J.J. Michalek, and P.Y. Papalambros (2004) "A simulation-based vehicle design strategy for acquisition and requirements validation," *Proceedings of the 2004 Society of Automotive Engineers World Congress*, March 11-18, Detroit, MI. A shortened version also appeared at the US-ASMO SMART Conference, Dearborn, Michigan, Sept. 8-11, 2003.

Book Chapters

- [102] <u>Khajavirad, A.</u>, J.J. Michalek and T.W. Simpson (2014) "Solving the joint product platform selection and product family design problem: An efficient decomposed multiobjective genetic algorithm with generalized commonality," in *Advances in Product Family and Product Platform Design: Methods & Applications*, Eds: T. Simpson, R. Jiao, Z. Siddique, K. Hölttä-Otto, Springer, New York.
- [103] Michalek, J.J. (2007) "Designing better products by coordinating marketing research and engineering," in *Modern Marketing Research: Concepts, Methods and Cases*, eds: F. Feinberg, T. Kinnear and J. Taylor.
- [104] Skerlos, S.J., W.R. Morrow, and J.J. Michalek (2006) "Sustainable design engineering and science: selected challenges and case studies," chapter 3.10 in *Sustainability Science and Engineering, Volume 1: Defining Principles*, edited by M. Abraham, Elsevier Science.

Magazine Publications:

- [105] Michalek, J.J. and V.J. Karplus (2021) "Choosing electric vehicle policies with care," *Issues in Science and Technology*, 37, n3 (Spring 2021).
- [106] Michalek, J.J., M. Chester and C. Samaras (2012) "Getting the most out of electric vehicle subsidies," *Issues in Science and Technology*, Summer 2012, p25-27.
- [107] Michalek, J.J. (2008) "Design for market systems: Integrating social, economic, and physical sciences to engineer product success," *Mechanical Engineering*, v 130, n11, p32-36.

Consensus Reports:

[108] National Academies of Sciences, Engineering and Medicine, Thomas, V., et al. "Current methods for life cycle analyses of low-carbon transportation fuels in the United States." Presented to the for U.S. House of Representatives Committees on Natural Resources, Energy and Commerce, Appropriations and U.S. Senate committees on Agriculture, Nutrition and Forestry, Energy and Natural Resources, and Subcommittee on Water and Power, California Air Resources Board and the U.S. Environmental Protection Agency by V. Thomas, C. Scown, N. Pavlenko, J.J. Michalek and J. Martin.

Policy Briefs:

- [109] Michalek, J., D. Armanios, C. Harper, D. Nock. K. Whitefoot, M. Bruchon, M. Gebresselassie, C. Forsythe, L. Hanig, A. Koling, "Policy Brief Series on Uber and Lyft in U.S. Cities: Findings and Recommendations from Carnegie Mellon University Research on Transportation Network Companies (TNCs)", Nov 2022. Presented to a group of local, state, national and international policymakers.
- [110] Michalek, J.J. (2017) Electric Vehicle Benefits and Costs in the United States, policy brief, Carnegie Mellon University, May 2017. Presented at the U.S. House of Representatives, National Governors Association, U.S. Department of Transportation and Office of U.S. Senator Toomey.
- [111] Michalek, J.J. (2017) Electric Vehicle Adoption Potential in the United States, policy brief, Carnegie Mellon University, May 2017. Presented at the U.S. House of Representatives, National Governors Association, U.S. Department of Transportation and Office of U.S. Senator Toomey.
- [112] Michalek, J.J. (2015) Electric Vehicle Benefits and Costs in the United States, policy brief, Carnegie Mellon University, May 2015. Presented to members of the U.S. Environmental Protection Agency, California Air Resources Board, California Energy Commission, California State Senate and Assembly, and several national labs and universities, 2015.

- [113] Michalek, J.J. (2015) Electric Vehicle Adoption Potential in the United States, policy brief, Carnegie Mellon University, May 2015. Presented to members of the U.S. Environmental Protection Agency, California Air Resources Board, California Energy Commission, California State Senate and Assembly, and several national labs and universities, 2015.
- [114] Michalek, J.J., M. Chester, P. Jaramillo, and C. Samaras (2011) Air Emissions and Oil Displacement Benefits from Plug-in Vehicles, policy brief, Carnegie Mellon University, September 2011. Presented to members of the Congressional Budget Office, the Congressional Research Service, the Senate Energy and Natural Resources Committee, the Senate Commerce, Science and Transportation Committee, and members of the U.S. House of Representatives, March 13-14, 2012.
- [115] Michalek, J.J. and C. Samaras (2009) Economic, Environmental, and Security Implications of Plug-in Hybrid Electric Vehicles, policy brief, Carnegie Mellon University, April 2009. Presented to members of the House Energy and Commerce Committee, the House Committee on Science and Technology, the Select Committee on Energy Independence and Global Warming, the Congressional Research Service, and members of the U.S. House and Senate, April 16-20, 2009.

Commentary and Testimony

- [116] Michalek, J. "Update on key findings from the Carnegie Mellon Vehicle Electrification Group," Electric Vehicle Policy Workshop, January 2025, Washington D.C.
- [117] Fuchs, E., A. Cheng, C. Combemale, J. Michalek, K. Whitefoot et al. Briefing on critical technology assessment for the US House Select Committee on Strategic Competition between the United States and the Chinese Communist Party, February 2024, Washington D.C.
- [118] Michalek, J. "Key findings from recent research," Electric Vehicle Policy Workshop, January 2024, Washington D.C.
- [119] Michalek, J., C. Forsythe, K. Gillingham, J. Vicente and K. Whitefoot "Comment about automotive demand models in the proposed rule 'Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles' Docket EPA-HQ-OAR-2022-0829." July 2023.
- [120] Michalek, J., A. Cheng, V. Karplus and K. Whitefoot "Comment about critical materials for electric vehicle batteries in the proposed rule 'Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles' Docket EPA-HQ-OAR-2022-0829." July 2023.
- [121] Whitefoot, K. "Comment about the structure of the footprint curves in 'Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles' Docket EPA-HQ-OAR-2022-0829." July 2023.
- [122] Michalek, J. and M. Bruchon "Comment about electric vehicle life cycle emissions in the proposed rule 'Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles' Docket EPA-HQ-OAR-2022-0829." June 2023.
- [123] Michalek, J. and K. Whitefoot, "Comment on the Notice of Proposed Rulemaking for the Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards," Public Comment, Sept 27, 2021.
- [124] Bruchon, M. and J. Michalek, "Comment on California Air Resources Board's Proposed Clean Miles Standard," Public Comment, May 17, 2021.
- [125] Michalek, J. and K. Whitefoot, "Comment on the Notice of Proposed Rulemaking for the 'Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks" Public Comment, Docket No. NHTSA-2018-0067 and EPA-HQ-OAR-2018-0283, October 26, 2018, U.S. Federal Register.

- [126] Michalek, J., "Statement for Hearing on the Notice of Proposed Rulemaking for the 'Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks," Sept 26, 2018.
- [127] Michalek, J. "Problems with the fuel economy rollback," op-ed, The Hill, Sept 2018.
- [128] Adams, P., J. Apt, I. Azevedo, E. Casman, J. Cohon, A. Davis, N. Donahue, D. Dzombak, W. Griffin, P. Jaramillo, T. Krishnamurti, M. Mauter, J. Michalek, M. Morgan, N. Muller, I. Nair, J. Peha, E. Rubin, M. Sirbu, M. Small, E. Subrahamanian, P. Vaishnav, J. Whitacre, K. Whitefoot, H. Zhai, "Comment submitted with respect to the EPA Proposed Rule on 'Strengthening Transparency in Regulatory Science' 40 CFR Part 30 [EPA-HQ-OA-2018-0259; FRL-9977-40-ORD] RIN 2080-AA14." May 11, 2018.
- [129] Whitefoot, K., J.J. Michlalek and I. Azevedo (2017) "Comment on [Docket No. HNTSA-2017-0059] Civil Penalties Rate for Violations of Corporate Average Fuel Economy Standards," U.S. Federal Register.
- [130] Whitefoot, K., J.J. Michalek, and I. Azevedo (2017) "Comment on Docket No.: EPA-HQ-OAR-2015-0827 and NHTSA-2016-0068 Reconsideration of the Final Determination of the Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light-Duty Vehicles; and Model Year 2021 Greenhouse Gas Emissions Standards," U.S. Federal Register.
- [131] Whitefoot, K., J.J. Michalek, and I. Azevedo (2016) "Comment on [Docket No.: EPA-HQ-OAR-2015-0827] Proposed Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation"

Dissertations and Theses:

- [132] Michalek, J.J., (2005) Preference Coordination in Engineering Design Decision-Making, Ph.D. Dissertation, Department of Mechanical Engineering, University of Michigan. Committee: Panos Papalambros*, Fred Feinberg, Steven Skerlos, Richard Gonzalez.
- [133] Michalek, J.J. (2001) Interactive Layout Design Optimization, M.S. Thesis, Department of Mechanical Engineering, University of Michigan, Ann Arbor, Michigan, USA, 2001. Committee: Panos Papalambros*, Kazuhiro Saitou.

ADVISING

Postdoctoral Research

Jenn, Alan (2014-2015) [co-advised with Prof. Inês Azevedo] Gebresselassie, Mahtot (2022) Forsythe, Connor (2023-present) [co-advised with Prof. Kate Whitefoot]

Ph.D. Research

Shiau, Ching-Shin Norman – Design Decision Making for Market Systems and Environmental Policy with Vehicle Design Applications, Ph.D. Mechanical Engineering, (2006-2010).

Present position: Design Engineering Staff Engineer, Seagate Technologies, Taiwan. **Khajavirad, Aida** – *Convexification Techniques for Global Optimization of Nonconvex Nonlinear Optimization Problems*, Ph.D. Mechanical Engineering (2006-2011), co-advised with Nick Sahinidis. Present position: Assistant Professor, Operations Research and Industrial Engineering, Department of Mechanical Engineering, University of Texas at Austin.

- Karabaşoğlu, Orkun Influence of Driving Patterns and Optimal Robust Powertrain Combined Design and Control of Plug-in Vehicle Cost, Life Cycle Emissions, Component Sizing, and Battery Stress, Ph.D. Mechanical Engineering (2008-2013). Present position: Assistant Professor, Electrical and Computer Engineering, SYSU-CMU Joint Institute of Engineering, Visiting Professor, Electrical and Computer Engineering, Carnegie Mellon University.
- **Traut, Elizabeth** Life Cycle Cost and Environemtnal Implications of U.S. Electric Vehicle and Charging Infrastructure Scenarios, Ph.D. Mechanical Engineering (2008-2013), co-advised with Prof. Chris Hendrickson. Present position: Postdoctoral Research Fellow, Civil and Environmental Engineering, Carnegie Mellon University.
- Resende, Camilo Ph.D. student, Mechanical Engineering (2009-2010), left program for medical school.
- Sakti, Apurba Quantification of Performance and Cost Trajectory of Li-ion Battery Designs for Personal Vehicle Electrification in the Near Future, Ph.D. Engineering & Public Policy (2010-2013), coadvised with Prof. Jay Whitacre. Present Position: Postdoctoral Associate, Energy Initiative and Chemical Engineering, Massachusetts Institute of Technology.
- Haaf, Christine Grace Heckmann Vehicle Demand Forecasting with Discrete Choice Models, Ph.D. Mechanical Engineering (2010-2014). Present Position: Visiting Researcher, King Abdullah Petroleum Studies and Research Center (KAPSARC).
- Jenn, Alan Advanced and Alternative Fuel Vehicle Policies: Regulations and Incentives in the United States, Ph.D. Engineering and Public Policy (2014), officially advised by Prof. Inês Azevedo but I co-advised several studies. Present Position: Postdoctoral Researcher, University of California, Davis.
- Min, Jihoon Energy Efficient Lighting: Consumer Preferences, Choices, and System Wide Effects, Ph.D. Engineering and Public Policy (2010-2014), co-advised with Prof. Inês Azevedo. Present Position: Research Scholar, International Institute for Applied Systems Analysis.
- **Tamayao, Mili-Ann** Urbanization and Vehicle Electrification in the U.S.: CO₂ Emissions Estimation and Implications for Climate Policy, Ph.D. Engineering and Public Policy (2012-2014), co-advised with Prof. Chris Hendrickson. Present Position: Assistant Professor, Industrial Engineering and Operations Research, and Deputy Executive Director, National Engineering Center, University of the Philippines.
- Weis, Allison Electric Vehicles and the Grid: Interactions and Environmental and Health Impacts, Ph.D. Engineering and Public Policy (2010-2014), co-advised with Prof. Paulina Jaramillo. Present Position: Senior Stationary Storage Modeling Engineer, Tesla Motors.
- Yüksel, Tuğçe Quantification of Temperature Implications and Investigation of Battery Design Options for Electrified Vehicles, Ph.D. Mechanical Engineering (2010-2015). Present Position: Sabanci University.
- Helveston, John Development and Adoption of Plug-in Electric Vehicles in China: Markets, Policy, and Innovation, Ph.D. Engineering and Public Policy (2011-2016), co-advised with Prof. Erica Fuchs. Present Position: postdoctoral researcher, Boston University.
- **Yip, Arthur** Integrated Modelling of Consumer Choice, Producer Decisions, and Policy Design in the Automotive Market, Ph.D., Engineering and Public Policy (2015 2020), co-advised with Prof. Kate Whitefoot.
- Ward, Jacob The Energy and Environmental Effects of New and Future Mobility: Econometric and Simulation Analysis of Ridesourcing Services Uber and Lyft, Ph.D., Engineering and Public Policy (2016 2020), co-advised with Prof. Inês Azevedo and Prof. Costa Samaras.
- Bruchon, Matthew Analyzing and Optimizing Shared Mobility Fleet Impacts, Ph.D., Engineering and Public Policy (2017 2022), co-advised with Prof. Inês Azevedo (Stanford).
- Forsythe, Connor PhD. student, Mechanical Engineering (2018 2023), co-advised with Prof. Kate Whitefoot.

- **Burns, Aaron** Ph.D. student, Engineering and Public Policy (2020 pres), co-advised with Prof. Constantine Samaras.
- Koling, Adam PhD. student, Engineering and Public Policy / Oxford University (2021 pres), co-advised with Prof. Daniel Armanios.
- Vicente, Johnathan Ph.D. student, Mechanical Engineering (2021 pres), co-advised with Prof. Kate Whitefoot.
- **Rodrigues, Thiago** Ph.D. student, Engineering and Public Policy (2022), co-advised with Prof. Constantine Samaras.
- Ariss, Rami Ph.D. student, Civil and Environmental Engineering (2022 pres), co-advised with Prof. Mateo Pozzi.
- **Cheng, Anthony** Ph.D. student, Engineering and Public Policy (2022 pres), co-advised with Prof. Erica Fuchs and Prof. Valerie Karplus.
- **Cobb, Anna** Ph.D. student, Engineering and Public Policy (2022 pres), co-advised with Prof. Corey Harper.
- **Morin, Hannah** Ph.D. student, Engineering and Public Policy (2022 pres), co-advised with Prof. Jay Whitacre.
- **Futara, Rin** Ph.D. student, University of Maryland (2023 pres), primary advisor: Prof. Joshua Linn.

M.S. Research Project-Based Degree

- Li, Yanjing Diagonal Quadratic Approximation for Parallel Computing with Analytical Target Cascading, M.S. Mathematical Sciences, 2006
- Swamy, Surya Global Optimization of Mixed-Integer Nonlinear Systems using Decomposition and Lagrangian Branch-and-Cut, M.S. Mechanical Engineering, 2007
- Kaushal, Nikhil Optimal Plug-in Hybrid Electric Vehicle Design and Allocation for Diverse Charging Patterns, M.S. Mechanical Engineering, 2009
- Krishnakumar, Varun Global Design Optimization using Black-Box Optimization Techniques, M.S., Mechanical Engineering, 2009
- **Tsu-Wei Cherng** Charging Infrastructure for Electric Vehicles, Mechanical Engineering, 2011-2012
- Gao, Nan -- Battery Degradation and Thermal Management for Plug-in Vehicles, M.S. Mechanical Engineering, 2013-2014
- Jennings, Stephanie Forecasting Technology Purchase Choice Using Composites, M.S. Mechanical Engineering, 2016-2018, co-advised with Kate Whitefoot.
- **Chen, Zihao (Lance)** Evolution of Electric Vehicle Consequential Life Cycle Emissions in the PJM Interconnection, M.S. Engineering and Public Policy, 2020-2021.
- **Chen, Jiahui** Improved Renewable Energy Integration Enabled by Vehicle-to-Grid Technologies in the PJM Interconnection, M.S. Engineering and Public Policy, 2021-2022.

M.S. Independent Research Project

- Hsieh, Sandy Review of Vehicle Simulation Software M.S. Mechanical Engineering, 2006
- Chen, Esther Review of Multiattribute Utility Theory M.S. Mechanical Engineering, 2008
- **Yuksel, Burak** Optimal Design and Control of Plug-in Vehicles Independent Study, Istanbul Technical University.
- **Yoon, Hyungchul Paul** *Plug-in Vehicle Optimization for Real-World Driving*, Mechanical Engineering, 2011
- Li, Guo Optimal Design and Control of Plug-in Vehicles, Mechanical Engineering, 2012-2013
- Pan, Lu Impact of Terrain on Life Cycle Implications of Conventional and Electrified Vehicles, Mechanical Engineering, 2012-2013

Mehta, Darshit – Optimization of Electric Vehicle Battery and Thermal Management Systems, Mechanical Engineering, 2015.

Undergraduate Research

- Gitomer, Ali Review of Automotive Demand Models Visiting student, Northwestern University Hamilton, Andrew – Study of Consumer Preferences for Hybrid Vehicles – B.S. Mechanical Engineering, 2008
- Hauffe, Richard Effects of Battery Weight on Plug-in Hybrid Vehicle Performance B.S. Mechanical Engineering, 2008
- Lee, Jonghyun Review of Environmental Policy for Vehicle Design B.S. Mechanical Engineering, 2008
- **Lewis, Anne Marie** Optimization of Infrastructure for Ethanol Distribution B.S. Mechanical Engineering, 2008

Mikkilineni, Sarat – Uncertainty in Choice Modeling – B.S. Mechanical Engineering, 2008

- Khwaja, Osman Effects of Terrain on Vehicle Efficiency of Electrified Powertrains, Independent Study, Princeton University, 2011.
- **Kimball, Paul** Control Systems for Electrified Vehicles, 2011-2012
- **Stabile, Rebecca** *Synthetic Drive Cycle Generation and Fuel Economy Estimation*, 2011-2012. **Finlayson, Andrew** -- *Synthetic Drive Cycles and Plug-in Vehicle Simulation*, 2012-2013.

Ph.D. Committee Service

- **Olson, Jesse** The Collective Potential: Achieving Organizational Potential by Design, Ph.D. Mechanical Engineering, Carnegie Mellon University, 2005 [chair: Jonathan Cagan].
- **Orsborn, Seth** –Quantifying aesthetic preference through statistics applied to an agent-based shape grammar implementation, Ph.D. Mechanical Engineering, Carnegie Mellon University, 2007 [chair: Jonathan Cagan].
- Wakeley, Heather Alternative Transportation Fuels: Infrastructure Requirements and Environmental Impacts for Ethanol and Hydrogen, Ph.D. Civil and Environmental Engineering, Carnegie Mellon University, 2007 [chair: Chris Hendrickson]
- Logue, Jennifer Characterizing Air Toxics Exposure and Risk in Allegheny County and Evaluating EPA Modeling Tools for Policy Making, Ph.D. Engineering and Public Policy, Mechanical Engineering, Carnegie Mellon University, 2009 [chair: Allen Robinson].
- You, Fengqi Mixed Integer Nonlinear Programming Models and Algorithms for Enterprise-Wide Supply Chain Optimization under Uncertainty, Ph.D. Chemical Engineering, Carnegie Mellon University, 2009 [chair: Ignacio Grossmann].
- Hannah, Lindsay Combinatory Adaptive Optimization with Multi-Agent Systems Ph.D., Mechanical Engineering, Carnegie Mellon University, 2009 [chair: Jonathan Cagan].
- Hatton, Ross Geometric Mechanics of Locomotion and Optimal Coordinate Choice, Ph.D., Carnegie Mellon University, Mechanical Engineering, 2011 [chair: Howie Choset].
- Hassan, Mohd Nor Azman GHG Emissions and Costs of Developing Biomass Energy in Malaysia: Implications for Energy Security in the Transportation and Electricity Sectors, Ph.D. Carnegie Mellon University, Engineering and Public Policy, 2012 [chair: W. Michael Griffin].
- Nadadur, Gopal Anthropometry-based Sustainable Design for Multiple Global Populations, Ph.D., The Pennsylvania State University Department of Mechanical and Nuclear Engineering, 2012 [chair: Matthew Parkinson].
- **Peterson, Scott** *Plug-in Hybrid Electric Vehicles: Battery Degradation, Grid Support, Emissions, and Battery Size Tradeoffs*, Ph.D., Carnegie Mellon University, Engineering and Public Policy, 2012 [chair: Jay Apt].

- Venkatesh, Aranya Towards Robust Energy Systems Modeling: Examining Uncertainty in Fossil Fuel-Based Life Cycle Assessment Approaches, Ph.D. Carnegie Mellon University, Civil and Environmental Engineering 2012 [chair: Chris Hendrickson].
- Kamath, Ravindra -- Strategies for Optimization and Heat Integration in Integrated Gasification Combined Cycle Systems, Ph.D. Chemical Engineering, Carnegie Mellon University, 2012 [chair: Larry Biegler].
- Hess, Kacy In Situ, Through-Thickness Potential and Current Distribution Measurements in Electrochemical Energy Conversion and Storage Devices, Ph.D. Mechanical Engineering, Carnegie Mellon University, 2013 [chair: Shawn Litster].
- Sylcott, Brian Understanding How Consumers Process Product Form and Function and How They Balance Their Preferences for Each, Ph.D. Mechanical Engineering, Carnegie Mellon University, 2013 [chair: Jonathan Cagan].
- **Baker, Kyri** Coordination of Resources across Areas for the Integration of Renewable Generation: Operation, Sizing, and Siting of Storage Devices, Ph.D. Electrical and Computer Engineering, Carnegie Mellon University, 2014 [chair: Gabriela Hug-Glanzmann].
- Jenn, Alan Analysis of Transportation Policies: Regulations and Incentives in the United States, Ph.D. Engineering and Public Policy, Carnegie Mellon University, 2014 [chair. Inês Azevedo].
- **Heo, Jinhyok** *Evaluation of Air Quality Impacts on Society: Methods and Application*, Ph.D. Engineering and Public Policy, Carnegie Mellon University, 2014 [chair: Peter Adams].
- **Dowling, Alex** -- Equation Oriented Flowsheet Optimization for Advanced Energy Processes, Ph.D. Chemical Engineering, Carnegie Mellon University, 2015 [chair: Larry Biegler].
- Zhang, Qi Enterprise-wide Optimization for Industrial Demand Side Management, Ph.D. Chemical Engineering, Carnegie Mellon University, 2016 [chair: Ignacio Grossmann].
- Seki, Stephanie Evaluating the Economic, Environmental and Policy Impacts of Ethanol as a Transportation Fuel in Pennsylvania, Ph.D. Engineering and Public Policy, Carnegie Mellon University, 2016 [chairs: Chris Hendrickson and W. Michael Griffin].
- **Tong, Fan** The Good, the Bad, and the Ugly: Economic and Environmental Implications of using Natural Gas to Power On-Road Vehicles in the United States, Ph.D. Engineering and Public Policy, Carnegie Mellon University, 2016 [chairs: Paulina Jaramillo and Inês Azevedo].
- Mersky, Avi Environmental and Policy Implications of Vehicle Automation and Electrification, Civil and Environmental Engineering, Carnegie Mellon University, 2017 [chair: Constantine Samaras].
- Li, Zhongju (Hugh) Urban Aerosol: Spatiotemporal Variation and Source Characterization, Mechanical Engineering, Carnegie Mellon University, 2018 [chair: Albert Presto].
- **Ciez, Rebecca** Battery Energy Storage for Maturing Markets: Performance, Cost, Perceptions, and Environmental Impacts, Ph.D., Engineering & Public Policy, Carnegie Mellon University, 2018 [Chair: Jay Whitacre].
- **Chen, Mo** *Vehicle and Vehicle-related Policy Analysis in China*, Engineering and Public Policy, Carnegie Mellon University (current) [chair: Paul Fischbeck].
- Styler, Alex Learning, Prediction, and Optimization for Hybrid Vehicle Energy Management, School of Computer Science, Carnegie Mellon University (current) [chair: Illah Nourbakhsh].
- Tee, Chin Yen Market Design and Risk Management for Flexibility in the Future Electric Transmission System, Engineering and Public Policy, Carnegie Mellon University, 2017 [chair: Marija Ilic].
- Chen, Qi Computational Tools for Process Synthesis, Chemical Engineering, Carnegie Mellon University, 2020 [chair: Ignacio Grossmann].
- Lu, Quanyang Mobile Source Emission Profiles and the Social Cost of Air Pollution, Mechanical Engineering, Carnegie Mellon University, 2020 [chair: Robinson].
- He, Guannan Storage for Low-Carbon Energy System: Decisions, Economics, Business Model, and Policy, Engineering and Public Policy, Carnegie Mellon University, 2019 [chair: Jay Whitacre].

- Farquharson, DeVynne Sustainable Energy Transitions in Sub-Saharan Africa: Impacts on Air Quality, Economics, and Fuel Consumption, Engineering and Public Policy, Carnegie Mellon University, 2019 [chair: Jaramillo].
- Braaten, Jonathan Understanding Catalyst Layer Morphology and Degradation and their Impact on Critical Oxygen Transport in PEMFC Cathodes, Mechanical Engineering, Carnegie Mellon, 2021 [chair: Litster].
- Gowharji, Waleed Implications of Consumer Choice Behaviors on Engineering Design, Mechanical Engineering, Carnegie Mellon (2021) [chair: Kate Whitefoot]
- **Mohan, Aniruddh** *Technology Policy Challenges of Electric and Automated Vehicles*, Mechanical Engineering, Carnegie Mellon (2022) [chair: Parth Vaishnav and Venkat Viswanathan]
- **Choi, Paul** Operando Characterization of Electrochemical Phenomena in Batteries and Electrolyzers using X-ray Imaging Techniques, Mechanical Engineering, Carnegie Mellon (2021) [chair: Shawn Litster]
- **Guttenberg, Matt** Mechanical Engineering, Carnegie Mellon (2021-2022) [chair: Venkat Viswanathan]
- Samudio Lezcano, Mateo Civil and Environmental Engineering, Carnegie Mellon (current) [chair: Destenie Nock and Corey Harper]
- Cheng, Anthony Engineering and Public Policy, Carnegie Mellon (current) [chair: Erica Fuchs and Valerie Karplus]
- Hanig, Lily Engineering and Public Policy, Carnegie Mellon (current) [chair: Destenie Nock]
- Singh, Madalsa Energy Science and Engineering, Stanford University (current) [chair: Inês Azevedo]
- **Cheng, Jiahui** School for Sustainability, University of Michigan (current) [chair: Parth Vaishnav]

TEACHING EXPERIENCE

19-668 Electric Vehicles: Technology, Economics, Environment and Policy (2021-pres) In this course, students read academic literature, government documents, and popular press to develop a broad understanding of the technology, economic, environmental and policy dimensions of electric vehicles. Topics include (1) Technology: Battery technology, design, application, degradation and innovation; electric vehicle technologies and designs; the electric power grid; (2) Economics: cost; consumer behavior; infrastructure; electricity dispatch; automotive externalities; the Gruenspecht effect; (3) Environment: life cycle assessment; air pollution; greenhouse gas emissions; marginal grid emission factors; renewables; vehicle to grid; hydrogen; (4) Policy: effectiveness, efficiency, uncertainty and equity; short-run versus long-run effects; fleet standards; incentives; mandates; policy interactions; intellectual property; and policies in the US, China, EU, Japan, and local jurisdictions. Fundamentals covered at an introductory level to support readings include time value of money, economies of scale, social welfare analysis, externalities, valuation of reduced mortality risk; choice modeling, regression, life cycle assessment, and other topics.

24-785 Engineering Optimization (2010-pres)

This course introduces students to 1) the process of formally representing an engineering design or decision-making problem as a mathematical problem and 2) the theory and numerical methods needed to understand and solve the mathematical problem. Theoretical topics focus on constrained nonlinear programming, including necessary and sufficient conditions for local and global optimality and numerical methods for solving nonlinear optimization problems. Additional topics such as linear programming, mixed integer programming, global optimization, and stochastic methods are briefly introduced. Model construction and interpretation are explored with metamodeling and model reformulation techniques, study of model boundedness, constraint activity, and sensitivity analysis. Matlab is used in homework assignments for visualization and algorithm development, and students apply theory and methods to a topic of interest in a course project.

19-670 / 24-680 Quantitative Entrepreneurship: Analysis for New Technology **Commercialization** (2008-pres)

- Formerly 19-484/24-484/19-784/24-784 Decision Tools for Engineering Design and Entrepreneurship; Co-instructors: Prof. Erica Fuchs, Prof. Kate Whitefoot
- This course provides engineers with a multidisciplinary mathematical foundation for integrated modeling of engineering design and enterprise planning decisions in an uncertain, competitive market. Topics include economics in product design, manufacturing and operations modeling and accounting, consumer choice modeling, survey design, conjoint analysis, decision-tree analysis, optimization, model integration, and professional communication skills. Students will apply theory and methods to a team project for a new product or emerging technology of their choice, developing a business plan to defend technical and economic competitiveness. Students may select emerging technologies from research at Carnegie Mellon for study in the course, and in some years venture capitalists and other industry leaders may take part in critiquing student projects. This course assumes fluency with calculus and some prior programming experience.

24-441 / 24-442 Engineering Design II: Conceptualization and Realization, Carnegie Mellon

University (2006-pres)

In this course, students gain hands-on, practical experience applying engineering principles, theories, thought processes, and problem-solving approaches to the design and prototyping of a physical product. Students develop skills for working in teams, working with open-ended problems, and making appropriate engineering assumptions. Students are expected to research the topic area, identify opportunities and design criteria, generate creative concepts, synthesize detailed design of the concept, analyze the design on a number of criteria to make improvements, and prototype and communicate the final solution.

24-789C Quantitative Methods for Product Design and Development, Carnegie Mellon University (2006)

This course provides a multidisciplinary mathematical foundation for integrated modeling in product design and development. In this course, students learn introductory theory and methods for building and solving optimization models integrating producer, consumer, competitor, regulator, and designer perspectives. Topics include optimization methods with a focus on nonlinear programming, choice modeling, conjoint analysis, game theory, policy analysis, decomposition and model integration. Students apply methods to a team project and engage in independent research to deepen knowledge on a relevant topic of interest.

ENGR490 Engineering for Community, University of Michigan (2003-2004) Worked to co-design, develop, and implement a new interdisciplinary engineering course focusing on learning through experience and field work, international and local community development, social and cultural awareness, sustainability, appropriate technology, and communication skills.

- **Graduate Student Instruction Mentor**, University of Michigan (2003-2004) University of Michigan Center for Research on Learning and Teaching Trained and assisted graduate student instructors, facilitated student feedback on teaching and provided teaching observations and evaluations.
- ME 499/599 Analytical Product Design, University of Michigan (2003, 2004) Helped to develop and implement a new interdisciplinary course on model-based product development. Gave lecturers, provided student support, and developed computer tools for students.
- **ME 555 Design Optimization**, University of Michigan (2003) Acted as a course aid for the graduate-level course on design optimization. Developed new material and gave lectures and demonstrations.
- Rackham-CRLT Seminar on College Teaching, University of Michigan (2003) Participated in the selective Center for Research on Learning and Teaching Preparing Future Faculty Seminar on College Teaching to sharpen teaching philosophy, learn about the structure of higher education institutions in the United States, and develop teaching skills.
- **Multicultural Classroom Facilitation Training**, University of Michigan (2003) Participated in a training course emphasizing teaching through dialogue and focusing on issues of multiculturalism, diversity, and social and cultural awareness.
- **Detroit Area Pre-College Engineering Program**, University of Michigan (2002-2003) Exposed middle-school students from minority and low-income areas to engineering by providing hands-on examples and activities in order to improve accessibility of the field. Position: instructor.

Michigan Mentor Program, University of Michigan (2000-2002)

Worked with two middle school students one-on-one to provide exposure to the engineering disciplines and work with them to explore career possibilities in engineering and beyond.

- ME 450 Design and Manufacturing III, University of Michigan (2000-2001)
 - Assisted in teaching and advising the capstone mechanical engineering design course. Developed new course material and restructured the syllabus. Initiated and supported interdisciplinary student coursework and project interaction with the University Of Michigan School of Art and Design and the Parsons School of Design. Developed an interactive course web portal to support distance collaboration.
- **Tutor**, Carnegie Mellon University (1997) Tutored undergraduates in programming the C++ language.

CONSULTING EXPERIENCE

U.S. Environmental Protection Agency (EPA) (2021-2023) with Eastern Research Group, Inc.

New York State Energy Research and Development Authority (NSERDA) (2014-2017) with Industrial Economics, Inc.

INDUSTRY EXPERIENCE

Research Engineer, Intern

Xerox – The Document Company, Rochester, NY (summer 1999) Designed and implemented improvements to a distributed embedded digital control system for paper path handling.

Design Engineer, Intern

General Motors, Warren, MI (summer 1998)

Worked with a multidisciplinary team including engineering, industrial design, and sculpture to design and prototype a future concept vehicle with engineering documentation to show concept feasibility.

Reliability Engineer, Intern

General Motors, Warren, MI (summer 1997)

Developed and implemented a procedure to quantify the reliability of commercial components of machinery and equipment in the assembly plant environment.

Designer

Linear Systems Corporation, Rochester, MI (1994-1996) Designed automotive tooling. Trained employees in AutoCAD. Developed new CAD tools.

ORGANIZATIONAL LEADERSHIP AND MEMBERSHIP

Leadership Director, Vehicle Electrification Group (since 2012) Co-Director, Vehicle Electrification Group (2009-2012) Chair, EPP Master of Science Program Committee (2020-2023) Chair, EPP Communications and Diversity Committee (2017-2018) Acting Co-Director, Master in Product Development program (2008-2009) Director, Design Decisions Laboratory, Carnegie Mellon University (2005-2014) Chair, Publicity and Newsletter Committee, ASME Design Engineering Division (2007-2009) Membership Member, National Academies Committee on Current Methods for Life Cycle Assessment of Low Carbon Transportation Fuels in the United States (2021-2022) Member, Center for Climate and Energy Decision Making, Carnegie Mellon University (since 2011) Member, Electricity Industry Center, Carnegie Mellon University (since 2011) Member, Center for Product Strategy and Innovation, Carnegie Mellon University (2008-2010) Member, Green Design Institute, Carnegie Mellon University (since 2006) Member, ASME: American Society of Mechanical Engineers (since 1997) Member, INFORMS: Institute for Operations Research and the Management Sciences (since 2005)Member, TRB: National Academies Transportation Research Board Alterative Transportation Fuels and Technologies Committee (2014-2023)

Member, TRB: National Academies Transportation Research Board Transportation Energy Committee (2023-pres)

Graduate Student Activities

Engineers Without Borders / BLUElab, University of Michigan, Education Chair (2003-2005) Graduate Student Mentor (2003-2004) Amnesty International Student Group on Economic and Social Rights (2003-2004) Public Service Announcement Director, WCBN-FM Ann Arbor (2002-2004) University of Michigan Graduate Student Symposium, Design and Manufacturing Chair (2001) Interdisciplinary Antilium Education and Research Collaboration Initiative (2001-2005) New Foreign Graduate Student Mentor (2000-2002) New Graduate Student Recruiter (2000)

RESEARCH GRANTS AND AWARDS

Principal Investigator

- [1] Toyota Research Institute, "Electric Vehicle Battery Circularity Economic, Environmental and Policy Analysis," (pending final approval), Feb 2025.
- [2] Mobility21 U.S. Department of Transportation University Transportation Center, "Smart Curbspace: Optimized Parking Reservations for Diverse Stakeholders," August 2022.
- [3] Mobility21 U.S. Department of Transportation University Transportation Center, "Ridehailing Service Equity in Normal and Rare Conditions," Nov 2020.
- [4] ATLAS Moonshot, "Autonomous Taxis: Understanding and Improving Sustainability and Equity," Aug 2020.
- [5] U.S. Department of Energy "Dynamic Effects of Technology-Forcing ZEV Policy under Vehicle Fleet Standards," Aug 2019
- [6] National Bureau of Economic Research, "Effects of On-Demand Ridesourcing on U.S. Vehicle Ownership, Travel Patterns, and Energy Use Externalities" March 2018.
- [7] Steinbrenner Institute for Environmental Education and Research, "How Do Shared Mobility and Autonomous Taxis Affect Energy Consumption, Vehicle Use, and Emissions of Greenhouse Gases and Criteria Air Pollutants?" August 2017.
- [8] Scott Institute for Energy Innovation, "How Do Shared Mobility and Autonomous Taxis Affect Energy Consumption, Vehicle Use, and Greenhouse Gas and Criteria Pollution Emissions?" January 2017.
- [9] Toyota Motor Corporation, "Advanced Vehicle Research," January, 2015.
- [10] Toyota Motor Corporation, "Vehicle Electrification Research and Policy," August 2013.
- [11] Toyota Motor Corporation, "Autonomous Vehicle Research," [co-PI Chris Hendrickson] June 2013.
- [12] Toyota Motor Corporation, "Advanced Vehicle Research," October 2012.
- [13] Toyota Motor Corporation, "PHEV Research," [co-PI Jay Whitacre], September 2011.
- [14] Ford Motor Company, "Electrified Vehicles in China: Identifying Consumer Preferences and Key Factors that Impact Adoption," Sept 2011 Aug 2014.
- [15] Toyota Motor Corporation, "Life Cycle Cost and Environmental Assessment of Plug-in Vehicles," [co-PIs Jay Whitacre, Constantine Samaras], August 2010.

- [16] Toyota Motor Corporation, "Systems Analysis of Plug-in Hybrid Electric Vehicles," [co-PIs Jay Whitacre, Constantine Samaras], April 2009.
- [17] National Science Foundation, CAREER Award, "Driving Design: Modeling the Influence of Market Forces and Public Policy on Engineering Design Decision-Making," Aug 2008 – Aug 2013.
- [18] Ford Motor Company, "Engineering and Market Simulation for Optimal Product Planning under Environmental Regulation," Aug 2008 – Aug 2011.
- [19] Carnegie Mellon Institute for Entrepreneurship, Innovation and Technology course development grant for "Quantitative Methods for Product Design and Development," Aug 2007 – July 2012.
- [20] Pennsylvania Infrastructure Technology Alliance, "A Systems Decomposition Approach for Optimization of Product Families to Balance Market and Engineering Needs," Jan – Dec 2007 [Co-PIs Peter Boatwright, Tim Simpson].
- [21] Pennsylvania Infrastructure Technology Alliance, "Hierarchical Design Optimization of Complex Systems," Jan Dec 2006 [Co-PIs Jon Cagan, Zhaosong Lu].

Co-Principal Investigator

- [22] Mobility21 U.S. Department of Transportation University Transportation Center, "Equity Effects of Rare Events on Transportation Network Company and Transit Riders," 2022.
- [23] ATLAS Moonshot, "A Digital Twin Virtual Testbed for Sustainable and Equitable Autonomous Food Delivery," 2021.
- [24] ATLAS Moonshot, "Equitable Ridepooling Using Autonomous Electric Vehicle Fleets with Community Driven Stops," 2021.
- [25] Center for Applied Environmental Law and Policy, "Changing Consumer Preferences for EVs Over Time," 2020.
- [26] U.S. Department of Energy, "Understanding and Improving Energy Efficiency of Regional Mobility Systems Leveraging System-Level Data," 2018.
- [27] U.S. Department of Energy, "Drones, Delivery Robots, Driverless Cars, and Intelligent Curbs for Increasing Energy Productivity of First/Last Mile Goods Movement," 2018.
- [28] Carnegie Mellon University, "Carnegie Mellon Equipment Grant Proposal," 2017.
- [29] Electric Power Research Institute, "Estimating Consumer Preferences for Diverse Electric Services," 2016.
- [30] Carnegie Mellon University College of Engineering, "Workshop on Techno-Economic Assessment Methods for Energy Technologies," 2016.
- [31] Scott Institute for Energy Innovation, "Techno-Economic Assessment Methods for Energy Technologies," 2016.
- [32] Environmental Protection Agency Air, Climate, and Energy (ACE) Center, "Center for Air, Climate, and Energy Solutions (CACES)", 2015-2020.
- [33] Carnegie Mellon University Transportation Center, "Evaluating the Opportunities for Cost Savings and Environmental Benefits of Coupling Solar Energy and Electric Vehicles in City of Pittsburgh Municipal Operations," 2015.
- [34] Fuels Institute "Comparative Analysis of the Economic and Environmental Impacts of CNG and LNG for the Transportation Sector," 2014-2015.
- [35] Fuel Freedom Foundation "Assessment of Comparative Economic and Environmental Impacts of Alternative Light Duty Vehicle Liquid Fuels Produced from Natural Gas," 2014-2015.

- [36] Carnegie Mellon Metro 21 "Evaluating the Opportunities for Cost Savings and Environmental Benefits of Coupling Solar Energy and Electric Vehicles in City of Pittsburgh Municipal Operations," 2014-2015 [PI: Constantine Samaras].
- [37] Research for Advanced Manufacturing in Pennsylvania "Manufacturing Modeling Tools for Domestic Energy Storage Production: Process-Based Cost Modeling," 2012-2014 [PI: Erica Fuchs].
- [38] Carnegie Institute of Technology "Institutionalizing and Disseminating Engineering Entrepreneurship," 2012-2013 [PI: Erica Fuchs].
- [39] National Science Foundation, SciSIP Program (2011) "GOALI: Think Globally Act Locally China and the Future of Energy-Saving Vehicle Technologies," Sept 2011 – Aug 2014 [PI: Erica Fuchs].
- [40] Mellon Foundation award for "Course Instructor Outreach to Carnegie Mellon's Center for Technology Transfer," 2008-2009 [PI: Erica Fuchs].
- [41] National Science Foundation, MUSES Program "Material Use, Infrastructure Change, and Environmental Impacts for Alternative Fuels and Vehicles," Sept 2006 – Aug 2011 [PI: Lester Lave. Co-PIs: Chris Hendrickson, H. Scott Matthews, W. Michael Griffin].
- [42] United States Environmental Protection Agency P3 Award People Prosperity and the Planet Award for project "AWARE: A Step Toward Building a Sustainable Economy by Informing Consumer Purchasing Decisions at the Point of Sale," Sept 2004 – May 2005 [PI: Steven Skerlos, co-investigator W. Ross Morrow].

Student Awards

- [43] Carnegie Mellon Presidential Fellowship "Waiting for Equality: Ride-Hailing Technology Mitigates Effects of Driver Racial Discrimination but Perpetuates Effects of Residential Segregation," student: Cobb, 2024.
- [44] Dwight David Eisenhower Transportation Fellowship "How to Autonomy, Connectivity, and the Sharing Economy Affect Passenger Travel? Informing the Technical and Policy Framework for a New Mobility Future" student: Ward, 2017.
- [45] Link Foundation "Environmental Implications of Consumer Preferences and Policy Incentives for Plug-in Vehicles in China and the U.S." student: Helveston 2014-2015.
- [46] National Science Foundation Graduate Research Fellowship "Can Controlled Charging of Electric Vehicles Reduce the Economic and Environmental Implications of Integrating Wind Power into the Electricity Grid?" student: Allison Weis, 2011, June 2012 - May 2015.
- [47] National Science Foundation Graduate Research Fellowship "How Does Energy Policy Affect Vehicle Design?" student: Elizabeth Traut, 2009, June 2009 – May 2012.
- [48] Steinbrenner Institute for Environmental Education and Research "How Does Energy Policy Affect Vehicle Design?" student: Elizabeth Traut, August 2009 – July 2010.

HONORS AND AWARDS

Faculty

Steven J. Fenves Award for Systems Research, Carnegie Mellon University (2018)
Thar Energy Design Award, American Society of Mechanical Engineers (2016)
Philip L. Dowd Fellowship Award, College of Engineering, Carnegie Mellon University (2015)
Best Article Award, European Marketing Academy, International Journal of Research in Marketing, Best Article in 2011
Part Carnegie Mellon Merkering Mellon Merkering Fragmenting Class of 2010.

Best Course, awarded by the Carnegie Mellon Mechanical Engineering Class of 2010

American Society of Mechanical Engineers, Design Automation Outstanding Young Investigator Award (2009)

George Tallman Ladd Research Award for outstanding research and professional accomplishments and potential (2008)

Best Use of Technology in the Classroom, awarded by the Carnegie Mellon Mechanical Engineering Class of 2006

American Society of Mechanical Engineers Design Automation Conference Best Paper Award (2005)

Student

NSF Engineering Research Center for Reconfigurable Manufacturing Systems Ph.D. Student of the Year Award (2005)

Elaine Harden Award for Outstanding Leadership in College, University and Community Activities, (2005) – University of Michigan BLUElab Executive Committee

Martin Luther King Jr. Spirit Award for co-development of new Engineering for Community course (2004) – University of Michigan

Michigan Teaching Fellow (2003) – University of Michigan Horace H. Rackham School of Graduate Studies and the Center for Research on Learning and Teaching

University of Michigan Mechanical Engineering Graduate Student Council Second Place Award for Research Poster Competition at the Graduate Student Symposium (2003)

Rackham Interdisciplinary Institute Fellowship (2001-2002)

Devlieg Fellowship and Scholarship (2000)

Engineering Graduate Fellowship (1999)

Graduated first in the ME class of 1999 at Carnegie Mellon with University Honors

Motorola Second Place Research Award for Sigma Xi Undergraduate Research Symposium (1999)

Carnegie Institute of Technology Third Place Research Award for Sigma Xi Undergraduate Research Symposium (1999)

Bennett Award for Academic Achievement (1999)

Department Research Honors, Carnegie Mellon Mechanical Engineering (1999)

Student Leadership Award, Carnegie Mellon University (1999)

ACADEMIC SERVICE (since 2005)

Editor:

ASME Design Engineering Division Newsletter Editor (2006-2009)

Concurrent Engineering: Research and Applications, An International Journal (guest editor, Special Issue on Managing Modularity and Commonality in Product and Process Development, 2005-2006)

Reviewer:

ACS Omega AIAA Journal AMA American Marketing Association Conference Applied Energy ASME Journal of Mechanical Design ASME Design Engineering Technical Conferences Concurrent Engineering - Research and Applications Design Science

Energies Energy Journal Energy Policy Engineering Optimization Environmental Protection Agency Environmental Research Letters Environmental Science and Technology Findings IEEE Spectrum IEEE Transactions on Automation Science and Engineering IEEE Transactions on Engineering Management **IEEE Transactions on Power Systems** IEEE Transactions on Smart Grid International Journal of Hydrogen Energy International Journal of Information Technology and Decision Making International Journal of Manufacturing Technology and Management International Journal of Product Development Joule Journal of Cleaner Production Journal of Intelligent Manufacturing Marketing Science (INFORMS) National Academies of Science, Engineering and Medicine National Petroleum Council National Renewable Energy Laboratory National Research Council of the National Academies National Science Foundation Nature Nature Communications Nature Energy Proceedings of the National Academy of Sciences of the United States of America Research in Engineering Design Science Advances Scientific Reports Sloan Foundation Structural and Multidisciplinary Optimization Sustainable Transportation Transport Policy Transportation Research Board Transportation Research Part A: Policy and Practice Transportation Research Part C: Emerging Technologies Transportation Research Part D: Transport and Environment Transportation Research Record Transportation Science Union of Concerned Scientists World Electric Vehicle Journal

Conference Session Organizer / Review Coordinator: ASME International Design Engineering Technical Conferences INFORMS Annual Meeting Transportation Research Board Annual Meeting

Conference Session Chair: ASME Design Engineering Technical Conferences INFORMS Annual Meeting Transportation Research Board Annual Meeting

Outreach and Public Service:

- Fuchs, E., A. Cheng, C. Combemale, J. Michalek, K. Whitefoot et al. Briefing on critical technology assessment for the US House Select Committee on Strategic Competition between the United States and the Chinese Communist Party, February 2024, Washington D.C.
- Michalek, J. "Key findings from recent research," Electric Vehicle Policy Workshop, January 2024, Washington D.C.
- Life-Cycle Assessment for Low-Carbon Transportation Fuels Policy & Regulation, an expert meeting hosted by the National Academies, sponsored by Breakthrough Energy, Nov 1, 2023.
- Policy Briefing, National Academies of Sciences, Engineering and Medicine briefing for U.S. House of Representatives Committees on Natural Resources, Energy and Commerce, Appropriations and U.S. Senate committees on Agriculture, Nutrition and Forestry, Energy and Natural Resources, and Subcommittee on Water and Power, Oct 17, 2022.
- Policy Briefing, "Uber and Lyft in US Cities," Briefing for federal, state and local policymakers, Nov 30, 2022.
- Committee on Current Methods for Life Cycle Analysis of Low-Carbon Transportation Fuels in the United States, The National Academies of Science, Engineering and Medicine (2021-2022)
- Testimony at public hearing of Environmental Protection Agency and National Highway Traffic Safety Administration on proposed changes to the federal light-duty vehicle fuel economy and greenhouse gas emissions standards (2018)
- Commentary on Pennsylvania House Bill 1446 for Office of PA Representative Dan Frankel (2018)
- Policy Briefing, U.S. House of Representatives (2017)
- Policy Briefing, National Governors Association (2017)
- Policy Briefing, U.S. Department of Transportation (2017)
- Policy Briefing, Office of U.S. Senator Toomey (2017)
- Policy Briefing, National Resources Defense Council (2016)
- Policy Briefing, National Renewable Energy Laboratory (2016)
- Policy Briefing, Environmental Protection Agency (2016)
- Policy Briefing: California Energy Commission (2015)
- Policy Briefing: California Air Resources Board (2015)
- Policy Briefing: California State Senate Transportation Committee (2015)
- Policy Briefing: California State Assembly Transportation Committee (2015)
- Policy Briefing: Office of State Senator Fran Pavley (2015)
- Policy Briefing: California State Assembly Natural Resources Committee (2015)
- Policy Briefing, Union of Concerned Scientists (2015)
- Policy Briefing, U.S. Congressional Budget Office (2012)
- Policy Briefing, U.S. Congressional Research Service (2012)
- Policy Briefing, U.S. Senate Energy and Natural Resources Committee (2012)
- Policy Briefing, U.S. Senate Commerce, Science and Transportation Committee (2012)
- Policy Briefing, Office of U.S. Representative Levin (2012)
- Policy Briefing, National Academy of Engineering, Maxine Savitz, Vice President (2012)
- National Petroleum Council study on Future Transportation Fuels, Electricity Subgroup (2010-2012)

Policy Briefing, U.S. House of Representatives Energy and Commerce Committee (2009)

Policy Briefing, U.S. House of Representatives Committee on Science and Technology (2009)

Policy Briefing, U.S. House of Representatives Select Committee on Energy Independence and Global Warming (2009)

Policy Briefing, U.S. Congressional Research Service (2009)

Policy Briefing, Office of U.S. Senator Specter (2009)

Policy Briefing, Office of U.S. Representative Markey (2009)

Green Design Apprenticeship, 6 day course for high-school students (2007-present)

Society of Women Engineers High School Day Workshop (2005-2008)

Society Service:

Transportation Research Board of the National Academies, Alternative Transportation Fuels and Technologies Committee (member since 2014, friend since 2013)

Transportation Research Board of the National Academies, Transportation Energy Committee (friend since 2013)

ASME Design Engineering Division, Chair: Publicity and Newsletter Committee (2007-2009) ASME Design Automation Committee (since 2005)

University Service:

Engineering and Public Policy Faculty Search Committee (2024-pres) Engineering and Public Policy MS Program Committee Chair (2020-2023) Engineering and Public Policy Strategic Review Committee (2019-2020) Engineering and Public Policy Department Head Search Committee (2019-2020) Engineering and Public Policy Communications and Diversity Committee (2016-2018) Mechanical Engineering Awards Committee (2019-2023, 2024-pres) Carnegie Institute of Technology Awards Committee (2019-2023, 2024-pres) Mechanical Engineering Undergraduate Education Committee (2016-2018) Engineering and Public Policy Communications and Diversity Committee, Chair (2016-2017) Carnegie Institute of Technology Ad Hoc Promotion and Tenure Committee (2014-2015) Chair, Carnegie Mellon Mechanical Engineering Communications Committee (2013-2014) Department Head Search Committee, Engineering and Public Policy (2013-2014) Chair, Carnegie Mellon Engineering and Public Policy Graduate Education Committee (since 2013) Department Head Search Committee, Mechanical Engineering (2012) Acting co-director, Master in Product Development program, (2008-2009) Mechanical Engineering Curriculum Assessment Committee (since 2010) Mechanical Engineering Undergraduate Education Committee (2006-2011) Mechanical Engineering Library Committee (2006-2008) Engineering and Public Policy Qualifying Examination Service (since 2006) Mechanical Engineering Qualifying Examination Service (since 2005) Mechanical Engineering Seminar Series Committee (2005-2006)

INVITED SEMINARS

- [1] Update on Findings from Carnegie Mellon's Vehicle Electrification Group, EV Policy Workshop, January 2025, Washington, D.C.
- [2] Recent Findings and Insights from Carnegie Mellon's Vehicle Electrification Group, Stanford University, March 2024, Stanford, CA.

- [3] Recent Findings on Electric Vehicle Technical, Economic, Environmental, Supply Chain and Policy Factors, Lawrence Berkeley National Laboratory, March 2024, Berkeley, CA.
- [4] Key Findings from Recent Research, Electric Vehicle Policy Workshop, Jan 2024, Washington D.C.
- [5] A Review of Automotive Demand Models with Implications for Policy, Center for Applied Environmental Law and Policy, January 2024 (remote).
- [6] New Research Related to the LDV GHG Proposal, Environmental Protection Agency, May 2023 (online)
- [7] The OMEGA 2.0 Model, Environmental Protection Agency, May 2023 (online)
- [8] Automotive Choice Models, Environmental Protection Agency, March 2023 (online)
- [9] Uber and Lyft in US Cities: Research Findings on the Traffic, Environmental, Equity, Economic and Mobility Implications of the Ridesourcing Revolution, US Department of Transportation Mobility21 University Transportation Center Smart Mobility Connection, Pittsburgh, PA and online, January 2023.
- [10] Uber and Lyft in US Cities: Research Findings on the Traffic, Environmental, Equity, Economic and Mobility Implications of the Ridesourcing Revolution, Carnegie Mellon Department of Civil and Environmental Engineering, Pittsburgh, PA, November 2022.
- [11] Uber and Lyft Implications: Vehicle Ownership, Transit, Electrification, Air Emissions, Traffic Externalities and Equity, CMU Smart Mobility Connection, March 2021 (online).
- [12] Externalities of Policy-Induced Scrappage: The Case of Automotive Regulations, U.S. Environmental Protection Agency, May 2021 (online).
- [13] Evolving Consumer Preferences for Electric Vehicles, U.S. Environmental Protection Agency, March 2021 (online).
- [14] Alternative-Fuel-Vehicle Policy Interactions Increase U.S. GHG Emissions, Industry Studies Association, June 2020 (online).
- [15] Effects of On-Demand Ridesourcing on U.S. Vehicle Ownership, Travel, Energy, and Environmental Outcomes, National Bureau of Economic Research, 2019, Washington D.C.
- [16] U.S. Light-Duty Vehicle Fleet Efficiency and Greenhouse Gas Emissions Policy -- Past, Present, and Future, Webinar provided by Carnegie Mellon Transportation Electrification Group, 2018.
- [17] Effects of On-Demand Ridesourcing on U.S. Vehicle Ownership, Travel Patterns, and Energy Use Externalities, National Bureau of Economic Research, 2018, Washington, D.C.
- [18] Automobile Air Emissions and the Transition to Electric Powertrain Technology, Carnegie Mellon Department of Mechanical Engineering, Mar 23, 2018, Pittsburgh, PA.
- [19] Carnegie Mellon Vehicle Electrification Group, Department of Energy Vehicle Technologies Office Meeting, Oct 25, 2017, Pittsburgh, PA.
- [20] Carnegie Mellon Vehicle Electrification Group, Federal Highway Administration Meeting, Sept 25, 2017, Pittsburgh, PA.
- [21] Carnegie Mellon Vehicle Electrification Group, National Renewable Energy Laboratory Smart PGH Meeting, April 19, 2017, Pittsburgh, PA.
- [22] Implications of Utility-Controlled Charging for Electric Vehicle Cost and Emissions, Vehicle Grid Integration Workshop, Transportation Research Board Annual Meeting, Jan 8, 2017, Washington, D.C.
- [23] Techno-Economic Analysis for Differentiated Products, Institute for Techno-Economic Assessment Methods, Carnegie Mellon University, Nov 18, 2016, Pittsburgh, PA.
- [24] Electric Vehicle Adoption Potential in the United States, University of California, Davis, Apr 12, 2016, Davis, CA.

- [25] *Electric Vehicles: Benefits, Costs, and Policies in the United States*, National Resources Defense Council, Apr 11, 2016, San Francisco, CA.
- [26] Upstream Emissions from Electric Vehicle Charging, UN Economic Commission for Europe EVE Working Group, Apr 11, 2016, delivered remotely to China.
- [27] Electric Vehicles: Benefits, Costs, and Policies in the United States, Stanford University Precourt Institute for Energy, Apr 8, 2016, Stanford, CA.
- [28] Alternative Fuel Vehicle Adoption Increases U.S. Fleet Gasoline Consumption and Greenhouse Gas Emissions under Federal Corporate Average Fuel Economy and Fleet Greenhouse Gas Emission Policy, King Abdullah Petroleum Studies and Research Center Workshop, April 1, 2016, San Francisco, CA.
- [29] Electric Vehicles: Benefits, Costs, and Policies in the United States, Energy Institute at Haas, University of California, Berkeley, March 31, 2016, Berkeley, CA.
- [30] Electric Vehicles: Benefits, Costs, and Policies in the United States, Lawrence Berkeley National Laboratory, Mar 29, 2016, Berkeley, CA.
- [31] Electric Vehicles: Benefits, Costs, and Policies in the United States, Renewable and Appropriate Energy Laboratory, Energy Resources Group, University of California, Berkeley, Mar 16, 2016, Berkeley, CA.
- [32] Electric Vehicles: Benefits, Costs, and Policies in the United States, Ford Motor Company, Mar 3, 2016, Palo Alto, CA.
- [33] *Electric Vehicle Adoption Potential in the United States*, National Renewable Energy Laboratory, Feb 2, 2016, Golden, CO.
- [34] Electric Vehicles: Benefits, Costs, and Policies in the United States, National Renewable Energy Laboratory, Feb 2, 2016, Golden, CO.
- [35] Electric Vehicles: Benefits, Costs, Policies, and Adoption Potential in the United States, Environmental Protection Agency, Office of Transportation and Air Quality, Jan 20, 2016, Ann Arbor, MI.
- [36] *Electric Vehicles: Benefits, Costs, Policies, and Adoption Potential in the United States*, Centro para a Excelência e Inovação na Indústria Automóvel, Dec 15, 2015, Matosinhos, Portugal.
- [37] Electric Vehicles: Benefits, Costs, Policies, and Adoption Potential in the United States, Instituto Superior Téchnico, Universidade de Lisboa, Dec 11, 2015, Lisbon, Portugal.
- [38] Electric Vehicles: Benefits, Costs, and Adoption Potential in the United States, California Energy Commission, June 2015, Sacramento, CA.
- [39] Electric Vehicles: Benefits, Costs, and Adoption Potential in the United States, California Air Resources Board, June 2015, Sacramento, CA.
- [40] Electric Vehicles: Benefits, Costs, and Adoption Potential in the United States, University of California, Davis, June 2015, Davis, CA.
- [41] Electric Vehicles: Benefits, Costs, and Adoption Potential in the United States, Union of Concerned Scientists, June 2015, Oakland, CA.
- [42] Carnegie Mellon Vehicle Electrification Group, Toyota Motor Sales, September 12, 2014, Torrance, CA.
- [43] Vehicle Automation: Implications for Advanced Vehicle Energy Technologies, University of Michigan Transportation Research Institute Global Symposium (invited by Jacob Ward, US DOE), April 23, 2014, Ann Arbor, MI.
- [44] Plug-in Vehicle Life Cycle Benefits and Costs: Implications and Strategies, University of Illinois at Urbana-Champaign, February 28, 2013, Champaign, IL.
- [45] The Costs and Benefits of Plug-in Vehicles: How Much Can We Control? University of California, San Diego, February 22, 2013, San Diego, CA.

- [46] Air Emissions and Oil Displacement Benefits from Plug-in Vehicles, Society of Automotive Engineers Hybrid and Electric Vehicle Symposium, February 20, 2013, Anaheim, CA.
- [47] Effect of Location and Driving Conditions on Plug-in Vehicle Benefits, Transportation Research Board of the National Academies, January 13, 2013, Washington D.C.
- [48] Quantifying Plug-in Vehicle Benefits, Argonne National Laboratory, Aug 17, 2012, Argonne, IL.
- [49] Thoughts on the Field of Design for Market Systems, Northwestern University, Aug 16, 2012, Evanston, IL.
- [50] Are Plug-in Vehicles Worth the Cost? Valuing Air Emissions and Oil Displacement Benefits in the U.S., March 14, 2012 Toyota Motor North America, Washington, DC.
- [51] Are Plug-in Vehicles Worth the Cost? Valuing Air Emissions and Oil Displacement Benefits in the U.S., Sept 2011, Cambridge University, U.K.
- [52] Life Cycle Cost, Air Emissions, and Oil Displacement Potential of Plug-in Vehicles, Ford Motor Company, July 2011, Dearborn, MI.
- [53] On the Life Cycle Implications of Plug-in Hybrid Electric Vehicles, University of California Berkeley, Oct 22, 2010, Berkeley, CA.
- [54] On the Life Cycle Implications of Plug-in Hybrid Electric Vehicles, Stanford University, Precourt Energy Efficiency Center, Oct 21, 2010, Stanford, CA.
- [55] Product Design in Strategic Firm Decision-Making, Stanford Graduate School of Business, Operations, Information and Technology Group, Oct 20, 2010, Stanford, CA.
- [56] On the Life Cycle Implications of Plug-in Hybrid Electric Vehicles, University of California Davis, ITS-STEPS Seminar, Oct 19, 2010, Davis, CA.
- [57] Do More Batteries Make a Plug-in Better? Economic and Environmental Analysis of Plug-in Hybrid Electric Vehicles, Society of Automotive Engineers Government-Industry Meeting, January 28, 2010, Washington, D.C.
- [58] Market Forces and Public Policy in Engineering Systems Optimization, Massachusetts Institute of Technology, Engineering Systems Division, June 12, 2009, Boston, MA.
- [59] Design for Market Systems: Integrating Social, Economic, and Physical Sciences to Engineer Product Success, University of Maryland – College Park, Design and Reliability of Systems Division, January 14, 2009, College Park, MD.
- [60] Design for Market Systems: Integrating Social, Economic, and Physical Sciences to Engineer Product Success, The Pennsylvania State University, Industrial and Manufacturing Engineering, October 16, 2008, State College, PA.
- [61] Driving Design: Modeling Market Forces and Public Policy in Vehicle Design, State University of New York at Buffalo, Mechanical and Aerospace Engineering, April 10, 2008, Buffalo, NY.
- [62] Should Designers Worry about Market Structure?, The Pennsylvania State University, Engineering Design, April 4, 2008, State College, PA.
- [63] Modeling Energy Policy and Consumer Choice in Vehicle Design Optimization, Ford Motor Company, Systems Analytics and Environmental Sciences, July 25, 2007, Detroit, MI.
- [64] Realizable Product Line Optimization: Coordinating Product Positioning and Design for Heterogeneous Markets, Tepper School of Business, Carnegie Mellon University, Feb. 24, 2006, Pittsburgh, PA.
- [65] A Model for Studying the Impact of Fuel Economy and Emission Policy on Profit-Driven Vehicle Design Decisions in a Competitive Market, Green Design Institute, Carnegie Mellon University, Oct. 20, 2005, Pittsburgh, PA.
- [66] Preference Coordination in Engineering Design Decision-Making, Mechanical Engineering, Northwestern University, March 31, 2005, Evanston, IL.

- [67] Preference Coordination in Engineering Design Decision-Making, General Motors Research and Development Seminar, Oct. 27, 2004, Detroit, MI.
- [68] Individual, Social and Economic Preference in Engineering Design Decision-Making, Eindhoven University of Technology, April 22, 2004, Eindhoven, The Netherlands.
- [69] Automotive Design and Environmental Policy in the US Market, Delft University of Technology, April 21, 2004, Delft, The Netherlands.
- [70] Coordination of Preferences Using Hierarchical Optimization of Complex Systems, Ecole Centrale de Nantes, April 19, 2004, Nantes, France.
- [71] Automotive Design and Environmental Policy in the US Market, Technischen Universität Berlin, April 8, 2004, Berlin, Germany.

PROFESSIONAL PRESENTATIONS

- [72] A Hitchhiker's Guide to Drone Delivery: Comparing Speed and Emissions of Drones on Transit Buses for Direct Rapid Delivery, Transportation Research Board Annual Meeting, Jan 2025, Washington, D.C. (with Aaron Burns)
- [73] Estimating the Potential for Dynamic Parking Reservation Systems to Increase Delivery Vehicle Accommodation, Transportation Research Board Annual Meeting, Jan 2025, Washington D.C. (with Aaron Burns)
- [74] Cancel Culture: Simulating the Effects of Discrimination in Ridesourcing Systems, National Academies Transportation Research Board Annual Meeting, Jan 2024, Washington D.C.
- [75] Fast Charging Electric Vehicles Degrades Some Battery Chemistries Quickly While Others are Resilient, National Academies Transportation Research Board Annual Meeting, Jan 2024, Washington D.C.
- [76] A Review of Automotive Demand Models for Informing Public Policy, U.S. Association for Energy Economics Annual Meeting, Nov 2023, Chicago, IL.
- [77] Driving Electric Vehicle Adoption: The Role of Technology and Consumer Preferences, NBER Economics of Energy Use in Transportation, May 2023, Washington D.C. (with Connor Forsythe)
- [78] Air Pollution, Greenhouse Gas, and Traffic Externality Benefits and Costs of Fully Electrifying Ridesourcing Services, National Academies Transportation Research Board Annual Meeting, Jan 2023, Washington, D.C.
- [79] Energy Consumption and GHG Emissions of Autonomous Ground Delivery Vehicles, National Academies Transportation Research Board Annual Meeting, Jan 2023, Washington, D.C.
- [80] The Air Pollution, Greenhouse Gas and Traffic Externality Costs and Benefits of Shifting Private Vehicle Travel to Ridesourcing Services, National Academies Transportation Research Board Annual Meeting, Jan 2023, Washington, D.C.
- [81] Should Ridesourcing Services Pool More Rides?, National Academies Transportation Research Board Annual Meeting, Jan 2023, Washington, D.C. (with M. Bruchon)
- [82] Smart Curbspace Estimating the Potential for Optimized Delivery Vehicle Parking Assignment to Reduce Double Parking, Congestion and Energy Consumption, National Academies Transportation Research Board Annual Meeting, Jan 2023, Washington, D.C. (with A. Burns)
- [83] Does Congestion Pricing for Uber and Lyft Work? Effects of Chicago's Downtown Zone Surcharge, National Academies Transportation Research Board Annual Meeting, Jan 2023, Washington, D.C. (with M. Bruchon)
- [84] What's Driving Electric Vehicle Adoption? Evaluating Changes in U.S. Consumer Preferences and Vehicle Technologies, National Academies Transportation Research Board Annual Meeting, Jan 2023, Washington, D.C. (with C. Forsythe)

- [85] Ride-Sharing the Wealth: Effects of Uber and Lyft on Jobs, Wages and Economic Growth, National Academies Transportation Research Board Annual Meeting, Jan 2023, Washington, D.C. (with A. Koling)
- [86] How Clean Does the U.S. Electricity Grid Need to Be to Ensure Electric Vehicles Reduce Greenhouse Gas Emissions?, National Academies Transportation Research Board Annual Meeting, Jan 2023, Washington, D.C.
- [87] Exploring the Congestion, Emissions and Energy Implications of Switching from In-Person to Online Grocery Shopping, National Academies Transportation Research Board Annual Meeting, Jan 2023, Washington, D.C. (with M. Lezcano)
- [88] Will Pickup Truck Owners Go Electric?, National Academies Transportation Research Board Annual Meeting, Jan 2023, Washington, D.C. (with C. Forsythe)
- [89] The Air Pollution, Greenhouse Gas and Traffic Externality Benefits and Costs of Shifting Private Vehicle Travel to Rideesourcing Services, United States Association for Energy Economics, October 2022, Houston, TX.
- [90] Externalities of Policy-Induced Scrappage: The Case of Automotive Regulations, Transportation Research Board Annual Meeting, Jan 2021 (with C. Forsythe)
- [91] The Dynamic Costs and Benefits of Technology-Forcing Policy Nested in a Broader Performance Standard: The Case of ZEV and CAFE, Transportation Research Board Annual Meeting, Jan 2021 (with A. Yip)
- [92] Effects of Air Emissions Externalities on Optimal Ride-Hailing Fleet Electrification and Operations, National Bureau of Economics, Energy Use in Transportation Conference, June 2020, Washington D.C.
- [93] Alternative Fuel Vehicle Policy Interactions Increase U.S. Greenhouse Gas Emissions, Industry Studies Association, June 2020 (online).
- [94] Effects of On-Demand Ridesourcing on U.S. Vehicle Ownership, Energy and Environmental Outcomes in the United States, January 2020, Washington D.C. (with J. Ward)
- [95] Ride-Hailing Fleets Increase Vehicle Electrification and Reduce Emissions, January 2020, Washington D.C. (with M. Bruchon)
- [96] Alternative Fuel Vehicle Policy Interactions Increase U.S. Greenhouse Gas Emissions, Transportation, Economics, Energy and Environment Conference, Oct 2019, Ann Arbor, MI.
- [97] Effects of On-Demand Ridesourcing on U.S. Vehicle Ownership, Travel, Energy, and Environmental Outcomes, National Bureau of Economic Research, May 2019, Washington D.C.
- [98] U.S. Federal and State Policy Interactions for Alternative Fuel Vehicles, Transportation Research Board Annual Meeting, Jan 10, 2018, Washington, D.C.
- [99] On-Demand Ridesourcing Has Reduced Per-Capita Vehicle Registrations and Gasoline Use in U.S. States, Transportation Research Board Annual Meeting, Jan 2018, Washington D.C.
- [100] Using Composite Vehicles in Choice Model Simulations: Implications on Prediction and Policy, Transportation Research Board Annual Meeting, Jan 2018, Washington D.C.
- [101] U.S. Alternative Fuel Vehicle Policy Interactions Increase Greenhouse Gas Emissions, Transportation Research Board Annual Meeting, Jan 2017, Washington D.C.
- [102] Consequential Life-Cycle Air Emissions Externalities for Plug-in Electric Vehicles in the PJM Interconnection, Transportation Research Board Annual Meeting, Jan 2016, Washington, D.C.
- [103] Effect of Regional Grid Mix, Driving Patterns, and Climate on the Comparative Carbon Footprint of Electric and Gasoline Vehicles, Transportation Research Board Annual Meeting, Jan 2016, Washington, D.C.
- [104] Unintended Consequences: Why U.S. Alternative Fuel Vehicle Adoption Increases Fleet Gasoline Consumption and Greenhouse Gas Emissions under Federal Corporate Average Fuel Economy and Greenhouse Gas Emission Policy, United States Association for Energy Economics, Oct 27, 2015, Pittsburgh, PA.

- [105] Life Cycle Air Emissions Externality Implications of Electric Vehicle Adoption in the United States: A Comparison of Empirical and Normative Approaches, United States Association for Energy Economics, Oct 27, 2015, Pittsburgh, PA (speaker: Jaramillo).
- [106] Emissions from Electric Vehicle Charging in the United States, Climate and Energy Decision Making Center Annual Meeting, May 21, 2015, Pittsburgh, PA.
- [107] Forecasting Light-Duty Vehicle Demand using Alternative-Specific Constants for Endogeneity Correction vs. Calibration, Transportation Research Board Annual Meeting, Jan 14, 2015, Washington, DC.
- [108] Emissions and Cost Implications of Controlled Electric Vehicle Charging in the PJM Interconnection, Transportation Research Board Annual Meeting, Jan 14, 2015, Washington, DC.
- [109] Energy Implications of Partial Vehicle Automation, Transportation Research Board Annual Meeting, Jan 13, 2015, Washington, DC. (speaker: Hayeri).
- [110] Greenhouse Gas Emissions from Alternative Fuel Vehicle Incentives in CAFE Policy, Transportation Research Board Annual Meeting, Jan 13, 2015 (poster), Washington, DC.
- [111] A Techno-Economic Analysis and Optimization of Li-ion Batteries for Light-Duty Passenger Vehicle Electrification, Transportation Research Board Annual Meeting, Jan 13, 2015 (poster), Washington, DC.
- [112] Regional Uncertainty and Variability of Electric Vehicle Life Cycle CO₂ Emissions in the U.S., Transportation Research Board Annual Meeting, Jan 13, 2015 (poster), Washington, DC.
- [113] Effects of Regional Temperature on Electric Vehicle Efficiency, Range and Emissions in the United States, Transportation Research Board Annual Meeting, Jan 12, 2015, Washington, DC (speaker: Yuksel).
- [114] A Techno-Economic Analysis and Optimization of Li-ion Batteries for Light-Duty Passenger Vehicle Electrification, Carnegie Mellon Electrochemical Systems Group, Nov 14, 2014, Pittsburgh, PA.
- [115] Regional Emissions from Electric Vehicles, Carnegie Mellon Electricity Industry Center, Oct 21, 2014, Pittsburgh, PA.
- [116] Costs and Emissions Implications of Controlled Electric Vehicle Charging, Climate and Energy Decision Making Center Annual Meeting, May 20, 2014, Pittsburgh, PA.
- [117] Consumer Preferences for Hybrid and Electric Vehicles in China and the United States: Implications for Policy and Environment, Transportation Research Board Annual Meeting, January 2014, Washington D.C. (speaker: Helveston).
- [118] Sensitivity of Vehicle Market Share Predictions to Alternative Discrete Choice Model Specifications, Transportation Research Board Annual Meeting, January 2014, Washington D.C.
- [119] Comparative Life-Cycle Cost of Electric Vehicle Battery Exchange Versus Fast Charging Stations, Transportation Research Board Annual Meeting, January 2014, Washington D.C.
- [120] Influence of Driving Patterns on Life-Cycle Cost and Emissions of Hybrid and Plug-in Electric Vehicle Powertrains, Transportation Research Board Annual Meeting, January 2014, Washington D.C.
- [121] Global Control Optimization of Electric Vehicles with Supercapacitor-Battery Systems Over a Set of Real-World Speed and Elevation Profiles via Dynamic Programming, Transportation Research Board Annual Meeting, January 2014, Washington D.C.
- [122] Life Cycle Cost of Electric Vehicle Fast Charging and Battery Swapping Stations, INFORMS Annual Meeting, October 2013, Minneapolis, MN.
- [123] Consumer Preferences for Hybrid and Electric Vehicles in China and the United States, INFORMS Annual Meeting, October 2013, Minneapolis, MN (speaker: Helveston).
- [124] Sensitivity of Vehicle Market Share Predictions to Alternative Discrete Choice Model Specifications, ASME International Design Engineering Technical Conferences, August 2013, Portland, OR (speaker: Haaf).

- [125] Toward Understanding the Role of Interaction Effects in Visual Conjoint Analysis, ASME International Design Engineering Technical Conferences, August 2013, Portland, OR (speaker: Sylcott).
- [126] Electric Vehicles: A Techno-Economic and Environmental Assessment of Costs, Benefits, Challenges, and Strategies, Carnegie Mellon University (departmental seminar), April 26, 2013, Pittsburgh, PA.
- [127] Cost-Effectiveness of PHEV Battery Capacity and Charging Infrastructure, Transportation Research Board of the National Academies, poster presentation, January 15, 2013, Washington, D.C.
- [128] Evaluation of the Effects of Thermal Management on Battery Life in PHEVs, Transportation Research Board of the National Academies, poster presentation, January 15, 2013, Washington, D.C. (speaker: Yuksel)
- [129] U.S. Residential Charging Potential for Plug-in Vehicles, Transportation Research Board of the National Academies, poster presentation, January 15, 2013, Washington, D.C. (speaker: Traut)
- [130] Valuation of Plug-in Vehicle Life Cycle Air Emissions and Oil Displacement Benefits, Transportation Research Board of the National Academies, poster presentation, January 15, 2013, Washington, D.C.
- [131] Influence of Driving Patterns on Life Cycle Benefits of Hybrid and Plug-in Electric Vehicles, International Mechanical Engineering Congress and Exposition, November 2012, Houston, TX. (speaker: Karabasoglu)
- [132] Optimal Combined Design and Control of Electrified Vehicles for Globally Minimum Life Cycle Cost, International Mechanical Engineering Congress and Exposition, November 2012, Houston, TX. (speaker: Karabasoglu)
- [133] Supercapacitor-Battery System Design and Control for Plug-in Electric Vehicles and Life Cycle Economic and Environmental Implications, International Mechanical Engineering Congress and Exposition, November 2012, Houston, TX. (speaker: Karabasoglu)
- [134] Controlled Plug-in Vehicle Charging in High Wind Penetration Scenarios, INFORMS Annual Meeting, Oct 2012, Phoenix, AZ. (speaker: Weis)
- [135] Globally Optimal Robust Design and Control of Plug-in Hybrid Electric Vehicles, INFORMS Annual Meeting, Oct 2012, Phoenix, AZ. (speaker: Karabasoglu)
- [136] Global Control Optimization of Supercapacitor-Battery Electric Vehicles, INFORMS Annual Meeting, Oct 2012, Phoenix, AZ. (speaker: Karabasoglu)
- [137] Driving Design: Modeling the Influence of Market Forces and Public Policy on Vehicle Design Decisions, National Science Foundation Civil, Mechanical, and Manufacturing Innovation Conference, July 23, 2012, Boston, MA.
- [138] Development of a Simulation Model to Analyze the Effect of Thermal Management on Battery Life, SAE World Congress, April 25, 2012, Detroit, MI (speaker: Yuksel)
- [139] Evaluation of the Effects of Thermal Management on Battery Life in Plug-in Hybrid Electric Vehicles, The Battery Congress, April 23, 2012, Ann Arbor, MI (speaker: Yuksel)
- [140] Are Plug-in Vehicles Worth the Cost? Valuing Air Emissions and Oil Displacement Benefits in the U.S., INFORMS Annual Meeting, Nov 2011, Charlotte, N.C.
- [141] Using Economic Input-Output Life Cycle Assessment to Guide Sustainable Design, INFORMS Annual Meeting, Nov 2011, Charlotte, N.C. (speaker: Traut)
- [142] Optimal Design and Allocation of Electrified Vehicles and Dedicated Charging Infrastructure for Minimum Greenhouse Gas Emissions, INFORMS Annual Meeting, Nov 2011, Charlotte, N.C. (speaker: Traut)
- [143] Minimizing the Integration Costs of Wind Using Curtailment and Electric Vehicle Charging, U.S. Association for Energy Economics North American Conference, Oct 2011, Washington D.C. (speaker: Weis)

- [144] Robust Design for Profit Maximization under Uncertainty of Consumer Choice Model Parameters Using the Delta Method, ASME International Design Engineering Technical Conferences, Aug 2011, Washington D.C. (speaker: Heckmann)
- [145] Using Economic Input-Output Life Cycle Assessment to Guide Sustainable Design, ASME International Design Engineering Technical Conferences, Aug 31, 2011, Washington D.C.
- [146] Are Plug-in Vehicles Worth the Cost?, ASME International Design Engineering Technical Conferences, Aug 30, 2011, Washington D.C.
- [147] A Perspective on Rebound Effects and Demand/Supply Equilibrium, 2011 Climate and Energy Decision Making Workshop, June 2011, Washington D.C. (speaker: Hendrickson)
- [148] NHTS Survey Day Driving Distance and Estimated Variability to inform Electric Vehicle Range Design, Using National Household Travel Survey (HNTS) Data for Transportation Decision Making Workshop, June 2011, Washington, D.C. (speaker: Traut)
- [149] Costs and Benefits of Plug-in Vehicles, Carnegie Mellon Steinbrenner Media Fellowship, June 2011, Pittsburgh, PA.
- [150] Optimal Design and Allocation of Electrified Vehicles and Dedicated Charging Infrastructure for Minimum Greenhouse Gas Emissions, International Society of Industrial Ecology Conference, June 2011, Berkeley, CA. (speaker: Traut)
- [151] Techno-Economic Analysis of Lithium-Ion Batteries for Personal Vehicle Electrification, with Apurba Sakti, Technology Management and Policy Conference, May 2011, State College, PA.
- [152] Optimal Design and Allocation of Electrified Vehicles and Dedicated Charging Infrastructure for Minimum Greenhouse Gas Emissions, Mascaro Center's Engineering Sustainability Conference 2011, April 2011, Pittsburgh, PA.
- [153] Air Emissions and Oil Displacement Benefits from Plug-in Vehicles, policy brief presented to members of the Congressional Budget Office, the Congressional Research Service, the Senate Energy and Natural Resources Committee, the Senate Commerce, Science and Transportation Committee, and members of the U.S. House of Representatives, March 13-14, 2012, Washington, D.C.
- [154] Techno-Economic Analysis of Lithium-Ion Batteries for Personal Electrification, with Apurba Sakti. National Academies Transportation Research Board Annual Meeting, January 23-27, 2011, Washington, D.C.
- [155] Optimal Design and Allocation of Electrified Vehicles and Dedicated Charging Infrastructure for Minimum Greenhouse Gas Emissions, with Elizabeth Traut, National Academies Transportation Research Board Annual Meeting, January 23-27, 2011, Washington D.C.
- [156] Driving Design: Modeling the Influence of Market Forces and Public Policy on Vehicle Design Decisions, Civil, Mechanical and Manufacturing Innovation Conference, January 4-7, 2011, Atlanta, GA.
- [157] Material Use, Infrastructure Change, and Environmental Impacts of Alternative Fuels and Vehicles, Civil, Mechanical and Manufacturing Innovation Conference, January 4-7, 2011, Atlanta, GA.
- [158] Are Plug-in Vehicles Worth the Cost?, INFORMS Annual Meeting, Nov 9, 2010, Austin, TX.
- [159] A MINLP Model for Global Optimization of Plug-in Vehicle Design and Allocation to Minimize Life Cycle Cost and Greenhouse Gas Emissions, INFORMS Annual Meeting, Nov 8, 2010, Austin, TX.
- [160] Why Your Plug-in Hybrid Electric Vehicle with a 40-mile Battery May Only Go 25, with Orkun Karabasoglu, INFORMS Annual Meeting, Nov 9, 2010, Austin, TX.
- [161] Optimal Plug-in Hybrid Electric Vehicle Design and Allocation for Minimum Life Cycle Cost, Petroleum Consumption, and Greenhouse Gas Emissions, ASME International Design Engineering Technical Conferences, Advanced Vehicle and Tire Technology Conference, Aug 2010, Montreal, CA.

- [162] A MINLP Model for Global Optimization of Plug-in Hybrid Electric Vehicle Design and Allocation to Minimize Life Cycle Greenhouse Gas Emissions, ASME International Design Engineering Technical Conferences, Design Automation Conference, Aug 2010, Montreal, CA.
- [163] MINLP Global Optimization of Plug-in Hybrid Vehicle Design and Allocation for Minimum Cost and GHG Emissions, INFORMS Conference on Energy, Sustainability and Climate Change, Feb 2010, Gainesville, FL, USA.
- [164] Do More Batteries Make a Plug-in Better? Economic and Environmental Analysis of Plug-in Hybrid Electric Vehicles, Society of Automotive Engineers Government-Industry Meeting, Jan 2010, Washington D.C., USA.
- [165] Do More Batteries Make a Plug-in Better? Economic and Environmental Analysis of Plug-in Hybrid Electric Vehicles, Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Oct 11, 2009, San Diego, CA, USA.
- [166] Optimal Plug-in Hybrid Electric Vehicle Design and Allocation for Diverse Driving Patterns, ASME Design Engineering Technical Conferences, Sept 1 2009, San Diego, CA, USA.
- [167] Do More Batteries Make a Plug-in Better? Economic and Environmental Analysis of Plug-in Hybrid Electric Vehicles, MIT Engineering Systems Symposium, June 17, 2009, Boston, MA, USA.
- [168] A Structural Analysis of Vehicle Design Responses to Corporate Average Fuel Economy (CAFE) Policy, poster presentation, MIT Engineering Systems Symposium, June 16, 2009, Boston, MA, USA.
- [169] Economic, Environmental, and Security Implications of Plug-in Hybrid Electric Vehicles, Presented to staff members of the House Energy and Commerce Committee, the House Committee on Science and Technology, the Select Committee on Energy Independence and Global Warming, the Congressional Research Service, and offices of U.S. House and Senate members, April 16 and April 20, 2009, Washington D.C., USA.
- [170] A Structural Analysis of Vehicle Design Responses to CAFE Policy, National Academies Transportation Research Board Annual Meeting, January 2009, Washington DC, USA.
- [171] Impact of Battery Weight and Charging Patterns on the Economic and Environmental Benefits of Plug-in Hybrid Vehicles, National Academies Transportation Research Board Annual Meeting, January 2009, Washington DC, USA.
- [172] A Structural Analysis of Vehicle Design Responses to CAFE Policy, Institute for Operations Research and Management Sciences (INFORMS) Annual Meeting, November 2008, Washington, DC, USA.
- [173] A Deterministic Lagrangian-Based Global Optimization Approach for Decomposable Nonconvex Mixed-Integer Problems, Institute for Operations Research and Management Sciences (INFORMS) Annual Meeting, November 2008, Washington, DC, USA.
- [174] Optimal Product Design in a Competitive Market, Institute for Operations Research and Management Sciences (INFORMS) Annual Meeting, November 2008, Washington, DC, USA.
- [175] Consumer Heterogeneity and Channel Structures in Optimal Product Design, Institute for Operations Research and Management Sciences (INFORMS) Annual Meeting, November 2008, Washington, DC, USA.
- [176] Global Optimization of the Joint Product Family Platform Selection and Design Problem, Institute for Operations Research and Management Sciences (INFORMS) Annual Meeting, November 2008, Washington, DC, USA.
- [177] Impact of Battery Weight and Charging Patterns on Plug-in Hybrid Vehicles, ASME International Design Engineering Technical Conferences, August 2008, New York, NY, USA.
- [178] Should Designers Worry about Market Systems?, ASME International Design Engineering Technical Conferences, August 2008, New York, NY, USA.
- [179] Optimal Product Design under Price Competition, ASME International Design Engineering Technical Conferences, August 2008, New York, NY, USA.

- [180] A Deterministic Lagrangian-based Global Optimization Approach for Large-Scale Decomposable Problems, ASME International Design Engineering Technical Conferences, August 2008, New York, NY, USA.
- [181] Wiki-Based Learning in the Mechanical Engineering Classroom, American Society for Engineering Education (ASEE) Annual Conference and Exposition, June 2008, Pittsburgh, PA, USA.
- [182] Applications of Lagrangian Branch and Cut for Hierarchical Engineering Systems, Institute For Operations Research and the Management Sciences (INFORMS) Annual Meeting, November 2007, Seattle, WA, USA.
- [183] A Quantitative Approach to Achieving Optimal Balance between Product Variety and Manufacturability, Institute For Operations Research and the Management Sciences (INFORMS) Annual Meeting, November 2007, Seattle, WA, USA.
- [184] Product Line Design Optimization for Heterogeneous Markets, Institute For Operations Research and the Management Sciences (INFORMS) Annual Meeting, November 2007, Seattle, WA, USA.
- [185] Diagonal Quadratic Approximation for Parallelization of Analytical Target Cascading, ASME International Design Engineering Technical Conferences, September 2007, Las Vegas, NV, USA.
- [186] A Game Theoretic Approach to Finding Market Equilibria for Automotive Design under Environmental Regulation, ASME International Design Engineering Technical Conferences, September 2007, Las Vegas, NV, USA.
- [187] Design Optimization of a Laptop Computer using Aggregate and Mixed Logit Demand Models with Consumer Survey Data, ASME International Design Engineering Technical Conferences, September 2007, Las Vegas, NV, USA.
- [188] Measurement of Headlight Form Preference using Choice-Based Conjoint Analysis, ASME International Design Engineering Technical Conferences, September 2007, Las Vegas, NV, USA.
- [189] An Extension of the Commonality Index for Product Family Optimization, ASME International Design Engineering Technical Conferences, September 2007, Las Vegas, NV, USA.
- [190] A Single-Stage Gradient-Based Approach for Solving the Joint Product Family Platform Selection and Design Problem using Decomposition, ASME International Design Engineering Technical Conferences, September 2007, Las Vegas, NV, USA.
- [191] A Decomposed Genetic Algorithm for Solving the Joint Product Family Optimization Problem, AIAA Multidisciplinary Design Optimization Specialists Conference, April, Honolulu, Hawaii, USA.
- [192] Balancing Marketability and Manufacturability in Product Line Design Optimization, Institute For Operations Research and the Management Sciences (INFORMS) Annual Conference, November 2006, Pittsburgh, PA.
- [193] The Impact of Environmental Policy on Profit-Driven Vehicle Design Optimization, Institute For Operations Research and the Management Sciences (INFORMS) Annual Conference, November 2006, Pittsburgh, PA.
- [194] Analytical Target Cascading using Branch and Bound for Mixed Integer Nonlinear Programming, ASME International Design Engineering Technical Conferences, September 2006, Philadelphia, PA, USA.
- [195] Balancing Marketing and Manufacturing Objectives in Product Line Design, ASME International Design Engineering Technical Conferences, September 2005, Long Beach, CA, USA.
- [196] An Efficient Weighting Update Method to Achieve Acceptable Consistency Deviation in Analytical Target Cascading, ASME International Design Engineering Technical Conferences, September 2004, Salt Lake City, Utah, USA.
- [197] An Efficient Weighting Update Method to Achieve Acceptable Consistency Deviation in Analytical Target Cascading, Automotive Research Center Conference, May 2004, Ann Arbor, MI, USA.

- [198] An Optimal Marketing and Engineering Design Model for Product Development Using Analytical Target Cascading, Tools and Methods of Competitive Engineering Conference, April 2004, Lausanne, Switzerland.
- [199] A Simulation-based Vehicle Design Strategy for Requirements Validation, Automotive Research Center Conference, May 12, 2003, Chrysler Headquarters, Auburn Hills, MI, USA.
- [200] A Study of Emission Policy Effects on Optimal Vehicle Design Decisions, ASME Design Engineering Technical Conferences, September 2003, Chicago, IL, USA.

VIDEOS

- [1] EV Battery Supply Chain Vulnerabilities, Nov 2024
- [2] Racial Disparities in Ride-hailing, Nov 2024
- [3] Methods for Life Cycle Analyses of Low-Carbon Transportation Fuels, December 2022
- [4] Impacts of Ridesourcing Services, December 2022
- [5] Did You Know That Extreme Weather Affects an Electric Car's Range? Inside Science, Nov 2015
- [6] <u>Electric Vehicle Benefits & Costs in the U.S.</u>, Carnegie Mellon University, June 2015
- [7] Electric Vehicle Adoption Potential in the U.S., Carnegie Mellon University, June 2015
- [8] <u>Is Manufacturing in China a Wise Decision for a Small, Innovative US Company?</u> Carnegie Mellon University Scott Institute for Energy Innovation, June 2015
- [9] Jeremy Michalek: Vehicle Electrification, Carnegie Mellon University, April 2015
- [10] <u>CMU Energy Interview: Jeremy Michalek</u>, Carnegie Mellon University, July 2013
- [11] Do Hybrid and Plug-in Cars Really Save the Environment? Carnegie Mellon University Scott Institute for Energy Innovation, Nov 2013
- [12] <u>CMU Energy Presentation: Plug-in Vehicles</u>, Carnegie Mellon University, Sep 2012

RADIO AND PODCASTS

- [13] Marketplace, National Public Radio: <u>One more byproduct of hybrid work: The rideshare commute</u>, Nov 7, 2024.
- [14] Marketplace, National Public Radio: <u>To convince more drivers to go electric, the Biden administration</u> <u>wants chargers that work for all EVs</u>, June 2022.
- [15] National Public Radio The Environment in Focus, <u>Despite federal boost, roadblocks remain for</u> <u>electric cars</u>, Aug 16, 2021.
- [16] National Public Radio Marketplace: Infrastructure bill could boost EV charging stations, but who's in charge of the stations? Aug 12, 2021.
- [17] On Point, National Public Radio, WBUR: America's Electric Vehicle Future, June 2021
- [18] Energy Bite, WESA-Pittsburgh: Are electric vehicles the right choice for you? July 2015
- [19] Energy Bite, WESA-Pittsburgh: If I buy a plug-in electric vehicle, how much will it help the environment? July 2015
- [20] Energy Bite, WESA-Pittsburgh: <u>Will everyone be driving a plug-in electric vehicle in the future?</u> July 2015

- [21] Energy Bite, WESA-Pittsburgh: If I buy a plug-in electric vehicle, when is the most efficient time to charge it? July 2015
- [22] Energy Bite, WESA-Pittsburgh: Will automated vehicles help save energy? July 2015
- [23] Carnegie Mellon Engineering: What do American and Chinese consumers want in an electric vehicle? May 2015
- [24] Carnegie Mellon Engineering: How does climate affect your electric car's performance? April 2015

PRESS RELEASES

- [1] U.S. industrial policy may strengthen EV battery supply chain, Oct 7, 2024.
- [2] <u>Ride-hailing apps reduce racial discrimination impact, new study suggests</u>, Sept 30, 2024.
- [3] How Uber and Lyft are transforming US cities Nov 30, 2022.
- [4] <u>Who's paying for your Uber?</u> Sep 21, 2021.
- [5] <u>Should Uber and Lyft be electrifying more vehicles?</u> Feb 19, 2021.
- [6] When Uber and Lyft enter cities, vehicle ownership increases, Jan 6, 2021.
- [7] <u>Want an Electric Vehicle? The One You Should Buy Depends on Where You Live</u>, Apr 20, 2016.
- [8] <u>Federal Policy Reverses Benefits of Alternative Fuel Vehicles</u>, Mar 3, 2016.
- [9] <u>Researchers Show Coal Retirement Needed for Electric Vehicles to Reduce Air Pollution</u>, Feb 23, 2016.
- [10] <u>Charging Electric Vehicles at Night Can Cause More Harm Than Good, Says CMU Study</u>, Feb 22, 2016.
- [11] Which Vehicle Holds Smallest Carbon Footprint? Electrics in Some Regions, Hybrids in Others, Says Carnegie Mellon Study, July 16, 2015
- [12] Carnegie Mellon Study Shows Electric Vehicle Range and Emissions Vary With Climate, Feb 24, 2015
- [13] <u>CMU Study Finds Chinese Consumers May Adopt Electric Vehicles First, Impacting Auto Market</u>, Feb 16, 2015.
- [14] <u>Big Factories Won't Solve High Cost of Electric Vehicles, Carnegie Mellon Researchers Say</u>, Oct 21, 2014
- [15] <u>Carnegie Mellon Study Says Electric Vehicles Could Be Cheaper to Recharge if Electricity Providers</u> <u>Control Charging Speeds</u>, Jan 23, 2014
- [16] <u>Carnegie Mellon Researchers Find Consumers Choose More Efficient Light Bulbs when Energy Costs</u> <u>are Labeled</u>, Jan 10, 2014.
- [17] <u>Carnegie Mellon Researchers Find Limited Residential Parking a Barrier to Electric Vehicle Adoption</u>, Nov 11, 2013.
- [18] Carnegie Mellon Researchers Report Hybrid Cars are Greener for City Drivers, June 17, 2013.
- [19] Fiscal Cliff Bill Tax Credits for Electric Vehicle Chargers Found Not Cost Effective, Jan 7, 2013.
- [20] Carnegie Mellon Study Finds Benefits of Plug-in Vehicles Depend on Battery Size, Sept 26, 2011.

OP-EDS

- Michalek, J., <u>Pm an EV expert, and Pm skeptical about how quickly electric cars will go mainstream in</u> <u>the U.S.</u>, op-ed, *MarketWatch*, June 2021.
- [2] Michalek, J., "Problems with the fuel economy rollback," op-ed, The Hill, Sept 26, 2018.

MEDIA STORIES

- [1] *Marketplace*, National Public Radio: <u>One more byproduct of hybrid work: The rideshare commute</u>, Nov 7, 2024.
- [2] People of Color in Tech <u>Has ride-hailing tech reduced discrimination against black riders?</u> This study suggests it has, Oct 1, 2024.
- [3] The Atlantic The future of electric cars hinges on a dongle, May 10, 2024.
- [4] BBC EVs were once luxury vehicles. Now they're for every driver, March 12, 2024.
- [5] FactCheck.org Experts say proposed vehicle emissions and fuel rules not an EPA 'ban' on gas-powered cars, Feb 20, 2024.
- [6] Green Car Congress <u>CMU study finds climate and health costs of plug-ins in coal-heavy PJM region</u> dropping rapidly; importance of shift from nickel-based batteries and tightening emissions regs, Feb 16, 2024.
- [7] CNET What if your EV could power your home during a blackout? Oct 29. 2023.
- [8] PolitiFact Donald Trump's off-base claims about electric car 'mandates' and markets, Oct 11, 2023.
- [9] The Atlantic <u>America is just now entering the age of Tesla</u>, Sept 20, 2023.
- [10] TheStreet Mustang Mach-E probe reveals electric vehicle adoption issues, Aug 21, 2023.
- [11] Kiplinger Seven automakers to roll out massive EV charger network next year, Aug 1, 2023.
- [12] Green Car Congress Study finds all-electric rideshare fleet could reduce carbon emissions, but increase traffic issues, June 23, 2023.
- [13] ScienceDaily <u>All-electric rideshare fleet could reduce carbon emissions, increase traffic issues</u>, June 12, 2023.
- [14] Green Car Congress <u>CMU/Yale study suggests BEVs could be majority or near-majority of cars and SUVs by 2030 given technology trends</u>, June 9, 2023.
- [15] Ars Technica EV market share is growing because the vehicles keep getting better, June 8, 2023.
- [16] MIT Technology Review How 5-minute battery swaps could get more EVs on the road, May 17, 2023.
- [17] PolitiFact How electric vehicle tax credit rules aim to reduce dependence on China, but present new obstacles, May 1, 2023.
- [18] Poynter Fact Checking: Joe Biden is pushing for more electric cars. Will there be enough charging stations? Apr 24, 2023.
- [19] PolitiFact Joe Biden is pushing for more electric cars. Will there be enough charging stations? April 21, 2023.
- [20] Sierra EPA puts the pedal to the metal to electrify transportation, Apr 14, 2023.
- [21] PolitiFact Most electric vehicles aren't charged by diesel-powered generators, as posts claim, Feb 28, 2023.
- [22] The Atlantic The inconvenient truth about electric vehicles, Feb 13, 2023.

- [23] New York Times For Uber and Lyft, the Rideshare Bubble Bursts, Oct 17, 2022.
- [24] Popular Science Thousands of EV chargers will soon line America's highways, Oct 17, 2022.
- [25] Smithsonian Magazine Biden administration allocates \$900 million for electric vehicle chargers, Sept 15, 2022.
- [26] Inverse Electric vehicles depend on chargers this truth may be their greatest obstacle, July 8, 2022.
- [27] MIT Technology Review The US only has 6,000 fast charging stations for EVs. Here's where they all are. June 28, 2022.
- [28] Marketplace, National Public Radio <u>To convince more drivers to go electric, the Biden administration</u> wants chargers that work for all EVs, June 9, 2022.
- [29] Newsweek: How much better are electric cars for the environment? June 4, 2022.
- [30] The Daily Beast: The last big obstacle to electric cars is all in your mind, Apr 22, 2022.
- [31] WIRED California's plan to electrify Uber and Lyft doesn't add up, Mar 22, 2022.
- [32] PolitiFact: There's no evidence electric vehicles fare worse than gas-powered cars in long traffic jams, Jan 7, 2022.
- [33] Spectrum News: A look at the impact of infrastructure bill on electric vehicles, Nov 10, 2021.
- [34] National Public Radio, Marketplace Where will we charge all those electric vehicles of the future? Sep 9, 2021.
- [35] Vox Amazon's favorite electric vehicle company is going public at a very tricky time, Aug 30, 2021.
- [36] National Public Radio The Environment in Focus, Despite federal boost, roadblocks remain for electric cars, Aug 16, 2021.
- [37] National Public Radio Marketplace: Infrastructure bill could boost EV charging stations, but who's in charge of the stations? Aug 12, 2021.
- [38] WIRED: Biden wants more EVs on roads. What about charging stations? Aug 10, 2021.
- [39] PBS, National Public Radio WHYY: <u>SEPTA's cracking battery buses raise questions about the future of electric transit</u>, July 15, 2021.
- [40] Vice (Motherboard): Uber and Lyfts can be electrified now, but drivers aren't so sure, June 28, 2021.
- [41] National Public Radio, WBUR On-Point: America's Electric Vehicle Future, June 17, 2021
- [42] IEEE Spectrum: How is this a good idea? EV battery swapping, May 13, 2021.
- [43] The Seattle Times: Are electric vehicles really as green as advertised? March 6, 2021.
- [44] The New York Times: How green are electric vehicles? Mar 2, 2021.
- [45] Green Car Congress: <u>CMU study finds taxes on emissions would result in more rapid electrification by</u> ridesharing companies, Feb 21, 2021.
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