

LILLIAN J. RATLIFF

Curriculum Vitae

Electrical and Computer Engineering
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Educational History

- Ph.D., Electrical Engineering and Computer Sciences 2015
University of California, Berkeley, CA
 - M.S., Electrical Engineering 2010
University of Nevada, Las Vegas, NV
 - B.S., Mathematics 2008
summa cum laude
University of Nevada, Las Vegas, NV
 - B.S., Electrical Engineering 2008
summa cum laude
University of Nevada, Las Vegas, NV
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Academic Experience

- Adjunct Professor, Allen School of Computer Science and Engineering 2020–present
University of Washington, Seattle, WA
 - Assistant Professor, Electrical and Computer Engineering 2016–present
University of Washington, Seattle, WA
 - Affiliate Assistant Professor, Electrical and Computer Engineering 2015–2016
University of Washington, Seattle, WA
 - Postdoctoral Researcher, Electrical Engineering and Computer Sciences 2015–2016
University of California, Berkeley, Berkeley, CA
 - Graduate Student Researcher, Electrical Engineering and Computer Sciences 2010–2015
University of California, Berkeley, Berkeley, CA
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Honors and Awards

- UW College of Engineering Junior Faculty Award 2021
- Recipient of the Dhanani Endowed Faculty Fellowship 2020
- Office of Naval Research Young Investigator Award 2020
- National Academy of Engineering, China-America Frontiers of Engineering, Invited Speaker 2019
- National Science Foundation CAREER Award 2019
- National Science Foundation CISE Research Initiation Initiative Award 2017
- National Science Foundation Graduate Research Fellowship 2009

Industry

- Visiting Researcher Microsoft Research, Research for Industry Team 2021–present
 - [C3.AI](#), Consulting, Machine Learning and Decision Making 2014
 - [Cirque du Soleil](#), Engineering Consulting 2009-2010
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Publications

Key: ^astudents significantly advised; ^bpostdocs significantly advised; ^cUW collaborator; ^dexternal collaborator; *equal contribution; google scholar #: number of citations reported on Google Scholar (*reported only if* > 10); ^L: lead faculty on paper; ^{CL}: co-lead faculty on paper

Journal publications:

- [J14] **Lillian J. Ratliff**, Tanner Fiez^a. Adaptive Incentive Design. IEEE Transactions on Automatic Control, submitted Jan. 2018; accepted for publication Oct. 2020. doi: [10.1109/TAC.2020.3027503](https://doi.org/10.1109/TAC.2020.3027503)
- [J13] Esther Ling, Liyuan Zheng^a, **Lillian J. Ratliff**^{CL}, Samuel Coogan^{d,CL}. Koopman Operator Applications in Signalized Traffic Systems. IEEE Transactions on Intelligent Transportation Systems, submitted Jan. 2019; accepted for publication Oct. 2020. doi: [10.1109/TITS.2020.3032880](https://doi.org/10.1109/TITS.2020.3032880); arXiv: [1803.04008](https://arxiv.org/abs/1803.04008)
- [J12] Sarah Li^a, **Lillian J. Ratliff**^L, Behçet Açikmeşe^c. Disturbance Decoupling for Gradient-based Multi-Agent Learning with Quadratic Costs. IEEE Control Systems Letters (L-CSS), Vol. 5, No. 1, 2020. doi: [10.1109/LCSYS.2020.3001240](https://doi.org/10.1109/LCSYS.2020.3001240)
- [J11] Shreyas Sekar^b, Liyuan Zheng^a, **Lillian J. Ratliff**^{CL}, Baosen Zhang^{c,CL}. Uncertainty in Multi-Commodity Routing Networks: When does it help?. IEEE Transactions on Automatic Control, (accepted Dec.), 2019. doi: [10.1109/TAC.2019.2962102](https://doi.org/10.1109/TAC.2019.2962102); arXiv: [1709.08441](https://arxiv.org/abs/1709.08441)
- [J10] Eric Mazumdar^{a,*}, **Lillian J. Ratliff**^{*,L}, S. Shankar Sastry^d. On Gradient-Based Learning in Continuous Games. SIAM Journal on Mathematics of Data Science (SIMODS), Vol. 1, No. 2, 2019, doi: [10.1137/18M1231298](https://doi.org/10.1137/18M1231298); arXiv: [1804.05464](https://arxiv.org/abs/1804.05464); google scholar #: 62
- [J9] Tanner Fiez^a, **Lillian J. Ratliff**. Gaussian Mixture Models of Parking Demand. IEEE Transactions on Intelligent Transportation Systems, 2019. doi: [10.1109/TITS.2019.2939499](https://doi.org/10.1109/TITS.2019.2939499); arXiv: [1712.01263](https://arxiv.org/abs/1712.01263)
- [J8] **Lillian J. Ratliff**, Eric Mazumdar^a. Inverse Risk-Sensitive Reinforcement Learning. IEEE Transactions on Automatic Control, 2019. doi: [10.1109/TAC.2019.2926674](https://doi.org/10.1109/TAC.2019.2926674); arXiv: [1703.09842v3](https://arxiv.org/abs/1703.09842v3)
- [J7] Tyler Westenbroek^a, Roy Dong^d, **Lillian J. Ratliff**^L, S. Shankar Sastry^d. Competitive Statistical Estimation with Strategic Data Sources. IEEE Transactions on Automatic Control, Vol. 65, No. 4, 2020 (submitted 2018) doi: [10.1109/TAC.2019.2922190](https://doi.org/10.1109/TAC.2019.2922190); arXiv: [1704.01195](https://arxiv.org/abs/1704.01195)
- [J6] Chase Dowling^a, **Lillian J. Ratliff**, Baosen Zhang^c. Modeling Curbside Parking as a Network of Finite Capacity Queues, IEEE Transactions on Intelligent Transportation Systems, published 8 March 2019. doi: [10.1109/TITS.2019.2900642](https://doi.org/10.1109/TITS.2019.2900642)
- [J5] **Lillian J. Ratliff**, Roy Dong^d, Shreyas Sekar^b, Tanner Fiez^a. A Perspective on Incentive Design: Challenges and Opportunities, Annual Review of Control, Robotics, and Autonomous Systems, Vol. 2, No. 1, 2019. doi: [10.1146/annurev-control-053018-023634](https://doi.org/10.1146/annurev-control-053018-023634)
- [J4] Roy Dong^d, Alvaro A. Cárdenas^d, **Lillian J. Ratliff**, Henrik Ohlsson^d, S. Shankar Sastry^d. Quantifying the Utility-Privacy Tradeoff in the Smart Grid, ACM Transactions on Cyber-Physical Systems, Vol. 2, No. 2, June 2018. doi: [10.1145/3185511](https://doi.org/10.1145/3185511); arXiv: [1406.2568](https://arxiv.org/abs/1406.2568); google scholar #: 18

- [J3] Ioannis Konstantakopoulos*, **Lillian J. Ratliff***, Ming Jin, S. Shankar Sastry^d, and Costas Spanos^d. A Robust Utility Learning Framework via Inverse Optimization. *IEEE Transactions on Control Systems Technology*, PP(99):1–17, May 2017. doi: [10.1109/TCST.2017.2699163](https://doi.org/10.1109/TCST.2017.2699163); [google scholar #](#): 28
- [J2] **Lillian J. Ratliff**, Samuel A. Burden^c, S. Shankar Sastry^d. On the Characterization of Local Nash Equilibria in Continuous Games. *IEEE Transactions on Automatic Control*, 16(8):2301–2307, Aug. 2016. doi: [10.1109/TAC.2016.2583518](https://doi.org/10.1109/TAC.2016.2583518); [google scholar #](#): 89
- [J1] Pushkin Kachroo, **Lillian J. Ratliff**, and S. Shankar Sastry^d. Analysis of the Godunov Based Hybrid Model for Ramp Metering and Robust Feedback Control Design. *IEEE Transactions on Intelligent Transportation Systems*, 15(5):2132–2142, Oct. 2014. doi: [10.1109/TITS.2014.2310736](https://doi.org/10.1109/TITS.2014.2310736)

Journal quality publications:

Publications in this section are designated journal quality publications in that they are at top tier conferences where papers are viewed as the end product of the research.

- [JQ9] Tanner Fiez^{a,*}, **Lillian J. Ratliff***. Local Convergence Analysis of Gradient Descent Ascent with Finite Timescale Separation, International Conference on Learning Representations (ICLR), 2021. (acceptance rate 28%) [arXiv: 2009.14820](https://arxiv.org/abs/2009.14820) (Alt Title: Gradient Descent-Ascent Provably Converges to Strict Local Minmax Equilibria with a Finite Timescale Separation) [google scholar #](#): 12
- [JQ8] Stratis Skoulakis, Tanner Fiez^a, Ryann Sim, Georgios Piliouras^{CL}, and **Lillian J. Ratliff^{CL}**. Evolutionary Game Theory Squared: Evolving Agents in Endogenously Evolving Games, AAAI Conference on Artificial Intelligence, 2021. [arXiv: 2012.08382](https://arxiv.org/abs/2012.08382) (acceptance rate 21.4%)
- [JQ7] Tanner Fiez^a, Benjamin Chasnov^a, and **Lillian J. Ratliff**. Implicit Learning Dynamics in Stackelberg Games: Equilibria Characterization, Convergence Analysis, and Empirical Study. International Conference on Machine Learning (ICML), [arXiv: 1906.01217](https://arxiv.org/abs/1906.01217), 2020. [google scholar #](#): 57 (acceptance rate 21.8%)
- [JQ6] Tanner Fiez^a, Nihar Shah^{d,CL}, and **Lillian J. Ratliff^{CL}**. A Super* Algorithm to Determine Orderings of Items to Show Users. Uncertainty in Artificial Intelligence (UAI), 2020. [google scholar #](#): 23 (acceptance rate 27%)
- [JQ5] Eric Mazumdar*, **Lillian J. Ratliff*^L**, Shankar Sastry, Michael I. Jordan. Policy Gradient in Linear Quadratic Dynamic Games Has No Convergence Guarantees. International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), 2020. [google scholar #](#): 20 (acceptance rate 24%)
- [JQ4] Tanner Fiez^a, Lalit Jain^c, Kevin Jamieson^{c,CL}, and **Lillian J. Ratliff^{CL}**. Sequential Experimental Design for Transductive Linear Bandits. *Advanced in Neural Information Processing Systems (NeurIPs)*, [arXiv: 1906.08399](https://arxiv.org/abs/1906.08399), 2019. [google scholar #](#): 29 (acceptance rate 21%)
- [JQ3] Benjamin Chasnov^{a,*}, **Lillian J. Ratliff*^L**, Eric Mazumdar^a, and Samuel Burden^c. Convergence Guarantees for Gradient-Based Learning in Continuous Games. Uncertainty in Artificial Intelligence (UAI), 2019. (acceptance rate 26%) [google scholar #](#): 20
- [JQ2] Tanner Fiez^a, Shreyas Sekar^b, Liyuan Zheng^a, **Lillian J. Ratliff**. Combinatorial Bandits for Incentivizing Agents with Dynamic Preferences. Uncertainty in Artificial Intelligence (UAI), 2018. (acceptance rate 30%)
- [JQ1] Ming Jin, **Lillian J. Ratliff**, Ioannis C. Konstantakopoulos, Costas Spanos, S. Shankar Sastry. REST: A Reliable Estimation and Stopping Time Algorithm for Social Game Experiments. In: *Proceedings of the ACM/ IEEE International Conference on Cyber-Physical Systems*, pp. 90–99, 2015. doi: [10.1145/2735960.2735974](https://doi.org/10.1145/2735960.2735974) (acceptance rate 26%)

Journal publications under review:

- [JS3] Sarah H.Q. Li^a, Yue Yu^a, Daniel Calderone^c, Bechet Acikmese^{c,CL}, **Lillian J. Ratliff^{CL}**. Adaptive Constraint Satisfaction for Markov Decision Process Congestion Games: Application to Transportation Networks, *Automatica*, under review, 2020.

- [JS2] Yue Yu^a, Daniel Calderone^c, Sarah H.Q. Li^a, Bechet Acikmese^{c,CL}, **Lillian J. Ratliff**^{CL}. Variable Demand and Multicommodity Flow in Markovian Network Equilibrium, *Automatica*, under review, July. 2020.
- [JS1] Mitas Ray^a, Omid Sadeghi, **Lillian J. Ratliff**^{CL}, Maryam Fazel^{c,CL}. Function Design for Improved Competitive Ratio in Online Resource Allocation with Procurement Costs, submitted to *INFORMS Journal on Optimization*, 2020. [arXiv: 2012.12457](https://arxiv.org/abs/2012.12457)

Conference publications:

***Note: this list excludes those conference publications reported under journal quality publications; it includes peer-reviewed workshop papers.*

- [C49] Liyuan Zheng^a, Yuanyuan Shi^a, Baosen Zhang^{CL}, **Lillian J. Ratliff**^{CL}. Safe Reinforcement Learning of Control-Affine Systems with Vertex Networks (L4DC), 2021.
- [C48] Tanner Fiez^a, Ryann Sim, Stratis Skoulakis, Georgios Piliouras^{CL} and Lillian Ratliff^{CL}, **Lillian J. Ratliff**. Online Learning in Periodic Zero-Sum Games: von Neumann vs Poincare, *Adaptive and Learning Agents (ALA2021 peer-reviewed workshop)*, 2021.
- [C47] Stratis Skoulakis, Tanner Fiez^a, Ryann Sim, Georgios Piliouras^{CL} and **Lillian J. Ratliff**^{CL}. Evolutionary Game Theory Squared: Evolving Agents in Endogenously Evolving Zero-Sum Games, *Adaptive and Learning Agents (ALA2021 peer-reviewed workshop)*, 2021.
- [C46] Liyuan Zheng^a, Tanner Fiez^a, Zane Alumbaugh^a, Benjamin Chasnov^a, **Lillian J. Ratliff**. Stackelberg Actor-Critic: A Game-Theoretic Perspective, *AAAI Reinforcement Learning and Games Workshop*, 2021. (peer reviewed)
- [C45] Tanner Fiez^a, **Lillian J. Ratliff**. Gradient Descent-Ascent Provably Converges to Strict Local Minmax Equilibria with a Finite Timescale Separation, *AAAI Reinforcement Learning and Games Workshop*, 2021. [arXiv: https://arxiv.org/abs/2009.14820](https://arxiv.org/abs/2009.14820) (peer reviewed)
- [C44] Sarah Li^a, **Lillian J. Ratliff**^L, Behçet Açikmeşe^c. Disturbance Decoupling for Gradient-based Multi-Agent Learning with Quadratic Costs. *IEEE Conference on Decision and Control (CDC)*, 2020.
- [C43] Benjamin Chasnov^a, Daniel Calderone^b, Behçet Açikmeşe^c, Sam Burden^c and **Lillian J. Ratliff**^L. The Local Stability of Equilibria in Two-Player Continuous Games. *IEEE Conference on Decision and Control (CDC)*, 2020.
- [C42] Liyuan Zheng^a, **Lillian J. Ratliff**. Constrained Upper Confidence Reinforcement Learning. *Learning for Dynamics and Control (L4DC)*, 2020. [arXiv: 2001.09377](https://arxiv.org/abs/2001.09377) [google scholar #: 18](https://scholar.google.com/citations?user=...)
- [C41] Tanner Fiez^a, Benjamin Chasnov^a, **Lillian J. Ratliff**. Convergence of Learning in Stackelberg Games. *Smooth Games Optimization and Machine Learning Workshop: Bridging Game Theory and Deep Learning*, *NeurIPS*, 2019. (peer reviewed, selected for presentation, 1 of 4 selected out of 34 papers).
- [C40] Benjamin Chasnov^a, Tanner Fiez^a, **Lillian J. Ratliff**. Opponent Anticipation via Conjectural Variations. *Smooth Games Optimization and Machine Learning Workshop: Bridging Game Theory and Deep Learning*, *NeurIPS*, 2019. (peer reviewed)
- [C39] Eric Mazumdar^{*,a}, **Lillian J. Ratliff**^{*,L}, Shankar Sastry^d, Michael I. Jordan^d. Policy Gradient in Linear Quadratic Dynamic Games Has No Convergence Guarantees. *Smooth Games Optimization and Machine Learning Workshop: Bridging Game Theory and Deep Learning*, *NeurIPS*, 2019. (peer reviewed)
- [C38] Tanner Fiez^a, Nihar Shah^{d,CL}, and **Lillian J. Ratliff**^{CL}. A Super* Algorithm to Determine Orderings of Items to Show Users. workshop paper for Real-world Sequential Decision Making workshop at *ICML*, 2019. (peer reviewed)
- [C37] Tyler Westenbroek^a, Roy Dong^d, **Lillian J. Ratliff**. Competitive Statistical Estimation with Strategic Data Sources. *ACM Conference on Economics and Computation (EC) Workshop: Learning in the Presence of Strategic Behavior*, 2019. (peer reviewed)

- [C36] Shahriar Talebi^a, Siavash Alemzadeh, **Lillian J. Ratliff**^{CL}, and Mehran Mesbahi^{c,CL}. Distributed Learning in Network Games: A Dual Averaging Approach. In Proceedings of the IEEE Conference on Decision and Control, 2019.
- [C35] Sarah H.Q. Li^a, Daniel Calderone^b, **Lillian J. Ratliff**^{CL}, and Behcet Acikmese^{c,CL}. Sensitivity Analysis for Markov Decision Process Congestion Games. In Proceedings of the IEEE Conference on Decision and Control, 2019. doi: [10.1109/CDC40024.2019.9028933](https://doi.org/10.1109/CDC40024.2019.9028933)
- [C34] Yagiz Savas^a, Vijay Gupta^{d,CL}, Melkior Ornik^d, **Lillian J. Ratliff**^{CL}, and Ufuk Topcu^{d,CL}. Incentive Design for Temporal Logic Objectives. In Proceedings of the IEEE Conference on Decision and Control, 2019. doi: [10.1109/CDC40024.2019.9029287](https://doi.org/10.1109/CDC40024.2019.9029287)
- [C33] Eric Mazumdar^a and **Lillian J. Ratliff**. Local Nash Equilibria are Isolated, Strict Local Nash Equilibria in 'Almost All' Zero-Sum Continuous Games. In Proceedings of the IEEE Conference on Decision and Control, 2019. doi: [10.1109/CDC40024.2019.9030203](https://doi.org/10.1109/CDC40024.2019.9030203)
- [C32] Daniel Calderone^b and **Lillian J. Ratliff**. Multi-Dimensional Continuous Type Population Potential Games. IEEE Conference on Decision and Control, 2019. doi: [10.1109/CDC40024.2019.9029519](https://doi.org/10.1109/CDC40024.2019.9029519)
- [C32] Benjamin Chasnov^a, Momona Yamagami, Behnoosh Parsa, **Lillian J. Ratliff**, Samuel Burden^{L,c}. Experiments with sensorimotor games in dynamic human/machine interaction, SPIE, 2019.
- [C31] Hui (Sarah) Li^a, Yue Yu^a, Daniel Calderone^b, **Lillian J. Ratliff**^{CL}, Behcet Acikmese^{c,CL}. Tolling for Constraint Satisfaction in Markov Decision Process Congestion Games. Proceedings of the American Control Conferences, 2019. doi: [10.23919/ACC.2019.8814925](https://doi.org/10.23919/ACC.2019.8814925)
- [C30] Benjamin Chasnov^{a,*}, **Lillian J. Ratliff**^{L,*}, Daniel Calderone^b, Eric Mazumdar^a, Sam Burden^c. Finite-Time Convergence of Gradient-Based Learning in Continuous Games, AAI Workshop on Reinforcement Learning in Games, Jan. 2019. (peer reviewed, selected for presentation)
- [C29] Tanner Fiez^a, **Lillian J. Ratliff**^L, Chase Dowling^a, and Baosen Zhang^c. Data-Driven Spatio-Temporal Modeling of Parking Demand. In: Proceedings of the American Control Conference, 2018. doi: [10.23919/ACC.2018.8431681](https://doi.org/10.23919/ACC.2018.8431681); [google scholar #](#): 10
- [C28] Shreyas Sekar^b, Liyuan Zheng^a, **Lillian J. Ratliff**^{CL}, and Baosen Zhang^{c,CL}. Uncertainty in Multi-Commodity Routing Networks: When does it help? In: Proceedings of the American Control Conference, 2018. doi: [10.23919/ACC.2018.8430756](https://doi.org/10.23919/ACC.2018.8430756)
- [C27] Eric Mazumdar^{*,a}, **Lillian J. Ratliff**^{*,L}, Tanner Fiez^a, and S. Shankar Sastry^d. Gradient-Based Inverse Risk-Sensitive Reinforcement Learning with Applications. Proceedings of the 56th IEEE Conference on Decision and Control, pp. 5796–5801, 2017. doi: [10.1109/CDC.2017.8264535](https://doi.org/10.1109/CDC.2017.8264535); [google scholar #](#): 14
- [C26] Chase Dowling^a, Tanner Fiez^a, **Lillian J. Ratliff**^{CL}, and Baosen Zhang^{c,CL}. Optimizing Curbside Parking Resources Subject to Congestion Constraints. In: Proceedings of the 56th IEEE Conference on Decision and Control, pp. 5080–5085, 2017. doi: [10.1109/CDC.2017.8264412](https://doi.org/10.1109/CDC.2017.8264412)
- [C25] Tyler Westenbroek^a, Roy Dong^d, **Lillian J. Ratliff**^L, and S. Shankar Sastry^d. Statistical Estimation in Competitive Settings with Strategic Data Sources. In: Proceedings of the 56th IEEE Conference on Decision and Control, pp. 4994–4999, 2017. doi: [10.1109/CDC.2017.8264398](https://doi.org/10.1109/CDC.2017.8264398)
- [C24] Kamil Nar^{*,a}, **Lillian J. Ratliff**^{*}, and S. Shankar Sastry^d. Learning Prospect Theory Value Function and Reference Point of a Sequential Decision Maker. In: Proceedings of the 56th IEEE Conference on Decision and Control, pp. 5770–5775, 2017. doi: [10.1109/CDC.2017.8264531](https://doi.org/10.1109/CDC.2017.8264531)
- [C23] Ioannis Konstantakopoulos^{a,*}, **Lillian J. Ratliff**^{*}, Ming Jin^a, and Costas Spanos^d. Leveraging Correlations in Utility Learning. In: Proceedings of the American Control Conference, pp. 5249–5256, 2017. doi: [10.23919/ACC.2017.7963770](https://doi.org/10.23919/ACC.2017.7963770)
- [C22] **Lillian J. Ratliff**, Chase Dowling^a, Eric Mazumdar^a, and Baosen Zhang^c. To observe or not to observe: Queuing game framework for urban parking. Proceedings of the IEEE 55th Conference on Decision and Control, pp. 5286–5291, 2016. doi: [10.1109/CDC.2016.7799079](https://doi.org/10.1109/CDC.2016.7799079); [google scholar #](#): 12
- [C21] Daniel Calderone, Eric Mazumdar, **Lillian J. Ratliff**, and S. Shankar Sastry. Understanding the impact of parking on urban mobility via routing games on queue-flow networks. Proceedings of the

- IEEE 55th Conference on Decision and Control, pp. 7605–7610, 2016. doi: [10.1109/CDC.2016.7799444](https://doi.org/10.1109/CDC.2016.7799444)
- [C20] Ioannis C. Konstantakopoulos^a, **Lillian J. Ratliff**, Ming Jin, Costas Spanos, and S. Shankar Sastry. Smart building energy efficiency via social game: a robust utility learning framework for closing-the-loop. In: Proceedings of the 1st International Workshop on Science of Smart City Operations and Platforms Engineering in partnership with Global City Teams Challenge, pp. 1–6, 2016. doi: [10.1109/SCOPE.2016.7515054](https://doi.org/10.1109/SCOPE.2016.7515054); [google scholar #](#): 18
- [C19] Ioannis C. Konstantakopoulos^a, **Lillian J. Ratliff**, Ming Jin, Costas J. Spanos, and S. Shankar Sastry. Inverse modeling of non-cooperative agents via mixture of utilities. In: Proceedings of the IEEE 55th Conference on Decision and Control, pp. 6327–6334, 2016. doi: [10.1109/CDC.2016.7799243](https://doi.org/10.1109/CDC.2016.7799243); [google scholar #](#): 16
- [C18] Daniel Calderone, **Lillian J. Ratliff**, S. Shankar Sastry. Lane Pricing via Decision-Theoretic Lane Changing Model of Driver Behavior, In: Proceedings of the 54th IEEE Conference on Decision and Control, pp. 3457–3462, 2015. doi: [10.1109/CDC.2015.7402754](https://doi.org/10.1109/CDC.2015.7402754)
- [C17] Dexter Scobee, **Lillian J. Ratliff**, Roy Dong, Henrik Ohlsson, M. Verhaegen, S. Shankar Sastry. Nuclear Norm Minimization for Blind Subspace Identification (N2BSID), In: Proceedings of the 54th IEEE Conference on Decision and Control, pp. 2127–2132, 2015. doi: [10.1109/CDC.2015.7402521](https://doi.org/10.1109/CDC.2015.7402521) [google scholar #](#): 10
- [C16] **Lillian J. Ratliff**, Ming Jin, Ioannis Konstantakopoulos, Costas Spanos, and S. Shankar Sastry. Social Game for Building Energy Efficiency: Incentive Design. In: Proceedings of the 52nd Allerton Conference on Communication, Control, and Computing, pp. 1011–1018, 2014. doi: [10.1109/ALLERTON.2014.7028565](https://doi.org/10.1109/ALLERTON.2014.7028565); [google scholar #](#): 40
- [C15] **Lillian J. Ratliff**, Roy Dong, Henrik Ohlsson, Alvaro A. Cardenas, and S. Shankar Sastry. Privacy and Customer Segmentation in the Smart Grid. In: Proceedings of the 53rd IEEE Conference on Decision and Control, pp. 2136–2141, 2014. doi: [10.1109/CDC.2014.7039714](https://doi.org/10.1109/CDC.2014.7039714)
- [C14] **Lillian J. Ratliff**, Roy Dong, Henrik Ohlsson, and S. Shankar Sastry. Incentive Design and Utility Learning via Energy Disaggregation. In: Proceedings of the International Federation of Automatic Control, vol. 47, no. 3, pp. 3158–3163, 2014. doi: [10.3182/20140824-6-ZA-1003.02557](https://doi.org/10.3182/20140824-6-ZA-1003.02557); [google scholar #](#): 28
- [C13] Daniel Calderone, **Lillian J. Ratliff**, and S. Shankar Sastry. Pricing for Coordination in Open-Loop Differential Games. In: Proceedings of the International Federation of Automatic Control, vol. 47, no. 3, pp. 9001–9006, 2014. doi: [10.3182/20140824-6-ZA-1003.02655](https://doi.org/10.3182/20140824-6-ZA-1003.02655)
- [C12] Henrik Ohlsson, **Lillian J. Ratliff**, Roy Dong, and S. Shankar Sastry. Blind Identification via Lifting. In: Proceedings of the International Federation of Automatic Control, vol. 47, no. 3, pp. 10367–10372, 2014. doi: [10.3182/20140824-6-ZA-1003.02567](https://doi.org/10.3182/20140824-6-ZA-1003.02567); [google scholar #](#): 11
- [C11] Roy Dong, **Lillian J. Ratliff**, Henrik Ohlsson, and S. Shankar Sastry. Fundamental Limits of Non-Intrusive Load Monitoring. Proceedings of the 3rd ACM Conference on High Confidence Networked Systems, pp. 11–18, 2014. . doi: [10.1145/2566468.2566471](https://doi.org/10.1145/2566468.2566471); [google scholar #](#): 35
- [C10] **Lillian J. Ratliff**, Samuel Burden, and S. Shankar Sastry. Genericity and Structural Stability of Non-Degenerate Differential Nash Equilibria. Proceedings of the American Control Conference, pp. 3990–3995, 2014. doi: [10.1109/ACC.2014.6858848](https://doi.org/10.1109/ACC.2014.6858848); [google scholar #](#): 21
- [C9] **Lillian J. Ratliff**, Samuel Burden, and S. Shankar Sastry. Characterization and Computation of Local Nash Equilibria in Continuous Games. Proceedings of the 51st Annual Allerton Conference on Communication, Control, and Computing, pp. 917–924, 2013. doi: [10.1109/Allerton.2013.6736623](https://doi.org/10.1109/Allerton.2013.6736623); [google scholar #](#): 158
- [C8] Roy Dong, **Lillian J. Ratliff**, Henrik Ohlsson, and S. Shankar Sastry. Energy Disaggregation via Adaptive Filtering. Proceedings of the 51st Annual Allerton Conference on Communication, Control, and Computing, pp. 173–180, 2013. doi: [10.1109/Allerton.2013.6736521](https://doi.org/10.1109/Allerton.2013.6736521); [google scholar #](#): 22

- [C7] Roy Dong, **Lillian J. Ratliff**, Henrik Ohlsson, and S. Shankar Sastry. A Dynamical Systems Approach to Energy Disaggregation. Proceedings of the 52nd IEEE Conference on Decision and Control, pp. 6335–6340, 2013. doi: [10.1109/CDC.2013.6760891](https://doi.org/10.1109/CDC.2013.6760891); google scholar #: [32](#)
- [C6] Daniel Calderone, **Lillian J. Ratliff**, and S. Shankar Sastry. Pricing Design for Robustness in Linear-Quadratic Dynamic Games. Proceedings of the 52nd IEEE Conference on Decision and Control, pp. 4349–4354, 2013. doi: [10.1109/CDC.2013.6760558](https://doi.org/10.1109/CDC.2013.6760558)
- [C5] Aaron Bestick, **Lillian J. Ratliff**, Pan Yan, Ruzena Bajcsy, and S. Shankar Sastry. An Inverse Correlated Equilibrium Framework for Utility Learning in Multiplayer, Noncooperative Settings. Proceedings of the ACM Conference on High Confidence Networked Systems, pp. 9–16, 2013. doi: [10.1145/2461446.2461449](https://doi.org/10.1145/2461446.2461449)
- [C4] Samuel Coogan, **Lillian J. Ratliff**, Daniel Calderone, Claire Tomlin, S. Shankar Sastry. Energy Management via Pricing in LQ Dynamic Games. Proceedings of the American Controls Conference, pp. 443–448, 2013. doi: [10.1109/ACC.2013.6579877](https://doi.org/10.1109/ACC.2013.6579877); google scholar #: [36](#)
- [C3] **Lillian J. Ratliff**, Samuel Coogan, Daniel Calderone, S. Shankar Sastry. Pricing in Linear-Quadratic Dynamic Games. Proceedings of the 50th Annual Allerton Conference on Communication, Control, and Computing, pp. 1798–1805, 2012. doi: [10.1109/Allerton.2012.6483440](https://doi.org/10.1109/Allerton.2012.6483440); google scholar #: [21](#)
- [C2] **Lillian J. Ratliff** and P. Kachroo. Validating numerically consistent macroscopic traffic models using microscopic data. In: Proceedings of the Transportation Research Board 89th Annual Meeting, 2010. 17p. paper no. 10-2633
- [C1] Daniel P. Cook, Yitung Chen, **Lillian J. Ratliff**, Huajun Chen, and Jian Ma. Numerical Modeling of EM Pump Efficiency. Proceedings of the ASME Conference, pp. 775–780, 2006. doi: [10.1115/IMECE2006-15174](https://doi.org/10.1115/IMECE2006-15174)

Conference & journal quality publications under review:

- [CS8] Liyuan Zheng^a, Tanner Fiez^a, Zane Alumbaugh^a, Benjamin Chasnov^a, **Lillian J. Ratliff**^L. Stackelberg Actor-Critic: Game-Theoretic Reinforcement Learning Algorithm. submitted to AAAI 2022.
- [CS7] Mitas Ray, **Lillian J. Ratliff**^L, Maryam Fazel^c, Dmitriy Drusvyatskiy^c. Decision-Dependent Risk Minimization in Geometrically Decaying Dynamic Environments, submitted to AAAI 2022.
- [CS6] Tanner Fiez^a, Ryann Sim, Stratis Skoulakis, Georgios Piliouras^{CL}, **Lillian J. Ratliff**^{CL}. Online Learning in Periodic Zero-Sum Games, under review, NeurIPS, 2021.
- [CS5] Roy Dong, LJ Ratliff. Which Echo Chamber? Regions of Attraction in Learning with Decision-Dependent Distributions, under review, AAAI, 2022. arXiv: [2107.00055](https://arxiv.org/abs/2107.00055)
- [CS4] Tanner Fiez^{a,*}, **Lillian J. Ratliff**^{*}, Eric Mazumdar^a, Adhyayan Narang, Evan Faulkner. Global Convergence in Nonconvex-Nonconcave Games, under review, NeurIPS, 2021.
- [CS3] Chinmay Maheshwari^a, Chih-Yuan (Frank) Chiu^a, Eric Mazumdar^a, S. Shankar Sastry^d, **Lillian J. Ratliff**^L. Zeroth-Order Methods for Convex-Concave Minmax Problems: Applications to Decision-Dependent Risk Minimization, submitted to AISTATS 2022. arXiv: [2106.09082](https://arxiv.org/abs/2106.09082)
- [CS2] Tanner Fiez^{a,*}, Chi Jin^{d,*}, Praneeth Netrapalli^{d,*}, **Lillian J. Ratliff**^{*}. Min-Max Optimization with Smooth Algorithmic Adversaries, under review NeurIPS, 2021. arXiv: [2106.01488](https://arxiv.org/abs/2106.01488)
- [CS1] Adhyayan Narang^{a,*}, Evan Faulkner^{a,*}, Dmitriy Drusvyatskiy^c, Maryam Fazel^c, **Lillian J. Ratliff**^L. Decision-Dependent Learning in the Presence of Competition, submitted to NeurIPS, 2021.

Technical Reports not included above:

- [A8] Jingjing Bu, **Lillian J. Ratliff**^L, Mehran Mesbahi. Global Convergence of Policy Gradient for Sequential Zero-Sum Linear Quadratic Differential Games, arXiv: [1911.04672](https://arxiv.org/abs/1911.04672), 2019. google scholar #: [19](#)
- [A7] Benjamin Chasnov, Tanner Fiez, **Lillian J. Ratliff**. Gradient Conjectures for Strategic Multi-Agent Learning. Available Online: [Working Paper](#), 2019.
- [A6] Tanner Fiez^a, Shreyas Sekar^b, **Lillian J. Ratliff**. Correlated Markovian Bandits with Smoothed Reward Feedback, 2018. arXiv: [1803.04008](https://arxiv.org/abs/1803.04008)

- [A5] Clay Campaigne, Maximilian Balandat, **Lillian J. Ratliff**. Welfare Effects of Dynamic Electricity Pricing. 2016. [Working Paper, UC Berkeley Tech. Report](#).
- [A4] Chase Dowling, Tanner Fiez, **Lillian J. Ratliff**, Baosen Zhang. How much urban traffic is searching for parking? 2017. [arXiv: 1702.06156v2](#); [google scholar #: 23](#)
- [A3] Ioannis C. Konstantakopoulos, **Lillian J. Ratliff**, Ming Jin, S. Shankar Sastry, Costas Spanos. Social game for building energy efficiency: Utility learning, simulation, and analysis. 2014. [arXiv: 1407.0727](#)
- [A2] **Lillian J. Ratliff**, Carlos Barreto, Roy Dong, Henrik Ohlsson, Alvaro A. Cárdenas, and S. Shankar Sastry. Effects of Risk on Privacy Contracts for Demand-Side Management. 2014. [arXiv: 1409.7926v3](#)
- [A1] Henrik Ohlsson, **Lillian J. Ratliff**, Roy Dong, Shankar Sastry. Blind Identification of ARX Models with Piecewise Constant Inputs. 2013. [arXiv: 1303.6719](#)

Chapters in edited books:

- [B1] Roy Dong, **Lillian J. Ratliff**. Energy Disaggregation and the Utility-Privacy Tradeoff in Big Data Analytics for Power Systems. Editor: Reza Arghandeh and Yuxun Zhou. Elsevier, 2017.

Theses:

- [T2] **Lillian J. Ratliff**. Incentivizing Efficiency in Societal-Scale Cyber-Physical Systems. Ph.D. Thesis, University of California, Berkeley, 2015. [UC Berkeley Tech Report No.: UCB/EECS-2015-178](#)
- [T1] **Lillian J. Ratliff**. Conservation-Based Uncertainty Propagation in Dynamic Systems. MS Thesis, University of Nevada, Las Vegas, 2010 [UNLV Tech Report No.: 867](#)

Invited Seminars and Presentations

Invited lectures and seminars.

1. Invited long-term participant in Simons Institute program on “Learning and Games”, Spring 2021. [Organizers: Vasilis Syrgkanis (Microsoft Research; chair), Constantinos Daskalakis (Massachusetts Institute of Technology), Dylan Foster (Massachusetts Institute of Technology), Michael Jordan (UC Berkeley), Christos Papadimitriou (Columbia University), Georgios Piliouras (Singapore University of Technology and Design), Éva Tardos (Cornell University)]
2. Invited talk at MIT OPTML++ Seminar April 21, 2021: “Beyond Open Loop Thinking: A prelude to learning-based intelligent systems” [Organizers: Suvrit Sra, Horia Mania, Alp Yurtsever]
3. UW ECE Colloquium April 6, 2021 “Beyond Open Loop Thinking: A prelude to learning-based intelligent systems”
4. Invited talk at C3.AI Digital Transformation Institute, March 4th 2021, “Beyond Open Loop Thinking: A prelude to learning-based intelligent systems” [Host: R. Srikant, UIUC; S. Sastry, UC Berkeley]
5. Invited talk at AAAI-21 Workshop on Reinforcement Learning in Games [Organizers: Marc Lanctot, Martin Schmid, Julien Pérolat], Feb 8th 2021
6. Invited talk at UC Berkeley: “Learning-Based Intelligent Systems: Dynamics, Algorithms, Markets”, Dec 2020 [Host: Claire Tomlin]
7. Invited Speaker at INFORMS 2020 Annual Meeting; workshop on ‘Online learning and games in electricity networks: from theory to practice’, Talk title: Viewing Learning In Markets Through The Lens Of Dynamical Systems, [Organizer: Maryam Kamgarpour]
8. Invited Speaker at Simon’s Institute program on Theory of Reinforcement Learning, workshop on Mathematics of Online Decision Making, Fall 2020; Talk Title: Gradient Descent-Ascent Provably Convergences to Strict Local Minmax with Finite Timescale Separation, [Organizers: Shipra Agrawal (Columbia University; chair), Sébastien Bubeck (MSR), Alan Malek (DeepMind)]
9. ITA Workshop, Session on ‘People, AI, and Fairness’: ‘Sequential Decision-Making in Two-Sided Platforms: Balancing Competing Objectives’, Feb. 2020 [Organizer: Nihar Shah]
10. University of California, Berkeley, ‘Modeling On-Street Parking: Challenges and Opportunities’, Nov. 2019 [Host: Murat Arcak, Pravin Varaiya, Alexander A. Kurzhanskiy]

11. NSF CPS PI Meeting, Workshop on Smart and Connected Communities, ‘Intelligent Infrastructure and the Digital Transformation: Challenges and Opportunities,’ 2019 [Organizer: Abhishek Dubey]
12. University of California, Berkeley, ‘Learning in Stackelberg Games: An Implicit Approach with Provable Guarantees’, 2019 Nov. 15 [Host: S. Shankar Sastry]
13. University of Illinois, Urbana-Champaign, DCL Seminar, ‘Learning in Stackelberg Games: An Implicit Approach with Provable Guarantees’, 2019 Nov. 6 [Host: Roy Dong; other DCL faculty interaction: R. Srikant, Geir Dullerud]
14. National Academy of Engineering, China-America Frontiers of Engineering 2019 Meeting, ‘Intelligent Infrastructure & the Digital Transformation: Improving Lives Through Automation’, San Diego, CA July 2019 [invited by: Dan Work, Vanderbilt]
15. University of California, Berkeley, Center for Human Artificial Intelligence (CHAI), ‘Learning via Consistent Conjectures’, April 24 2019.
16. National Science Foundation (NSF), Smart & Connected Communities principal investigator meeting and workshop, ‘Data Informed Modeling and Correct-by-Design Control Protocols for Personal Mobility in Intelligent Urban Transportation Systems’, 2019 April 1
17. University of Michigan, EECS Control Theory Seminar, ‘Learning in Non-Stationary Environments: Near-Optimal Guarantees’, March 29 2019. [Host: Ram Vasudevan]
18. University of California, Berkeley, Controls Seminar, ‘Learning in Non-Stationary Environments: Near-Optimal Guarantees’, Feb 2019. [Host: S. Shankar Sastry]
19. Stanford University, ISL Seminar, ‘Learning in Non-Stationary Environments: Near-Optimal Guarantees’, Jan 24th 2019. [Host: Dorsa Sadigh]
20. C3 AI, ‘Learning in Non-Stationary Environments: Near-Optimal Guarantees’, Jan 25th 2019.
21. University of Texas, Austin, Control Theory Seminar, ‘Learning in Non-Stationary Environments: Near-Optimal Guarantees’, Oct. 2018 [Host: Ufuk Topcu]
22. Workshop on Learning and Decision Making, ‘Learning, Decision-Making, & Incentives using Mobility Data: Case Studies, Challenges, and Opportunities’, ACC 2018 [Host: Aranya Chakraborty]
23. National Science Foundation (NSF), Smart & Connected Communities principal investigator meeting and workshop, ‘Data Informed Modeling and Correct-by-Design Control Protocols for Personal Mobility in Intelligent Urban Transportation Systems’, 2018 March 26
24. NSF, Cyber-Physical Systems (CPS) meeting principal investigator meeting and workshop, ‘Emerging Markets and Myopic Decision-Making in Multi-Modal Transportation Systems: Models and Validation’, 2017 November 12
25. Vanderbilt Initiative for Smart-City Operations Research (VISOR) Multi-Modal Mobility Workshop, ‘Learning, Decision-Making, and Incentives using Mobility Data: Case Studies, Challenges, and Opportunities’, 2018 January 19 [Host: Abhishek Dubey]
26. University of Washington, College of Engineering Lecture Series, ‘Making Cities Smarter for Drivers: Using Data to Improve Urban Congestion’, 2017 November 7
27. University of Notre Dame, ‘Learning to Prospect—New Algorithms for Modeling Risk-Sensitive Decision-Making’, 2017 March 24 [Host: Vijay Gupta]
28. NSF, CPS Award Foundations on Resilient Cyber-Physical Systems Review, ‘New Vistas in Urban Infrastructures’, 2017 January 25
29. NSF CPS Award Foundations on Resilient Cyber-Physical Systems Review, ‘Urban Mobility: Learning, Behavioral Modeling, and Incentives’, 2017 January 25
30. University of Washington (EE Colloquium), ‘The Emerging Data Market—Adaptive Incentives for Smart, Connected Infrastructure’, 2016 November 29
31. NSF CPS Award Foundations of Resilient Cyber Physical Systems Review, Beyond FORCES: The Emerging Data Market and Sharing Economy, 2016 June 16
32. Celebration of Shankar Sastry 60th Birthday and 10 Years of CPS, University of California, Berkeley, ‘Next Generation Urban Ecosystem and The Emerging Data Market’, 2016 May 26
33. UK cyber security delegation visit to UC Berkeley, ‘Privacy Aware Monetization of Data’, 2016 May 10

34. ONR Embedded Humans MURI review at University of California, Berkeley, ‘Prospecting for Autonomy: Closing-the-Loop via Mechanism Design’, 2016 February 24
35. California Institute of Technology, ‘The Emerging Data Market—Adaptive Incentives for Smart, Connected Infrastructure’, 2016 February 2 [Host: Richard Murray]
36. Siebel Energy Institute, RWE Visit, ‘Emerging Data Market’, 2015 November 10
37. KTH Sweden, ‘NEXt-generation Urban ecoSystem: Smart, Connected Infrastructure & Communities’, 2015 September 17 [Host: Karl Johansson]
38. NSF CPS Award Foundations of Resilient Cyber Physical Systems Review, ‘Emerging Data Market’, 2015 September 17
39. Privacy Lab at University of California, Berkeley, ‘New Vulnerabilities Lead to the Need for New Service Models’, 2015 May 26
40. University of California, Santa Barbara, ‘Incentivizing Efficiency in Societal-Scale Cyber-Physical Systems’, 2015 March 11
41. University of Washington, ‘Incentivizing Efficiency in Societal-Scale Cyber-Physical Systems’, 2015 March 3
42. University of California, San Diego, ‘Incentivizing Efficiency in Societal-Scale Cyber-Physical Systems’, 2015 February 9
43. Stanford, ‘Game Theoretic Tools for Societal Scale Cyber-Physical Systems’, 2014 May 30
44. University of Michigan, ‘Game Theoretic Tools for Societal Scale Cyber-Physical Systems’, 2014 March 24 [Host: Demos Teneketzis]
45. CDC Workshop on Big Data Analytics for Societal Scale Cyber-Physical Systems: Energy Systems, Privacy Based Service Contracts and Insurance, 2014 December
46. NSF Team for Research in Ubiquitous Secure Technology (TRUST) site visit, ‘Characterization and Computation of Local Nash Equilibria in Continuous Games’, 2013 October 10

Presentations given at conferences (in reverse order chronologically).

Only conference papers where I was the presenter are included in this list; other conference papers are listed above in the conference paper section.

1. **L.J. Ratliff**, C. Dowling, E. Mazumdar, and B. Zhang, “To Observe or Not to Observe: Queuing Game Framework for Urban Parking”, IEEE Conference on Decision and Control, Las Vegas, 2016 Dec.
2. **L. J. Ratliff**, M. Jin, I. C. Konstantakopoulos, C. Spanos, and S. S. Sastry. Social Game for Building Energy Efficiency: Incentive Design. 52nd Annual Allerton Conference on Communication, Control, and Computing, Allerton, IL, 2014 Oct,
3. **L. J. Ratliff**, R. Dong, H. Ohlsson, A. A. Cardenas, and S.S. Sastry. Privacy and Customer Segmentation in the Smart Grid. IEEE Conference on Decision and Control, Los Angeles, CA, 2014 Dec.
4. **L. J. Ratliff**, R. Dong, H. Ohlsson, and S. S. Sastry. Incentive Design and Utility Learning via Energy Disaggregation. 19th World Congress of the International Federation of Automatic Control, Cape Town, South Africa, 2014 Aug.
5. **L. J. Ratliff**, R. Dong, H. Ohlsson, and S. S. Sastry. Energy Efficiency via Incentive Design and Utility Learning. ACM International Conference on High Confidence Networked Systems (HiCoNS), Berlin, Germany, 2014 Apr.
6. **L. J. Ratliff**, S. A. Burden, and S. S. Sastry. Genericity and Structural Stability of Non-degenerate Differential Nash Equilibria. American Control Conference, Portland, 2014 Jun.
7. **L. J. Ratliff**, S. A. Burden, and S. S. Sastry. Characterization and Computation of Local Nash Equilibria in Continuous Games. 51st Annual Allerton Conference on Communication, Control, and Computing, Allerton, IL, 2013 Oct,
8. **L. J. Ratliff**, S. Coogan, D. Calderone, and S. S. Sastry. Pricing in Linear-Quadratic Dynamic Games. 50th Annual Allerton Conference on Communication, Control, and Computing, Allerton, IL, 2012 Oct.

Other Scholarly Activities

- Invited panel participant for NSF-PIRE Workshop June 2021
 Workshop: [NSF-PIRE Workshop: US-Germany CPS Collaborations Assured CPS Autonomy for 3D Urban Transportation: Drones, Flying Cars and Beyond](#)
 Panel/Session: “Protocol Design and Concept of Operations”
 Panel Participants: Alexandre Bayen (UC Berkeley), Banavar Sridhar (NASA Ames Research Center), Lillian Ratliff (University of Washington), Forrest Laine (UC Berkeley/Vanderbilt)
 Organizers: S. Shankar Sastry (UC Berkeley), Alexander Pretschner (TUM), Claire Tomlin (UC Berkeley), Werner Damm (NSF), Janos Sztipanovits (Vanderbilt).
- Invited panel participant on resilient infrastructure systems with AI/IoT June 2021
 Workshop: “[Control for societal-scale challenges: Future Directions](#)”
 Panel: “Theme 3, Resilient infrastructure-systems with AI and IoT”
 Panel Participants: Lillian J. Ratliff (UW), Daniel Work (Vanderbilt, Co-Lead), Carlos Canudas de Wit (CNRS Grenoble, Co-Lead), George Pappas (U Penn), Karl Johansson (KTH), Anuradha Annaswamy (MIT), Jeff Shama (UIUC), Saurabh Amin (MIT), Henrik Sandberg (KTH), Bassam Bamieh (UCSB), Como Giacomo (Poli. di Torino), Marco Pavone (Stanford), Ethan Jackson (Microsoft)
 Organization: IEEE Control Systems Society
 Outcomes: Roadmap 2030: Vision Statements for Control for Societal Challenges
- Moderator for “CPS in the Age of AI” Session: NSF-Sponsored CPS Next Big Research Challenges in Cyber-Physical Systems Workshop, April 2021
 Organizers: David Corman (NSF, CPS Program Director) Miroslav Pajic (Duke) Saman Zonouz (Rutgers)
 Speakers in Session: Morley Mao (UMich) Sayan Mitra (UIUC) Necmiye Ozay (UMich) Meeko Oishi (UNM) George Pappas (UPenn)
- ACC Best Paper Award Committee, 2021
- Chair for Work In Progress, ICCPS, 2021
- Organizer: UW ECE Colloquium Series Spring 2021
 Speakers: Lillian Ratliff (UW), Michael I. Jordan (Berkeley), Maryam Kamgarpour (UCB), Tamer Basar (UIUC), Joao Hespanha (UCSB), Asu Ozdaglar (MIT), Costis Daskalakis (MIT), Georgios Piliouras (SUTD), Murat Arcaç (Berkeley) [\[more details here\]](#)
- Organizer of Cross-University Reading Group on ‘Learning and Games’ Fall, 2020
 Faculty Participants: S. Shankar Sastry (UC Berkeley); Roy Dong (UIUC); Saurabh Amin (MIT), Maryam Fazel (UW)
- Steering Committee, ICCPS 2020
- Co-Organized workshop at IPAM October 26 - 30, 2020
 Workshop : ”Safe Operation of Connected and Autonomous Vehicle Fleets”
 Organizers: L. J. Ratliff (UW), Dan Work (Vanderbilt), Jonathan Sprinkle (ASU), Ratsch, Christian (UCLA), Richard Sowers (UIUC)
 Speakers : Aaron Ames (CalTech), Luca Carlone (MIT), Ricardo Sanfelice (UCSC), Cathy Wu (MIT), Katherine Driggs-Campbell (UIUC), Sam Coogan (GaTech), Benjamin Seibold (Temple University), Antonella Ferrara (Universita di Pavia), Ketan Savla (USC), Pierluigi Pisu (Clemson), Daniel Work (Vanderbilt), Andreas Malikopoulos (University of Delaware), Richard Sowers (University of Illinois at Urbana-Champaign), Gabor Orosz (University of Michigan), Ramanarayan Vasudevan (University of Michigan), Marco Pavone (Stanford University), Lillian Ratliff (UW), Ruzena Bajcsy (UC Berkeley), Sayan Mitra (University of Illinois at Urbana-Champaign), Gabor Karsai (Vanderbilt University)

- NSF Panel Reviewer for various programs in both CISE and ENG directorates (~ 15 panels) 2015–2020
- Program committee member for NSF CPS PI meetings 2017–2019
- Program committee member for NSF SCC PI meetings 2017–2019
- Organizer for NSF Cyber-Physical Systems (CPS) PI Meeting 2017–2019
 Role: Lead organizer in 2018, Co-Organizer in 2017, 2019
 Duties: Procured plenary speaker(s), created meeting schedule including organization of lightning talks (~400-700 people attend), poster session, DEI Luncheon, and workshops
 Co-Organizers: P. Bogdan (USC), M. I Faruque (UCI), M. Zavlanos (Duke), M. Pajic (Duke), L. Phan (UPenn), J. Sztipanovits (Vanderbilt) [2019]; A.Clark (WPI), S. Coogan (GaTech), M. Pajic (Duke), P. Prabakar (Kansas State), J. Sztipanovits (Vanderbilt) [2018]; S. Karaman (MIT), S. Aliari Zonouz (Rutgers), J. Sztipanovits (Vanderbilt), D. Work (Vanderbilt) [2017]
- Organizer for NSF Smart & Connected Communities (SCC) PI Meeting 2018–2019
 Role: Lead organizer in 2018, Co-Organizer in 2019
 Duties: Created meeting schedule including organization of lightning talks (~100 people attend), poster session, DEI panel, and workshops
- Co-Organized workshop at Conference on Decision and Control 2015
 Workshop : 'Smart Cities: Service Models, Vulnerabilities, and Resilience'
 Organizers: L. J. Ratliff (UW), Roy Dong (UIUC), Henrik Ohlsson (c3.ai), Samuel A. Burden (UW), Hui Liu (Shanghai Jiao Tong University), Radha Poovendran (UW), S. Shankar Sastry (UC Berkeley)
 Speakers : Nanpeng Yu (UC, Riverside), Henrik Ohlsson (c3.ai), Andre Teixeira (KTH), Shuo Han (UPenn), Aron Laszka (University of Houston), Baosen Zhang (UW), Andrew Clark (WPI), Alvaro Cardenas (UC Santa Cruz)
- Co-Organized workshop at Conference on Decision and Control 2014
 Workshop : 'Big Data Analytics for Societal Scale Cyber-Physical Systems: Energy Systems'
 Organizers: L. J. Ratliff (UW), Roy Dong (UIUC), Henrik Ohlsson (c3.ai), J. Zico Kolter (CMU), S. Shankar Sastry (UC Berkeley)
 Speakers : Shankar Sastry (UC Berkeley), Zico Kolter (CMU), Henrik Ohlsson (c3.ai), L. J. Ratliff (UW), Roy Dong (UIUC), Saurabh Amin (MIT), Alberto Speranzon (UTRC), Xenofon Koutsoukous (Vanderbilt), Henrik Sandberg (KTH), Stephen Wicker (Cornell), George Pappas (UPenn), Alvaro Cardenas (UC Santa Cruz)

Reviewer for Conferences and Journals

- ML: International Conference on Machine Learning (ICML), Advances in Neural Information Processing Systems (NeurIPS)
- AI: AAAI Conference on Artificial Intelligence (AAAI), International Joint Conference on Artificial Intelligence (IJCAI), Conference on Uncertainty in Artificial Intelligence (UAI)
- Control: Learning for Dynamics and Control (L4DC), American Control Conference (ACC), IEEE Conference on Decision and Control (CDC)
- CPS & Game Theory: International Conference on Cyber-Physical Systems, Conference on Decision and Game Theory for Security (GameSec), GameNet
- IEEE Transactions on Automatic Control (TAC), IEEE Transactions on Intelligent Transportation Systems (Trans. ITS), Automatica, IEEE Transactions on Control of Networked Systems (TCNS), IEEE Transactions on Smart Grid

Professional Society Memberships

- IEEE, 2010–present

Graduate Students and Postdoctoral Researchers

Graduate Students:

- Tanner Fiez (Amazon) PhD 2016–2021
- Liyuan Zheng (Microsoft) PhD 2017–2021
- Benjamin Chasnov (co-advised with Sam Burden) PhD 2018–
- Mitas Ray, PhD (co-advised with Maryam Fazel) MS 2019-2020, PhD 2019–
- Adhyyan Narang (co-advised with Maryam Fazel) PhD 2020–
- Evan Faulkner PhD 2020–

Other Significantly Advised Students:

- Sarah Li, UW AA PhD 2017–present
- Eric Mazumdar, UC Berkeley EECS PhD 2015–2021
- Chinmay Maheshwari, UC Berkeley EECS PhD 2020–present
- Chih-Yuan Chiu, UC Berkeley EECS PhD 2020–present

Post-Doctoral Researchers:

- Daniel Calderone (Current: Lecturer, AA, UW) 2018–2019
 - Shreyas Sekar (Current: Asst. Prof., CS, U Toronto) 2017–2018
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Research Activities

Funded Proposals:

- NSF SCC-IRG Track 1: Mobility for all: Harnessing Emerging Transit Solutions for Underserved Communities
Role: Co-PI \$300,000
 Vanderbilt PIs: Abhishek Dubey (Lead) and Mina Sartipi total: \$2,100,000
 Cornell PI: Samitha Samaranyake
 U. Huston PI: Aron Laszka (U Huston)
- ONR YIP: Algorithmic Competition, Cooperation, and Collusion: Heterogeneous Learning
Role: Single PI: 2020–2023, 36 Month \$510,000
- Amazon Faculty Research Award
Role: Co-Lead: 2018 \$40,000
 UW Lead: Kevin Jamieson total: \$80,000+AWS time
- NSF CPS: SMALL: Collaborative Research: Information Design and Price Mechanisms in Platforms for Cyber-Physical Systems with Learning Agents
Role: PI: 9/2019–9/2022 \$298,788
 UW Co-PI: Baosen Zhang
 Collaborative proposal: Joint with Ramesh Johari, Stanford total: \$500,000
- NSF RI: III: SMALL: Robust Inference and Influence in Dynamic Environments
Role: PI: 9/2019–9/2022 \$365,000
 UW Co-PI: Kevin Jamieson
- NSF CAREER:Co-Design of Information and Incentives in Societal-Scale Cyber-Physical Systems
Role: Single PI: 9/2019–9/2024 \$499,959
- NSF CPS: Medium: Collaborative Research: Convergent, correct, and scalable reinforcement learning for CPS
Role: Co-PI: 9/2018–8/2021 \$648,981
 UW PI: Sam Burden
 Collaborative Proposal: joint with Sam Coogan, GaTech total: \$998,000

- NSF SCC:IRG Track 2: Data Informed Modeling and Correct-by-Design Control Protocols for Personal Mobility in Intelligent Urban Transportation Systems
Role: PI: 8/2017–8/2020 \$996,619 (+\$26,000 REU)
 UW Co-PI: Behçet Açıkmese
 Gatech Co-PI: Samuel Coogan
- NSF CRII: CPS: Emerging Markets and Myopic Decision-Making in Multi-Modal Transportation Systems: Modeling and Validation
Role: Single PI: 6/2017–6/2021 \$174,878 (+\$16,000 REU)
- NSF US Ignite: Collaborative Research: Focus Area 1: Social Computing Platform for Multi-Modal Transit
Role: Co-PI: 9/2016–8/2020 \$600,000
 UW PI: Baosen Zhang
 Collaborative Proposal: joint with Abhishek Dubey, Vanderbilt total: \$900,000
- NSF EAGER: Congestion Mitigation via Better Parking: New Fundamental Models and A Living Lab
Role: Co-PI: 7/2016–6/2018 \$218,130
 UW PI: Baosen Zhang

Teaching

- EE 341 Discrete Time Linear Systems Theory Fa '21, Sp '21, Sp '20, Sp '19
- EE/AA 547 Linear Systems Theory I Wi '20, Fa '18, Fa '17
- EE/AA 510 Mathematical Foundations of Systems Theory Fa '19
- EE 546 Learning in Games Wi '21, Wi '19, Fa '16
- EE/AA/ME 548 Linear Systems Theory II Wi '18
- EE/AA/ME 549 System Identification Sp '17

Course Design:

- Co-creator (w/ Maryam Fazel) of undergraduate course “EE 446: Fundamentals of Optimization and Machine Learning” to be taught Spring 2022

Overview: Fundamentals of Optimization and Machine Learning is an introduction to optimization and machine learning models motivated by their application in areas including statistics, decision-making and control, and communication and signal processing. The goal is to give ECE undergraduate students at the junior/senior level the foundational mathematical concepts and theory that underpins modern optimization and machine learning algorithms. In particular, students will be able to model basic machine learning algorithms using the language of convex optimization. The course will also be a cornerstone course for the new data science option for undergraduates.

- Creator of graduate course “EE546: Learning in Games”

Overview: Learning in games is an introduction to game theory and learning algorithms used in game theory. The course is designed as a split course with one part lecture and one part discussion of papers. In the second part, classical or seminal papers are paired with very modern/recent papers on core topics in learning in games, where students sign up to present in discussant/critic pairs. This process gives students a historical perspective, broadens their knowledge of the literature across time and domain, and enables students to learn to read and synthesize information in technical papers.

Service

Departmental Service.

- Fellowship Committee (2016–2017, 2018–2019, 2019–2020)
- Qualifying Exam Committee, Fall 2017
- Space Committee (2016–2017 year, 2017–2018, 2018–2019, 2019–2020)
- Concentration Area Panel (Fall 2017)
- ECE Chair Search Committee (2019–2020 Academic Yr)
- ECE Lecturer Hiring Committee (2020–2021)

College Service.

- Participant in CoE STARS recruiting event as EE faculty representative, Winter 2018
- Panel participant for “ENGR 598A: Preparing for Academic Careers in Engineering,” Fall 2016
- Participant in CoE STARS recruiting event as EE faculty representative, Fall 2016
- Participant in CoE STARS EE Panel with the STARS Students, Winter 2017

Service Related to Diversity, Equity and Inclusion.

- CoE UW STARS Mentor (6 students)

Description: Funded by the NSF and Washington State Opportunity Scholarship, STARS provides students a specialized first-year curriculum designed to build learning skills and academic preparation. Students are selected for being highly motivated, being low-income, and coming from target high schools in Washington State that have high populations of free and reduced-price lunch. To date, 85% of STARS students hold Pell Grants, 71% are first-generation college students, over half are underrepresented minorities, and 41% are women.

students: Kiana Peterson (2016–2018), Grace Kariuki (2016–2018), Jyoti Lama (2017–2018), Tevin Stanley (2017–2018), Kisanet Gebrehiwet (2017–2018) and Samuel Awhua (2016–present)

- Co-Creator of the Diversity, Equity and Inclusion Luncheon at the Annual NSF CPS PI Meeting
- Mentor for undergraduates participating in NSF funded research experience for undergrads (REUs) 2016–present

student	year	student	year
Samuel Awuah	(UW, 2016–present)	Joeleen Lawson	(UW, 2018–2021)
Zane Alumbaugh	(UCSC, 2019–2021)	Avi Mittal	(UW AA, 2021–present)
Arnav Mahajan	(UW CSE, 2021–present)	Ryan Ching	(UW ECE 2021–present)
Liem Vu	(UW ECE 2021–present)	Peter Ding	(UW ECE 2021–present)
Kiana Peterson	(UW ECE, 2017–2018)	Grace Kariuki	(UW ECE 2017–2018)
Tevin Stanley	(UW ECE 2018)	Jyoti Lama	(UW ECE 2017–2018)
Kisanet Gebrehiwet	(UW ECE 2017–2018)	Niha Dhillon	(UW, undergrad)
Anisha Uppungondori	(UW Physics 2017–2018)	Cece Landau	(UW ECE 2017–2018)
Paula Gluss	(UW AMATH 2016–2017)	Robert Yody	(UW, ECE 2016–2017)
Pyi Thein Khine	(UW, ECE 2016–2017)	Heng Zhou	(UW, ECE 2016–2017)
Jacob Garrison	(UW, ECE 2015–2016)	Kyle Lee	(UW, ECE 2015–2016)
Daniel Ng	(UW, ECE 2015–2016)	Jiayu Dong	(UW, ECE 2015–2016)
Apala Srivastava	(UW ECE 2017)	Yaying Huang	(UW ECE 2017)
Agustin Castro	(UW ECE 2017)	Vineeth Sai	(UW ECE 2017)
Tinnabhand Patana	(UW ECE 2017)	Joey Thai	(UW ECE 2017)
Kanupriya Agchawla	(UW ECE 2017)		