Michael J. Curry

curry.michael.jeremiah@gmail.com
currymj.github.io

Education

2017 – 2022 **Ph.D., University of Maryland** in Computer Science
Thesis: "Learning and Robustness with Applications to Mechanism Design"
Advised by John Dickerson and Tom Goldstein.

2014 – 2016 **M.S., Columbia University** in Computer Science.

2010 – 2014 **B.A. *cum laude*, Amherst College** in Computer Science.

Employment History

09/2023 – Present **Postdoctoral Researcher**
Harvard John A. Paulson School of Engineering and Applied Sciences
Member of David Parkes' group in EconCS

08/2022 – Present **Postdoctoral Researcher**
University of Zurich/ETH AI Center
Member of Sven Seuken's Computation and Economics Research Group, funded by ERC grant for Machine Learning-based Market Design. Co-lecturer in "Algorithmic Game Theory and Mechanism Design" at UZH.

9/2017 – 08/2022 **Graduate Assistant**
University of Maryland
Supported by

- *DARPA "Guaranteeing AI Robustness Against Deception (GARD)"*
- *AFOSR MURI "Innovations in Mean-Field Game Theory for Scalable Computation and Diverse Applications"*
- *DARPA "Serial Interactions in Imperfect Information Games for Complex Military Decision-Making (SI3-CMD)"*

Summer 2021 **Research Intern**
Salesforce Research, Palo Alto, CA.
Investigated the use of multi-agent reinforcement learning for large-scale economic simulations.

Summer 2020 **Researcher**
Institute for Pure and Applied Mathematics, UCLA.
G-RIPS Summer Program (Industry Partner: AMD)
Investigated machine learning for quantum chemistry.

2017 – 2018 **Research Associate.**
NIH, Bethesda, MD. Section on Quantitative Imaging and Tissue Sciences.

2016 **R&D Engineer.**
Text IQ, New York, NY.

Research Papers

Michael J. Curry, Zhou Fan, and David C Parkes, "Optimal automated market makers: Differentiable economics and strong duality," *arXiv preprint arXiv:2402.09129*, 2024.

Michael J. Curry, Vinzenz Thoma, Darshan Chakrabarti, Stephen Marcus McAleer, Christian Kroer, Tuomas Sandholm, Niao He, and Sven Seuken, "Automated design of affine maximizer mechanisms in dynamic settings," in *AAAI Conference on Artificial Intelligence*, 2024.

Paul Friedrich, Yulun Zhang, **Michael J. Curry**, Ludwig Dierks, Stephen McAleer, Jiaoyang Li, Tuomas Sandholm, and Sven Seuken, "Scalable mechanism design for multi-agent path finding," in *International Joint Conference on Artificial Intelligence (IJCAI)*, 2024.

Michael J. Curry, Tuomas Sandholm, and John Dickerson, "Differentiable economics for randomized affine maximizer auctions," in *International Joint Conference on Artificial Intelligence (IJCAI)*, 2023.

Michael J. Curry, Alexander Trott, Soham Phade, Yu Bai, and Stephan Zheng, "Learning solutions in large economic networks using deep multi-agent reinforcement learning," in *International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*, 2023.

Arpit Bansal, Ping-Yeh Chiang, **Michael J. Curry**, Rajiv Jain, Curtis Wigington, Varun Manjunatha, and Tom Goldstein, "Certified neural network watermarks with randomized smoothing," in *International Conference on Machine Learning (ICML)*, 2022.

Michael J. Curry, Uro Lyi, Tom Goldstein, and John Dickerson, "Learning revenue-maximizing auctions with differentiable matching," in *Artificial Intelligence and Statistics (AISTATS)*, 2021.

Neehar Peri, **Michael J. Curry**, Samuel Dooley, and John P. Dickerson, "Preferencenet: Encoding human preferences in auction design with deep learning," in *Neural Information Processing Systems (NeurIPS)*, 2021.

Kevin Kuo, Anthony Ostuni, Elizabeth Horishny, **Michael J. Curry**, Samuel Dooley, Ping-Yeh Chiang, Tom Goldstein, and John Dickerson, "ProportionNet: Balancing fairness and revenue for auction design with deep learning," *arXiv preprint arXiv:2010.06398*, 2020.

Michael J. Curry, Ping-Yeh Chiang, Tom Goldstein, and John Dickerson, "Certifying strategyproof auction networks," in *preparation for submission to Management Science, with preliminary version appearing in Neural Information Processing Systems (NeurIPS)*, 2020.

Ping-Yeh Chiang, **Michael J. Curry**, Ahmed Abdelkader, Aounon Kumar, John Dickerson, and Tom Goldstein, "Detection as regression: Certified object detection by median smoothing," in *Neural Information Processing Systems (NeurIPS)*, 2020.

Duncan McElfresh, **Michael J. Curry**, Tuomas Sandholm, and John Dickerson, "Improving policy-constrained kidney exchange via pre-screening," in *Neural Information Processing Systems (NeurIPS)*, 2020.

Fotini Christia, **Michael J. Curry**, Constantinos Daskalakis, Erik Demaine, John Dickerson, MohammadTaghi Hajiaghayi, Adam Hesterberg, Marina Knittel, and Aidan Milliff, "Scalable equilibrium computation in multi-player influence games on networks," in *AAAI Conference on Artificial Intelligence*, 2020.

Ahmed Abdelkader, **Michael J. Curry**, Liam Fowl, Tom Goldstein, Avi Schwarzschild, Manli Shu, Christoph Studer, and Chen Zhu, "Headless horseman: Adversarial attacks on transfer learning models," in *International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2020, pp. 3087–3091.

Michael J. Curry, John P. Dickerson, Karthik Abinav Sankararaman, Aravind Srinivasan, Yuhao Wan, and Pan Xu, "Mix and match: Markov chains and mixing times for matching in rideshare," in *Conference on Web and Internet Economics (WINE)*, 2019.

Michael J. Curry, Duncan McElFresh, Xuchen You, Cameron Moy, Furong Huang, Tom Goldstein, and John P. Dickerson, "Reinforcement learning for dynamic set packing," in *Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, 2019.

Lindsay Walker, **Michael J. Curry**, Amritha Nayak, Nicholas Lange, Carlo Pierpaoli, and Brain Development Cooperative Group, "A framework for the analysis of phantom data in multicenter diffusion tensor imaging studies," *Human brain mapping*, vol. 34, no. 10, pp. 2439–2454, 2013.

Mustafa Okan Irfanoglu, **Michael J. Curry**, Evren Özarslan, Cheng Guan Koay, Sinisa Pajevic, and Peter J Basser, "Diffusion tensor uncertainty: Visualization and similarity metrics," in *Proceedings of the International Society of Magnetic Resonance in Medicine (ISMRM)*, 2012.

Lindsay Walker, **Michael J. Curry**, Nayak Amritha, Nicholas Lange, Carlo Pierpaoli, and The Brain Development Cooperative Group, "Impact of the analysis of phantoms on data quality for the dti component of the nih mri study of normal brain development," in *Proceedings of the International Society of Magnetic Resonance in Medicine (ISMRM)*, 2012.

Firouzeh Tannazi, Lindsay Walker, **Michael J. Curry**, and Carlo Pierpaoli, "Bias in diffusion tensor-derived quantities depend on the number of dwis composing the dt-mri dataset," in *Proceedings of the International Society of Magnetic Resonance in Medicine (ISMRM)*, 2011.

Professional Experience

Invited Talks

2024	EC Workshop on Computational Methods for Economic Dynamics (July 2024)
	Oxford-Man Institute, University of Oxford – Crossroads Seminar (June 2024)
	Argyros School of Business, Chapman University – Management Science Seminar
2023	INFORMS – Learning and Mechanism Design session
2021	INFORMS – Deep Learning and Auction Design session

Professional Service

2023	Organizer, Harvard Business School "Future of AI and Economics" workshop
	NeurIPS, EAAMO, EC, AAAI reviewer
2022	ICML, AISTATS, NeurIPS, ICLR reviewer
2021	NeurIPS, EC, ICML, AISTATS reviewer
2020	NeurIPS, ICML reviewer
	Program Committee Chair, NeurIPS 2020 Workshop on Dataset Curation and Security.
2019	IJCAI, EC reviewer.

Teaching Roles

Lecturer	Algorithmic Game Theory and Mechanism Design, University of Zurich, 2022 and 2023
Teaching TA	CMSC 216 (Introduction to Computer Systems), University of Maryland, 2017.

Professional Experience (continued)

Grading TA	CMSC 351 (Algorithms), University of Maryland, 2018.