

Michael J. Curry

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Education

- 2017 – 2022 📖 **Ph.D., University of Maryland** in Computer Science.
- 2014 – 2016 📖 **M.S., Columbia University** in Computer Science.
- 2010 – 2014 📖 **B.A. *cum laude*, Amherst College** in Computer Science.

Employment History

- 08/2022 – Present 📖 **Postdoctoral Researcher** University of Zürich/ETH AI Center
Member of Computation and Economics Research Group, funded by ERC grant for Machine Learning-based Market Design.
- 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 improving Quantum Monte Carlo approaches to finding ground state solutions of the Schrödinger equation.
- 2017 – 2018 📖 **Research Associate.** NIH, Bethesda, MD.
In Section on Quantitative Imaging and Tissue Sciences, worked on NIH BRAIN Initiative grant to characterize the latency of signal propagation in the brain by combining functional and structural imaging data
- 2016 📖 **R&D Engineer.** Text IQ, New York, NY.
Maintained and improved, in response to rapidly changing requirements, a data processing and modeling pipeline, making predictions about email data in the legal space.
- 2012 – 2014 📖 **Peer Tutor & TA** Amherst College, Amherst, MA.

Research Publications

M. J. Curry, T. Sandholm, and J. Dickerson, “Differentiable economics for randomized affine maximizer auctions,” *arXiv preprint arXiv:2202.02872*, 2022, in submission.

- A. Bansal, P.-Y. Chiang, **M. J. Curry**, *et al.*, “Certified neural network watermarks with randomized smoothing,” in *International Conference on Machine Learning (ICML)*, 2022.
- M. J. Curry**, A. Trott, S. Phade, Y. Bai, and S. Zheng, “Finding general equilibria in many-agent economic simulations using deep reinforcement learning,” *in submission, available on request.*, 2022.
- P.-Y. Chiang, **M. J. Curry**, T. Goldstein, and J. Dickerson, “Globally certifiable deep auctions,” 2021, in submission, available on request.
- M. J. Curry**, U. Lyi, T. Goldstein, and J. Dickerson, “Learning revenue-maximizing auctions with differentiable matching,” in *Artificial Intelligence and Statistics (AISTATS)*, 2021.
- N. Peri, **M. J. Curry**, S. Dooley, and J. P. Dickerson, “Preferencenet: Encoding human preferences in auction design with deep learning,” in *Neural Information Processing Systems (NeurIPS)*, 2021.
- K. Kuo, A. Ostuni, E. Horishny, *et al.*, “ProportionNet: Balancing fairness and revenue for auction design with deep learning,” *arXiv preprint arXiv:2010.06398*, 2020.
- M. J. Curry**, P.-Y. Chiang, T. Goldstein, and J. Dickerson, “Certifying strategyproof auction networks,” in *Neural Information Processing Systems (NeurIPS)*, 2020.
- P.-Y. Chiang, **M. J. Curry**, A. Abdelkader, A. Kumar, J. Dickerson, and T. Goldstein, “Detection as regression: Certified object detection by median smoothing,” in *Neural Information Processing Systems (NeurIPS)*, 2020.
- D. McElfresh, **M. J. Curry**, T. Sandholm, and J. Dickerson, “Improving policy-constrained kidney exchange via pre-screening,” in *Neural Information Processing Systems (NeurIPS)*, 2020.
- F. Christia, **M. J. Curry**, C. Daskalakis, *et al.*, “Scalable equilibrium computation in multi-player influence games on networks,” in *AAAI Conference on Artificial Intelligence*, 2020.
- A. Abdelkader, **M. J. Curry**, L. Fowl, *et al.*, “Headless horseman: Adversarial attacks on transfer learning models,” in *International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2020, pp. 3087–3091.
- M. J. Curry**, J. P. Dickerson, K. A. Sankararaman, A. Srinivasan, Y. Wan, and P. Xu, “Mix and match: Markov chains and mixing times for matching in rideshare,” in *Conference on Web and Internet Economics (WINE)*, 2019.
- M. J. Curry**, D. McElFresh, X. You, *et al.*, “Reinforcement learning for dynamic set packing,” in *Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, 2019.
- L. Walker, **M. J. Curry**, A. Nayak, N. Lange, C. Pierpaoli, and B. D. C. 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.
- M. O. Irfanoglu, **M. J. Curry**, E. Özarslan, C. G. Koay, S. Pajevic, and P. J. Basser, “Diffusion tensor uncertainty: Visualization and similarity metrics,” in *Proceedings of the International Society of Magnetic Resonance in Medicine (ISMRM)*, 2012.
- L. Walker, **M. J. Curry**, N. Amritha, N. Lange, C. Pierpaoli, and T. B. D. C. 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.

F. Tannazi, L. Walker, **M. J. Curry**, and C. 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.

Technical Skills

Coding – Daily Use	📖	Python.
Coding – Some Experience	📖	Julia, Java, Mathematica, CUDA C.
Tools and Frameworks	📖	Numpy/Scipy, PyTorch, Jax, Gurobi, SQL.

Miscellaneous Experience

Invited Talks

2021 📖 INFORMS – Deep Learning and Auction Design session

Professional Service

2022 📖 ICML, AISTATS, NeurIPS 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

Teaching TA 📖 CMSC 216 (Introduction to Computer Systems).

Grading TA 📖 CMSC 351 (Algorithms).