



Cyrus Cousins: A Complete Bibliography

Academic Publications

- All authors are listed in contribution-order unless otherwise noted.
 - Asterisks denote equal contributions (order alphabetical, random, or otherwise arbitrary).
- Primary topics are specified in the margin.






FA  ▪ Fair Algorithmics

DS  ▪ Data Science




ML  ▪ Machine Learning

AGT  ▪ Algorithmic Game Theory






Selected Publications

- FA  1. Cousins, Cyrus. *An Axiomatic Theory of Provably-Fair Welfare-Centric Machine Learning* in *Advances in Neural Information Processing Systems* (2021). www.cyruscousins.online/projects/fairness/#NeurIPS2021.
- FA  2. Cousins, Cyrus, Kumar, Indra Elizabeth, Venkatasubramanian, Suresh, *To Pool or Not To Pool: Analyzing the Regularizing Effects of Group-Fair Training on Shared Models* in *Artificial Intelligence and Statistics (AISTATS)* (2024). www.cyruscousins.online/projects/fairlocalization/.
- ML  3. Cousins*, Cyrus, Mazzeo*, Alessio, Sam, Dylan, Bach, Stephen H. Upfal, Eli, *Adversarial Multiclass Learning under Weak Supervision with Performance Guarantees* in *International Conference on Machine Learning (ICML)* (2021). www.cyruscousins.online/projects/adversarial/.
- ML  4. Cousins, Cyrus, Riondato, Matteo, *Sharp uniform convergence bounds through empirical centralization* in *Advances in Neural Information Processing Systems* (2020). www.cyruscousins.online/projects/centralization/.
- DS  5. Cousins, Cyrus, Wohlgenuth, Chloe, Riondato, Matteo, BAVarian: Betweenness Centrality Approximation with Variance-Aware Rademacher Averages. *ACM Transactions on Knowledge Discovery from Data (TKDD)* **17**, 1–47. ISSN: 1556-4681 (2023). www.cyruscousins.online/projects/rademacherdata/.

Other Journal Publications

- ML  1. Cousins, Cyrus, Lobo, Elita, Asadi, Kavosh, Littman, Michael L. *On Welfare-Centric Fair Reinforcement Learning*. *Reinforcement Learning Journal* **1** (2024).
- DS  2. Pellegrina, Leonardo, Cousins, Cyrus, Vandin, Fabio, Riondato, Matteo, MCRapper: Monte-Carlo Rademacher Averages for POSET Families and Approximate Pattern Mining. *ACM Transactions on Knowledge Discovery from Data (TKDD)* **16** (2022).
- ML  3. Cousins, Cyrus, Riondato, Matteo, CaDET: Interpretable parametric conditional density estimation with decision trees and forests. *Machine Learning* **108**, 1613–1634 (2019).

Other Conference Publications

- ML  1. Cousins*, Cyrus, Lobo*, Elita, Petrik*, Marek, Zick*, Yair, *Percentile Criterion Optimization in Offline Reinforcement Learning* in *Advances in Neural Information Processing Systems* (2023).
- FA  2. Cousins*, Cyrus, Viswanathan*, Vignesh, Zick*, Yair, *Dividing Good and Better Items Among Agents with Submodular Valuations* in *International Conference on Web and Internet Economics* (2023).
- FA  3. Cousins*, Cyrus, Viswanathan*, Vignesh, Zick*, Yair, *The Good, the Bad and the Submodular: Fairly Allocating Mixed Manna Under Order-Neutral Submodular Preferences* in *International Conference on Web and Internet Economics* (2023).
- AGT  4. Cousins*, Cyrus, Payan*, Justin, Zick*, Yair, *Into the Unknown: Assigning Reviewers to Papers with Uncertain Affinities* in *Proceedings of the 16th International Symposium on Algorithmic Game Theory* (2023).
- FA  5. Cousins, Cyrus. *Revisiting Fair-PAC Learning and the Axioms of Cardinal Welfare* in *Artificial Intelligence and Statistics (AISTATS)* (2023).






- AGT 🤖 6. **Cousins, Cyrus**, Mishra, Bhaskar, Viqueira, Enrique Areyan, Greenwald, Amy, *Learning Properties in Simulation-Based Games* in *Proceedings of the 22nd International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)* (2023).
- FA 🏛️ 7. **Cousins, Cyrus**. *Uncertainty and the Social Planner’s Problem: Why Sample Complexity Matters* in *Proceedings of the 2022 ACM Conference on Fairness, Accountability, and Transparency* (2022).
- ML ✂️ 8. **Cousins*, Cyrus**, Haddadan*, Shahrzad, Zhuang*, Yue, Upfal, Eli, *Fast Doubly-Adaptive MCMC to Estimate the Gibbs Partition Function with Weak Mixing Time Bounds* in *Advances in Neural Information Processing Systems* (2021).
- DS 01000100
01110011 9. **Cousins, Cyrus**, Wohlgenuth, Chloe, Riondato, Matteo, *BAVarian: Betweenness Centrality Approximation with Variance-Aware Rademacher Averages* in *Proceedings of the 27th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining* (2021).
- DS 01000100
01110011 10. Pellegrina, Leonardo, **Cousins, Cyrus**, Vandin, Fabio, Riondato, Matteo, *MCRapper: Monte-Carlo Rademacher Averages for POSET Families and Approximate Pattern Mining* in *Proceedings of the 26th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining* (2020), 2165–2174.
- AGT 🤖 11. Viqueira, Enrique Areyan, **Cousins, Cyrus**, Greenwald, Amy, *Improved Algorithms for Learning Equilibria in Simulation-Based Games* in *Proceedings of the 19th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)* (2020), 79–87.
- AGT 🤖 12. Viqueira, Enrique Areyan, **Cousins, Cyrus**, Mohammad, Yasser, Greenwald, Amy, *Empirical mechanism design: Designing mechanisms from data* in *Uncertainty in Artificial Intelligence* (2020), 1094–1104.
- AGT 🤖 13. Viqueira, Enrique Areyan, **Cousins, Cyrus**, Greenwald, Amy, *Learning Simulation-Based Games from Data* in *18th International Conference on Autonomous Agents and MultiAgent Systems* (2019).
- ML ✂️ 14. **Cousins, Cyrus**, Upfal, Eli, *The k -Nearest Representatives Classifier: A Distance-Based Classifier with Strong Generalization Bounds* in *4th International Conference on Data Science and Advanced Analytics* (2017).

Extended Abstracts






- FA 🏛️ 1. **Cousins, Cyrus**, Asadi, Kavosh, Littman, Michael L. *Fair E^3 : Efficient Welfare-Centric Fair Reinforcement Learning* in *5th Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM)* (2022).
- AGT 🤖 2. Viqueira, Enrique Areyan, **Cousins, Cyrus**, Greenwald, Amy, *Learning Competitive Equilibria in Noisy Combinatorial Markets* in *Proceedings of the 20th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)* (2021).
- ML ✂️ 3. Binnig*, Carsten, Buratti*, Benedetto, Chung*, Yeounoh, **Cousins*, Cyrus**, Kraska*, Tim, Shang*, Zeyuan, Upfal*, Eli, Zeleznik*, Robert, Zraggen*, Emanuel, *Towards interactive curation & automatic tuning of ML pipelines* in *Proceedings of the Second Workshop on Data Management for End-To-End Machine Learning* (2018).
- DS 01000100
01110011 4. Binnig, Carsten, Basik, Fuat, Buratti, Benedetto, Cetintemel, Ugur, Chung, Yeounoh, Crotty, Andrew, **Cousins, Cyrus**, Ebert, Dylan, Eichmann, Philipp, Galakatos, Alex, Hättasch, Benjamin, Ilkhechi, Amir, Kraska, Tim, Shang, Zeyuan, Tromba, Isabella, Usta, Arif, Utama, Prasetya, Upfal, Eli, Wang, Linnan, Weir, Nathaniel, Zeleznik, Robert, Zraggen, Emanuel, *Towards interactive data exploration* in *Real-Time Business Intelligence and Analytics* (2017), 177–190.

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- FA 🏛️ 1. **Cousins*, Cyrus**, Lobo*, Elita, Payan*, Justin, Zick*, Yair, *Fair and Welfare-Efficient Resource Allocation under Uncertainty* in *1st Annual Workshop on Incentives in Academia @ Economics and Computation* (2024).
- FA 🏛️ 2. **Cousins*, Cyrus**, Mysore*, Sheshera, Nayak-Kennard*, Neha, Zick*, Yair, *Who You Gonna Call? Optimizing Expert Assignment with Predictive Models* in *1st Annual Workshop on Incentives in Academia @ Economics and Computation* (2024).
- FA 🏛️ 3. Navarrete*, Paula, **Cousins*, Cyrus**, Bissias*, George, Zick*, Yair, *Deploying Fair and Efficient Course Allocation Mechanisms* in *1st Annual Workshop on Incentives in Academia @ Economics and Computation* (2024).
- FA 🏛️ 4. **Cousins*, Cyrus**, Lobo*, Elita, Payan*, Justin, Zick*, Yair, *Fair Resource Allocation under Uncertainty in Columbia Workshop on Fairness in Operations and AI* (2023).

- FA  5. **Cousins, Cyrus**. *Algorithms and Analysis for Optimizing Robust Objectives in Fair Machine Learning in Columbia Workshop on Fairness in Operations and AI* (2023).
- FA  6. Navarrete*, Paula, **Cousins*, Cyrus**, Zick*, Yair, Viswanathan*, Vignesh, *Efficient Yankee Swap for Fairly Allocating Courses to Students in Columbia Workshop on Fairness in Operations and AI* (2023).
- ML  7. **Cousins*, Cyrus**, Lobo*, Elita, Petrik*, Marek, Zick*, Yair, *Percentile Criterion Optimization in Offline Reinforcement Learning in 16th European Workshop on Reinforcement Learning* (2023).
- FA  8. Dong, Evan, **Cousins, Cyrus**, *Decentering Imputation: Fair Learning at the Margins of Demographics in Queer in AI Workshop @ ICML* (2022).
- DS  9. **Cousins, Cyrus**, Pietras, Christopher M, Slonim, Donna K, *Scalable FRaC Variants: Anomaly Detection for Precision Medicine in International Parallel and Distributed Processing Symposium Workshops* (2017).

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- FA  1. **Cousins, Cyrus**. Algorithms and analysis for optimizing robust objectives in fair machine learning. *arXiv preprint arXiv:2404.06703* (2024).
- AGT  2. Mishra, Bhaskar, **Cousins, Cyrus**, Greenwald, Amy, Regret Pruning for Learning Equilibria in Simulation-Based Games. *arXiv:2211.16670* (2022).
- AGT  3. **Cousins, Cyrus**, Mishra, Bhaskar, Viqueira, Enrique Areyan, Greenwald, Amy, Computational and Data Requirements for Learning Generic Properties of Simulation-Based Games. *arXiv:2208.06400* (2022).
- DS  4. **Cousins, Cyrus**, Haddadan, Shahrzad, Upfal, Eli, Making mean-estimation more efficient using an MCMC trace variance approach: DynaMITE. *arXiv:2011.11129* (2020).
- DS  5. Sanford, Clayton, **Cousins, Cyrus**, Upfal, Eli, Uniform Convergence Bounds for Codec Selection. *arXiv:1812.07568* (2018).