Jessica Sorrell

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RESEARCH INTERESTS

Theory of machine learning, trustworthy machine learning, differential privacy, replicability, reinforcement learning

EMPLOYMENT

Assistant Professor, Department of Computer Science 2024 - Present
Johns Hopkins University, Baltimore, MD
Department of Applied Mathematics and Statistics (secondary appointment)
Data Science and AI Institute (member)
Mathematical Institute of Data Science (member)

Postdoctoral Researcher, Computer and Information Science 2022-2024
University of Pennsylvania, Philadelphia, PA
Advisors: Aaron Roth, Michael Kearns

EDUCATION

Doctor of Philosophy, Computer Science
University of California, San Diego, 2022
Advisors: Daniele Micciancio, Russell Impagliazzo

Master of Science, Computer Science
University of California, San Diego, 2020

Bachelor of Science, Applied Mathematics
Rochester Institute of Technology, Rochester, NY, May 2015

PUBLICATIONS

Eric Eaton, Surbhi Goel,Marcel Hussing, Michael Kearns, Aaron Roth, Sikata Sengupta, Jessica Sorrell. *Model Agreement via Anchroing.* In submission, COLT 2026.

Moshe Noivirt, Jessica Sorrell, Eliad Tsfadia. *Computationally Efficient Replicable Learning of Parities.* In submission, COLT 2026.

Anh Do, Jessica Sorrell *Boosting in Reinforcement Learning in Structured MDPs.* In submission, ICML 2026.

Eric Eaton, Marcel Hussing, Michael Kearns, Aaron Roth, Sikata Sengupta, Jessica Sorrell. *Replicable Reinforcement Learning with Linear Function Approximation.* To appear, ICLR 2026.

Prabhav Singh, Jessica Sorrell. *Sensitivity of Stability: Theoretical & Empirical Analysis of Replicability for Adaptive Data Selection in Transfer Learning.* In review, TMLR.

Rupkatha Hira, Dominik Kau, Jessica Sorrell. *The Cost of Replicability in Active Learning.* In review, TMLR.

Eric Eaton, Marcel Hussing, Michael Kearns, Aaron Roth, Sikata Sengupta, Jessica Sorrell. *Intersectional Fairness in Reinforcement Learning with Large State and Constraint Spaces.* ICML 2025.

Marcel Hussing, Michael Kearns, Aaron Roth, Sikata Sengupta, Jessica Sorrell. *Oracle Efficient Reinforcement Learning for Max-Value Ensembles.* NeurIPS 2024.

Eric Eaton, Marcel Hussing, Michael Kearns, Jessica Sorrell. *Replicable Reinforcement Learning.* NeurIPS 2023.

Ira Globus-Harris, Declan Harrison, Michael Kearns, Aaron Roth, Jessica Sorrell. *Multicalibration as Boosting for Regression.* ICML 2023.

Mark Bun, Marco Gaboardi, Max Hopkins, Russell Impagliazzo, Rex Lei, Toniann Pitassi, Satchit Sivakumar, Jessica Sorrell. *Stability is Stable: Connections between Replicability, Privacy, and Adaptive Generalization.* STOC 2023.

Baiyu Li, Daniele Micciancio, Mark Schultz, Jessica Sorrell. *Securing Approximate Homomorphic Encryption Using Differential Privacy.* Crypto 2022.

Russell Impagliazzo, Rex Lei, Toniann Pitassi, Jessica Sorrell. *Reproducibility in Learning.* STOC 2022.

Ilias Diakonikolas, Russell Impagliazzo, Daniel Kane, Rex Lei, Jessica Sorrell, Christos Tzamos. *Boosting in the Presence of Massart Noise.* COLT 2021.

Daniele Micciancio, Jessica Sorrell. *Simpler, Statistically Sender Private Oblivious Transfer from Ideals of Cyclotomic Integers.* Asiacrypt 2020.

Mark Bun, Marco Carmosino, Jessica Sorrell. *Efficient, Noise-tolerant, and Private Learning via Boosting.* COLT 2020.

Matilda Backendal, Mihir Bellare, Jessica Sorrell, Jiahao Sun. *The Fiat-Shamir Zoo: Relating the Security of Different Signature Variants.* NordSec 2018.

Daniele Micciancio, Jessica Sorrell. *Ring Packing and Amortized FHEW Bootstrapping.* ICALP 2018.

SELECTED INVITED TALKS

Replicability: A Computational View
Symposium on Mathematical Foundations of Trustworthy Learning — Oct 2025

Oracle Efficient Reinforcement Learning for Max Value Ensembles.
Frontiers in Stochastic Control and Reinforcement Learning — Jun 2025

Separating Privacy and Replicability.
Shonan Meeting on Differential Privacy — Oct 2024

Multicalibration as Boosting for Regression.
MINDS Seminar, Johns Hopkins University — Oct 2024

Replicability in Learning.
AMS Seminar, Johns Hopkins University — Sep 2024

Equivalence of Privacy and Replicability in the Absence of One-Way Functions.

Workshop on Algorithms in Learning and Economics — June 2024

Replicable Reinforcement Learning.
Simons Collaboration on Algorithmic Fairness — Jan 2024

Stability is Stable.

- Charles River Privacy Days, May 2023
- Simons Institute Workshop on Lower Bounds, Learning, and Average-Case Complexity, February 2023

Reproducibility in Learning.

- Chicago Junior Theorists Workshop, January 2023
- INFORMS, October 2022
- Workshop on Algorithms in Learning and Economics, June 2022
- ToC4Fairness Seminar, April 2022
- TCS+, April 2022
- IAS CSDM Seminar, January 2022

Ring Packing and Amortized FHEW Bootstrapping. Simons Institute workshop on Lattices: From Theory to Practice, May 2020

TEACHING

Modern Topics in ML Generalization — Spring 2026
(Johns Hopkins University)

Algorithms — Fall 2025
(Johns Hopkins University)

Theory of Replicable Machine Learning — Spring 2025
(Johns Hopkins University)

Summer School on Learning Theory — Summer 2024
(Aarhus University)

Algorithmic Problem Solving — Summer 2018
(University of California, San Diego)

Guest Lectures

- University of Pennsylvania, Machine Learning Theory — Fall 2023
- University of Pennsylvania, Topics in Uncertainty Estimation — Fall 2022

MENTORSHIP

- Moshe Noivirt, CS PhD student — Aug 2025 – Present
- Omobolade Odedoyin, CS PhD student — Aug 2025 – Present
- Rupkatha Hira, CS PhD student — Aug 2025 – Present
- Anh Do, PhD student — Nov 2024 – Present
- Tianli Luo, AMS MS student — Nov 2024 – July 2025
- Sihan Wei, CS MS student — Oct 2024 – May 2025

PROFESSIONAL ACTIVITIES

Organizer:

- Learning Theory Alliance 2025 – Present
- Women in Machine Learning Workshop @NeurIPS 2023
- Women in Machine Learning Theory 2020

Program Committee:

- IEEE Secure and Trustworthy Machine Learning 2025
- IEEE Secure and Trustworthy Machine Learning 2024
- Foundations of Responsible Computing 2023
- IEEE Global Internet Symposium 2017

Reviewer:

- NeurIPS 2025
- FOCS 2025
- ICML 2025
- JMLR
- NeurIPS 2024
- NeurIPS ethics reviewer 2024
- FOCS 2024
- STOC 2024
- ECAI 2024
- NeurIPS 2023
- NeurIPS ethics reviewer 2023
- AISTATS 2023
- AISTATS 2023 reviewer
- FOCS 2022