

AUSTIN J. STROMME

RESEARCH INTERESTS

Optimal transport, Riemannian optimization, and high-dimensional statistics. Specifically, geometry of optimal transport, barycenters, manifold geometries on positive-definite matrices, entropic regularization, statistical un-regularized and regularized optimal transport, Schrödinger bridge.

EMPLOYMENT

Institut polytechnique de Paris Statistics Department of ENSAE/CREST Assistant Professor	2023-Present
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EDUCATION

Massachusetts Institute of Technology Ph.D. in Electrical Engineering and Computer Science Thesis: <i>Statistical Aspects of Optimal Transport</i> Advisor: Philippe Rigollet	2023
Massachusetts Institute of Technology M.S. in Electrical Engineering and Computer Science Thesis: <i>Wasserstein Barycenters: Statistics and Optimization</i>	2020
University of Washington B.S. in Math, B.S. in Computer Science, GPA: 3.86/4.0	2018

MANUSCRIPTS

- M1. Minimum intrinsic dimension scaling for entropic optimal transport
Austin J. Stromme
arXiv preprint 2023
- M2. On the sample complexity of entropic optimal transport
Philippe Rigollet, Austin J. Stromme
arXiv preprint 2022

JOURNAL PAPERS

- J1. Fast convergence of empirical barycenters in Alexandrov spaces and the Wasserstein space
Thibaut Le Gouic, Quentin Paris, Philippe Rigollet, Austin J. Stromme
Journal of the European Math Society (JEMS) 2022
- J2. Asymptotics for semi-discrete entropic optimal transport
Jason M. Altschuler, Jon Niles-Weed, Austin J. Stromme
SIAM Journal on Mathematical Analysis (SIMA) 2022
- J3. Algebraic Properties of Generalized Graph Laplacians
David Jekel, Avi Levy, Will Dana, Austin Stromme, Collin Litterell
SIAM Journal of Discrete Math (SIDMA) 2018
- J4. Frog Model Wakeup Time on the Complete Graph
Nikki Carter, Brittany Dygert, Stephen Lacina, Collin Litterell, Austin Stromme, Andrew You
Rose-Hulman Undergraduate Math Journal 2016

CONFERENCE PAPERS

- C1. Sampling from a Schrödinger bridge
Austin J. Stromme
Artificial Intelligence and Statistics (AISTATS) 2023
- C2. Averaging on the Bures-Wasserstein manifold: dimension-free convergence of gradient descent
Jason M. Altschuler, Sinho Chewi, Patrik Gerber, Austin J. Stromme
Neural Information Processing Systems (NeurIPS) 2021
- C3. Fast and Smooth Interpolation on Wasserstein Space
Sinho Chewi, Julien Clancy, Thibaut Le Gouic, Philippe Rigollet, George Stepaniants, Austin J. Stromme
Artificial Intelligence and Statistics (AISTATS) 2021
- C4. Exponential ergodicity of mirror-Langevin diffusions
Sinho Chewi, Thibaut Le Gouic, Chen Lu, Tyler Maunu, Philippe Rigollet, Austin J. Stromme
Neural Information Processing Systems (NeurIPS) 2020
- C5. Gradient descent algorithms for Bures-Wasserstein barycenters
Sinho Chewi, Tyler Maunu, Philippe Rigollet, Austin J. Stromme
Conference on Learning Theory (COLT) 2020

TALKS

- Institut de Mathématique d'Orsay, optimal transport working group, March 2024. *Minimum intrinsic dimension scaling for entropic optimal transport*
- Le Seminaire Palaisien, March 2024. *Minimum intrinsic dimension scaling for entropic optimal transport*
- Institute for Mathematical Sciences, Singapore, January 2024. *New statistical phenomena for entropic optimal transport*
- ENSAE/CREST Workshop on Statistics in Metric Spaces, October 2023. *Global, dimension-free convergence of first-order methods for Bures-Wasserstein barycenters*
- EPFL FLAIR Seminar, April 2023. *New statistical phenomena for entropic optimal transport*
- MIT LIDS Student Conference, February 2023. *On the sample complexity of entropic optimal transport*
- Simons Institute optimization working group, September 2021. *The Bures-Wasserstein geometry on positive-definite matrices*
- MLxMIT student seminar, July 2020. *Gradient descent algorithms for Bures-Wasserstein barycenters*

SERVICE AND AWARDS

- Reviewer for International Conference on Artificial Intelligence and Statistics (AISTATS), International Conference on Learning Representations (ICLR), Neural Information Processing Systems (NeurIPS), Annals of Applied Probability, Annals of Statistics, Bernoulli, Electronic Journal of Statistics, Information and Inference
- Organizer of Online Seminar in Statistics and Geometry, 2024-
- Best talk award, 2023 MIT LIDS Student Conference
- Spotlight at NeurIPS 2021 (top 3% of submissions)
- NDSEG Graduate Research Fellowship 2019-2022
- NSF Graduate Fellowship 2019 (declined)
- Graduated *cum laude* from University of Washington 2018
- Goldwater scholarship 2016