Natalia Kravtsova

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Webpage
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Appointments

Department of Mathematics, The University of British Columbia — 2025 – current
Postdoctoral Research Fellow
Supervisors: Prof. Khanh Dao Duc, Prof. Miranda Holmes-Cerfon, Prof. Geoffrey Schiebinger

Education

The Ohio State University — 2019 – 2025
PhD in Mathematics (theoretical track)
Advisor: Prof. Adriana Dawes

The Ohio State University — 2009 – 2014, 2015 – 2018
BS and MMS in Mathematics (biomathematics track), MS in Statistics

Moscow Conservatory — 2008
Diploma in Music Theory and History

Working papers and preprints

- Kravtsova, N. *The NP-hardness of the Gromov-Wasserstein distance.* (arXiv) (codes)

Publications

- Kravtsova, N. (2025). *k-Sample inference via Multimarginal Optimal Transport.* Electronic Journal of Statistics, 19(2), 4356-4400. (journal) (arXiv) (codes)
- Plourde, S. M., Kravtsova, N., & Dawes, A. T. (2025). *Asymmetry in centrosome maturation revealed through AIR-1 dynamics in the early C. elegans embryo.* Scientific Reports, 15(1), 8667. (journal)
- Kravtsova, N., Chamberlin, H. M. & Dawes, A. T. (2023). *Efficient parameter generation for constrained models using MCMC.* Scientific Reports 13, 16285 (journal)
- Kravtsova, N, McGee II, R. L., & Dawes, A. T. (2023). *Scalable Gromov-Wasserstein based comparison of biological time series.* Bulletin of Mathematical Biology 85, 77 (journal) (codes)
- Ignacio, D. P., Kravtsova, N., Henry, J., Palomares, R. H., & Dawes, A. T. (2022). *Dynein localization and pronuclear movement in the C. elegans zygote*. Cytoskeleton, 79(12), 133–143. (journal)
- Dawes, A. T., Wu, D., Mahalak, K. K., Zitnik, E. M., Kravtsova, N., Su, H., & Chamberlin, H. M. (2017). *A computational model predicts genetic nodes that allow switching between species-specific responses in a conserved signaling network*. Integrative Biology, 9(2), 156-166. (journal)
- Kravtsova, N., & Dawes, A. T. (2014). *Actomyosin regulation and symmetry breaking in a model of polarization in the early Caenorhabditis elegans embryo: symmetry breaking in cell polarization*. Bulletin of Mathematical Biology, 76, 2426-2448. (journal)

Conference and seminar presentations

- The Third Joint SIAM/CAIMS Annual Meetings (AN25)
  k-Sample inference via Multimarginal Optimal Transport (talk in minisymposium "Optimal Transport in Natural and Data Sciences")
- Tulane University Mathematics Department Seminar (November 2024)
  Two results in Optimal Transport with applications to biomedical data (seminar talk)
- AMS 2024 Spring Southeastern Sectional Meeting
  k-Sample inference via Multimarginal Optimal Transport (talk in special session "Advances in Shape and Topological Data Analysis")
- Topology, Geometry, and Data Seminar (January 2024, The Ohio State University, Department of Mathematics)
  k-Sample inference via Multimarginal Optimal Transport (seminar talk)
- 2023 SIAM Great Lakes Section Meeting (GLSIAM23)
  Scalable Gromov-Wasserstein based comparison of biological time series (contributed talk)
- Society for Mathematical Biology 2023 Annual Meeting
  Scalable Gromov-Wasserstein based comparison of biological time series (minisymposium talk)
- Third Graduate Student Conference: Geometry and Topology meet Data Analysis and Machine Learning (GTDAML2023)
  Scalable Gromov-Wasserstein based comparison of biological time series (talk)
- Society for Mathematical Biology 2019 Annual Meeting
  Efficient parameter generation for constrained models using MCMC (poster)

Reviewing

Optimization Letters

Teaching

The University of British Columbia, Department of Mathematics
Small Class Instructor: Calculus I

Columbus State Community College, Department of Mathematics
Instructor of Record: Calculus I, pre-algebra, intermediate algebra, business mathematics

The Ohio State University, Department of Mathematics
Teaching Assistant: Calculus (I, II, III), college algebra

The Ohio State University, Department of Statistics
Teaching Assistant: elementary statistics, business statistics, statistics for life sciences

Programming skills

C++, Python, R, Matlab (link to GitHub page)