

EDUCATION	Massachusetts Institute of Technology	
	Ph.D., Computational Science and Engineering, 2026 · Thesis: <i>Designing Dynamic Measure Transport for Sampling</i> · Advisor: Youssef Marzouk	
	S.M., Computational Science and Engineering, 2022 · Thesis: <i>Multifidelity Covariance Estimation Three Ways</i> · Advisor: Youssef Marzouk	
	Virginia Polytechnic Institute and State University	
	B.S., Mathematics, 2019	
	B.S., Computational Modeling and Data Analytics (CMDA), 2019 · Thesis: <i>Computational Tools for Bayesian Inverse Problems with Python Implementations</i> · Advisors: Julianne Chung and Matthias Chung	
RESEARCH INTERESTS	Bayesian inference, uncertainty quantification, data assimilation, generative modeling, scientific machine learning, mathematics of data science, measure transport, multifidelity methods	
RESEARCH POSITIONS HELD	School of Computational Science & Engineering, Georgia Tech	2027+
	<i>Assistant Professor (starting Fall 2027)</i>	
	Department of Mathematics, Cornell University	2026–present
	<i>Postdoctoral Research Fellow</i>	
	Center for Computational Science and Engineering, MIT	2021–2026
	<i>Graduate Research Fellow</i>	
	MIT Lincoln Laboratory (MITLL)	2019–2021
	<i>Associate Technical Staff</i>	
	Department of Mathematics, Virginia Tech	2017–2019
	<i>Undergraduate Research Assistant</i>	
FUNDING	NSF Mathematical Sciences Postdoctoral Research Fellowship (\$190k)	2026–2028
	MIT Schwarzman College of Computing Future Research Cohort Fellowship (\$120k)	2025–2026
	NSF Graduate Research Fellowship (\$148k)	2020–2025
	Oberwolfach Leibniz Graduate Student Travel Grant (\$650)	2025
	Foundations of Computational Mathematics Travel Award (\$1.3k)	2023
	Virginia Tech Stamps Leadership Scholarship (\$160k)	2015–2019
	Patricia A. Caldwell Scholarship, Virginia Tech Mathematics (\$4.5k)	2018–2019
	Alice and Luther Hamlett Scholarship, Virginia Tech CMDA (\$7k)	2017–2019
	T.W. Hatcher Scholarship, Virginia Tech Mathematics (\$2k)	2016–2018
AWARDS	SIAM Student Paper Prize	2026
	Rising Star in Computational & Data Sciences, Oden Institute, UT Austin	2026
	BGCE Student Paper Prize Finalist	2025
	College of Science Outstanding Senior, Virginia Tech	2019
	Mathematical Contest in Modeling Outstanding Winner	2018 & 2019
	· Placed in top 16 out of 10,670 (2018), 17 out of 14,108 (2019) teams	
	· MAA Prize, International COMAP Scholarship, 2018	
	· INFORMS Award, 2019	
	Department of Mathematics Outstanding Senior, Virginia Tech	2019
	CMDA Senior Excellence Award, Virginia Tech	2019
	Layman Prize for Undergraduate Research in Mathematics, Virginia Tech	2018

SERVICE	Building Engagement Committee, Sustainable Horizons Institute [www]	2019–present
	· Mentoring Chair, BE at SIAM CSE 2027	
	· Lightning Talk & Poster Tutorial Organizer, BE at SIAM CSE 2025	
	· Generative Modeling Tutorial Organizer, BE at SIAM MDS 2024	
	· Guided Affinity Group Leader, BE at SIAM MDS 2024	
	· Housing Chair, BE at SIAM MDS 2022	
	· Social Chair & Gather.town Architect, BE at SIAM CSE 2021	
	Graduate Mentor, Polymath Jr. Program [www]	2022–2023
	Recent College Graduate Employee Resource Group Committee, MITLL	2020–2021
	Women in Data Science Blacksburg Co-Ambassador	2018–2019
	CMDA Computing Consultant, Virginia Tech	2017–2019
	Referee for: <i>Inverse Problems</i> , <i>Journal of Machine Learning for Modeling and Computing</i> , <i>Mathematics of Computation</i> , <i>SIAM/ASA Journal on Uncertainty Quantification</i> , <i>International Conference on Machine Learning (ICML, 2025)</i> , <i>Conference on Neural Information Processing Systems (NeurIPS, Top Reviewer 2025)</i> , <i>NeurIPS Workshop on Frontiers in Probabilistic Inference (2025)</i> , <i>NeurIPS Workshop on Optimal Transport and Machine Learning (2023)</i>	
COURSES	Computational Science & Engineering I (Instructor), MIT	Summer 2025
TAUGHT	Numerical Methods for Stochastic Modeling and Inference (TA), MIT	Fall 2022
	Discovering Mathematics (TA), Virginia Tech	2016–2019
CERTIFICATIONS	Kaufman Teaching Certificate, MIT [www]	2023
	Professional Development Certificate in Research Mentoring, MIT	2024
PUBLICATIONS	[1] A. Maurais, B. Hosseini, and Y. Marzouk. Learning Paths for Dynamic Measure Transport: A Control Perspective . In <i>NeurIPS 2025 Workshop on Frontiers of Probabilistic Inference: Sampling Meets Learning</i> , Nov. 2025	
	[2] J. F. Chhoa, L. Huang, A. Little, A. Maurais, K. D. Morris, M. D. van der Walt, G. Verma, and R. Wang. Supervised Dimension Reduction via Local Gradient Elongation . In C. Garcia-Cardona and H. Lee, editors, <i>Advances in Data Science: Women in Data Science and Mathematics (WiSDM) 2023</i> . Volume 37, pages 201–226. Springer Nature Switzerland, 2025	
	[3] A. Maurais, T. Alsup, B. Peherstorfer, and Y. M. Marzouk. Multifidelity Covariance Estimation via Regression on the Manifold of Symmetric Positive Definite Matrices . <i>SIAM Journal on Mathematics of Data Science</i> , 7(1):189–223, Mar. 2025	
	[4] A. Maurais and Y. Marzouk. Sampling in Unit Time with Kernel Fisher-Rao Flow . In <i>Proceedings of the 41st International Conference on Machine Learning (ICML)</i> , pages 35138–35162. PMLR, July 2024	
	[5] A. Maurais and Y. Marzouk. Adaptive Algorithms for Continuous-Time Transport: Homotopy-Driven Sampling and a New Interacting Particle System . In <i>NeurIPS 2023 Workshop on Optimal Transport and Machine Learning</i> , Dec. 2023	
	[6] A. Maurais, T. Alsup, B. Peherstorfer, and Y. Marzouk. Multi-Fidelity Covariance Estimation in the Log-Euclidean Geometry . In <i>Proceedings of the 40th International Conference on Machine Learning (ICML)</i> , pages 24214–24235. PMLR, July 2023	
	[7] A. Krinos* and A. Maurais*. Parameter and Uncertainty Estimation for a Model of Atmospheric CO₂ Observations . <i>SIAM Undergraduate Research Online</i> , 12, 2019	
	[8] A. Krinos* and A. Maurais*. Nuggets of Wisdom from Destinations Doomed Due to Dragon Dominion . <i>The Journal of Undergraduate Mathematics and its Applications</i> , 40(4):295–324, 2019	

* = equal contribution

- [9] A. Maurais* and A. Krinos*. [Better to Marry Renewables than to Burn Fossil Fuels in Border States](#). *The Journal of Undergraduate Mathematics and its Applications*, 39(3):321–342, 2018
- THESES
- [10] A. Maurais. *Designing Dynamic Measure Transport for Sampling*. PhD thesis, Massachusetts Institute of Technology, 2026
- [11] A. Maurais. *Multifidelity Covariance Estimation Three Ways*. Master’s thesis, Massachusetts Institute of Technology, 2022
- [12] A. Maurais. *Computational Tools for Bayesian Inverse Problems with Python Implementations*. Undergraduate Honors Thesis, Virginia Polytechnic Institute and State University, 2019
- INVITED TALKS
& SEMINARS
- [13] A. Maurais. *Designing Dynamic Measure Transport for Sampling*. Cornell University Scientific Computing & Numerics Seminar, Ithaca, NY, 2026.
- [14] A. Maurais. *Designing Dynamic Measure Transport for Sampling*. Microsoft Research New England Generative Modeling & Sampling Seminar, Cambridge, MA, 2026.
- [15] A. Maurais. *Designing Dynamic Measure Transport for Sampling*. Georgia Tech School of Computational Science and Engineering, Atlanta, GA, 2026.
- [16] A. Maurais and Y. Marzouk. *Dynamic Transport for Sampling: Kernel Fisher-Rao Flow and Beyond*. Virginia Tech Department of Mathematics Applied Numerical Analysis Seminar, Blacksburg, VA, 2024.
- [17] A. Maurais and Y. Marzouk. *Dynamic Transport for Sampling: Kernel Fisher-Rao Flow and Beyond*. Queensland University of Technology School of Mathematical Sciences and Center for Data Science, Brisbane City QLD, Australia, 2024.
- [18] A. Maurais and Y. Marzouk. *Sampling in Unit Time with Kernel Fisher-Rao Flow*. UMass Amherst Mathematics of Machine Learning Seminar, Amherst MA, 2024
- [19] A. Maurais, T. Alsup, B. Peherstorfer, and Y. Marzouk. *Riemannian Multifidelity Covariance Estimation from Statistically Coupled Observations*. MIT Aerospace Computational Science and Engineering Laboratory Seminar, Cambridge MA, 2023
- [20] A. Maurais, T. Alsup, B. Peherstorfer, and Y. Marzouk. *Riemannian Multifidelity Covariance Estimation from Statistically Coupled Observations*. Dartmouth College, Hanover NH, 2023
- CONFERENCE
& WORKSHOP
PRESENTATIONS
- [21] A. Maurais, T. Alsup, B. Peherstorfer, and Y. Marzouk. *Riemannian Multifidelity Covariance Estimation via Regression*. SIAM Annual Meeting, Cleveland, OH, 2026.
- [22] A. Maurais. *Designing Dynamic Measure Transport for Sampling*. Rising Stars in Computational & Data Sciences, Santa Fe, NM, 2026.
- [23] A. Maurais, B. Hosseini, and Y. Marzouk. *Learning Paths for Dynamic Measure Transport: A Control Perspective*. SIAM Conference on Uncertainty Quantification, Minneapolis, MN, 2026.
- [24] A. Maurais, B. Hosseini, and Y. Marzouk. *A Good Path is Hard to Find: Identification of Paths for Dynamic Measure Transport*. SIAM Annual Meeting, Montreal, Canada, 2025.
- [25] A. Maurais and Y. Marzouk. *Dynamic Transport for Sampling: From Fisher-Rao to Wasserstein*. SIAM Conference on Computational Science & Engineering, Fort Worth, TX, 2025.
- [26] A. Maurais and Y. Marzouk. *Likelihood-Driven Dynamic Measure Transport: A Natural Fit for Data Assimilation?* Workshop on Data Assimilation, Oberwolfach Research Institute for Mathematics, Germany, 2025.
- [27] A. Maurais and Y. Marzouk. *Dynamic Transport for Sampling: Kernel Algorithms for “Wassersteinizing” Fisher-Rao Paths*. Joint Mathematics Meetings, Seattle, WA, 2025.

- [28] A. Maurais and Y. Marzouk. *Less Interaction in Interacting Particle Systems: Random Fourier Features for Kernel Fisher-Rao Flow*. SIAM Conference on Mathematics of Data Science, Atlanta, GA, 2024.
- [29] A. Maurais and Y. Marzouk. *Dynamic Transport in High Dimensions: How do we Get it to Work?* Workshop on Numerical Methods for Complex High-Dimensional Systems, Jervis Bay NSW, Australia, 2024.
- [30] A. Maurais and Y. Marzouk. *Sampling in Unit Time with Kernel Fisher-Rao Flow*. SIAM Conference on Uncertainty Quantification, Trieste, Italy, 2024
- [31] A. Maurais, T. Alsup, B. Peherstorfer, and Y. Marzouk. *Riemannian Multifidelity Covariance Estimation from Statistically Coupled Observations*. SIAM Conference on Computational Science and Engineering, Amsterdam, The Netherlands, 2023
- [32] A. Maurais, T. Alsup, B. Peherstorfer, and Y. Marzouk. *Multifidelity Covariance Estimation Three Ways*. SIAM Conference on Uncertainty Quantification, Atlanta GA, 2022
- [33] A. Maurais* and A. Krinos*, *Better to Marry Renewables than Burn Fossil Fuels with Passion*. MCM Winners Presentation, MAA MathFest, Denver CO, 2018

POSTERS

- [34] A. Maurais, B. Hosseini, and Y. Marzouk. *Learning Paths for Dynamic Measure Transport: A Control Perspective*. NeurIPS Workshop on Frontiers of Probabilistic Inference: Sampling Meets Learning. San Diego, CA, 2025.
- [35] A. Maurais, B. Hosseini, and Y. Marzouk. *Learning Paths for Dynamic Transport: A Control Perspective*. Workshop on Data Assimilation and Inverse Problems for Digital Twins, Institute for Mathematical and Statistical Innovation (IMSI). Chicago, IL, 2025.
- [36] A. Maurais and Y. Marzouk. *Gradient-Free Dynamic Transport for Bayesian Inference*. CRC 1294 Data Assimilation International Summer School. Boltzenhagen, Germany, 2024.
- [37] A. Maurais and Y. Marzouk. *Sampling in Unit Time with Kernel Fisher-Rao Flow*. International Conference on Machine Learning. Vienna, Austria, 2024.
- [38] A. Maurais and Y. Marzouk. *Sampling in Unit Time with Kernel Fisher-Rao Flow*. ICERM Workshop on Interacting Particle Systems: Analysis, Control, Learning, and Computation. Providence, RI, 2024.
- [39] A. Maurais and Y. Marzouk. *Adaptive Algorithms for Continuous-Time Transport: Homotopy-Driven Sampling and a New Interacting Particle System*. NeurIPS Workshop on Optimal Transport and Machine Learning. New Orleans, LA, 2023.
- [40] A. Maurais, T. Alsup, B. Peherstorfer, and Y. Marzouk. *Multi-Fidelity Covariance Estimation in the Log-Euclidean Geometry*. International Conference on Machine Learning. Honolulu, HI, 2023.
- [41] A. Maurais and Y. Marzouk. *Bayesian Inversion via Incremental Transport*. Foundations of Computational Mathematics. Paris, France, 2023.
- [42] A. Maurais, T. Alsup, B. Peherstorfer, and Y. Marzouk. *Multifidelity Covariance Estimation via Regression on the Manifold of Symmetric Positive Definite Matrices*. SIAM Conference on Mathematics of Data Science. San Diego CA, 2022.
- [43] A. Maurais, H. Lau, and C. Smith. *A Bayesian Reinforcement Learning Framework for Chemical Contamination Mapping and Avoidance*. Recent Advances in Artificial Intelligence for National Security. Virtual, 2020
- [44] A. Maurais. *Computational Tools for Reconstruction of Atmospheric Aerosols via Spectroscopy*. SIAM Conference on Computational Science and Engineering. Spokane, WA, 2019

TUTORIALS &
NON-TECHNICAL
TALKS

- [45] A. Maurais. *Lightning Talks: How to Talk to People at a Poster Session*. Building Engagement Tutorial at SIAM Computational Science & Engineering, Fort Worth, TX, 2025.
- [46] A. Maurais. *How to Design an Effective Scientific Poster and Why*. Pre-conference tutorial for Building Engagement at SIAM Computational Science & Engineering, Virtual, 2025.
- [47] A. Maurais & M.T.C. Li. *Mathematics of Generative Modeling: Sampling via Dynamic Transport*. Tutorial at SIAM Mathematics of Data Science, Atlanta, GA, 2024.
- [48] A. Maurais. *Machine Learning, Innovation, and Faith*. Harvard Undergraduate Veritas Forum, Cambridge, MA, 2023.
- [49] A. Maurais. *Bike & Build: The Journey of a Lifetime*. Stamps Scholars National Convention, Atlanta, GA, 2019.
- [50] A. Maurais. *How Does One Measure a Life?* Student Commencement Address, Department of Mathematics, Virginia Tech, 2019.

WORKSHOPS
ATTENDED

- Rising Stars in Computational & Data Sciences, Santa Fe, NM, 2026.
- NeurIPS Workshop on Frontiers of Probabilistic Inference: Sampling Meets Learning, San Diego, CA, 2025.
- Workshop on Data Assimilation and Inverse Problems for Digital Twins, Institute for Mathematical and Statistical Innovation (IMSI), Chicago, IL, 2025
- Workshop on Data Assimilation, Oberwolfach Institute for Research in Mathematics, Oberwolfach, Germany, 2025.
- Collaborative Research Center 1294 Data Assimilation International Summer School, Boltzen, Germany, 2024.
- Workshop on Numerical Methods for Complex High-Dimensional Systems, Jervis Bay, NSW, Australia, 2024.
- Interacting Particle Systems: Analysis, Control, Learning, and Computation, Institute for Computational and Experimental Research in Mathematics (ICERM), Providence, RI, 2024.
- NeurIPS Workshop on Optimal Transport and Machine Learning, New Orleans, LA, 2023.
- Women in Data Science and Mathematics (WiSDM) Research Collaboration Workshop, Institute for Pure & Applied Mathematics (IPAM), Los Angeles, CA, 2023.
- Mathematical Foundations of Data Assimilation and Inverse Problems Workshop at Foundations of Computational Mathematics (FoCM), Paris, France, 2023.

PANEL
AND MODERATOR
APPEARANCES

- Computer Science & Engineering Alumni Panelist, Stamps Scholars National Symposium, 2021
- Uncertainty in Data Science Discussion Facilitator, Women in Data Science Blacksburg, 2021
- Career Panelist, VT Association for Women in Mathematics e-Alumni Day, 2021
- Career Panel Moderator, Women in Data Science Blacksburg, 2019