

Jonathan Lindbloom

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29 N. Main Street, Hanover, NH 03755

EDUCATION	Dartmouth College , Hanover, NH Ph.D. in Mathematics (advised by Anne Gelb) A.M. in Mathematics	<i>Expected Jun. 2026</i> <i>Awarded Jun. 2023</i>
	Southern Methodist University , Dallas, TX B.S. in Mathematics (departmental distinction) B.B.A. in Finance	<i>Aug. 2017 – May 2021</i>
RESEARCH INTERESTS	Inverse problems, uncertainty quantification, computational science, imaging, surrogate modeling, signal processing, numerical linear algebra	
PREPRINTS	<ol style="list-style-type: none">2. Lindbloom, J., GLAUBITZ, J., AND GELB, A. (2024). Generalized sparsity-promoting solvers for Bayesian inverse problems: Versatile sparsifying transforms and unknown noise variances, <i>arXiv:2402.16623</i>.1. GREEN, D., Lindbloom, J., AND GELB, A. (2024). Complex-valued signal recovery using the Bayesian LASSO, <i>arXiv:2403.16992</i>.	
CONFERENCE PROCEEDINGS	<ol style="list-style-type: none">1. D. GREEN, J. Lindbloom AND A. GELB. (2024). Complex-Valued Image Recovery from Multiple Measurements, <i>2024 IEEE Conference on Computational Imaging Using Synthetic Apertures (CISA)</i>. (link)	
TALKS	<ol style="list-style-type: none">18. <i>Priorconditioned GKS for sparsity-promoting inversion</i> Oct. 2024 Dartmouth Mathematics Graduate Student Seminar (Hanover, NH)17. <i>The conjugate gradient method: a top 10 algorithm of the 20th century</i> May 2024 Dartmouth Mathematics Graduate Student Seminar (Hanover, NH) (photo)16. <i>Generalized sparsity promoting solvers and UQ for Bayesian inverse problems</i> Feb. 2024 CMCC Foundation Webinar (Bologna, IT) (slides) (video)15. <i>Generalized sparsity-promoting solvers and samplers for hierarchical inverse problems</i> Feb. 2024 SIAM Conference on Uncertainty Quantification (Trieste, IT) (slides)14. <i>A brief introduction to matrix-free and randomized matrix computations</i> Jan. 2024 Dartmouth Mathematics Graduate Student Seminar (Hanover, NH)13. <i>Oblique projections and low-rank structure in inverse problems</i> Sept. 2023 Dartmouth Mathematics Graduate Student Seminar (Hanover, NH) (slides)12. <i>Computational Strategies for Bayesian inversion with sparsity priors</i> Mar. 2023 SIAM Conference on Computational Science and Engineering (Amsterdam, NL) (slides)11. <i>Hierarchical Bayesian inverse problems</i> Jan. 2023 Dartmouth Mathematics Graduate Student Seminar (Hanover, NH) (slides)	

10. *Generalized hybrid solvers for sparsity-promoting Bayesian inverse problems* Nov. 2022
Dartmouth Advancement Examination (Hanover, NH)
(slides)
 9. *Generalized hybrid solvers for sparsity-promoting Bayesian inverse problems* Nov. 2022
Sea Ice Modeling and Data Assimilation MURI Annual Meeting (Hanover, NH)
(slides) (video)
 8. *Surrogate modeling for high explosives diameter effect calculations* Aug. 2022
LANL Theoretical Division Lightning Talks (Los Alamos, NM)
 7. *Multiplicative denoising with UQ for synthetic aperture radar* Apr. 2022
SIAM Conference on Uncertainty Quantification (Atlanta, GA)
(slides)
 6. *Towards UQ for synthetic aperture radar despeckling* Oct. 2021
Sea Ice Modeling and Data Assimilation MURI Annual Meeting (Hanover, NH)
(slides) (video)
 5. *Uncertainty quantification in high explosives equations of state* Aug. 2021
LANL Computational Physics Summer Workshop (virtual)
(slides)
 4. *A Bayesian Gaussian process model for COVID-19* Mar. 2021
SMU Spring Research Days (virtual)
 3. *Bayesian perspectives on COVID-19 in Texas* Oct. 2020
SMU Fall 2020 Summer Research Symposium (virtual)
(video)
 2. *Uncertainty quantification of ice fog events* Aug. 2020
SMU Grand Challenges Scholars Research Symposium (Dallas, TX)
 1. *Uncertainty quantification of ice fog events* Aug. 2020
Dartmouth ICE REU (virtual)
- POSTERS
7. *Efficient Gaussian sampling for sparsity-promoting Bayesian inversion* Jun. 2024
New England Numerical Analysis Day (Hanover, NH)
 6. *Efficient Gaussian sampling for sparsity-promoting Bayesian inversion* Apr. 2024
Dartmouth Guarini Graduate Poster Session (Hanover, NH)
 5. *Sparsity-promoting multiplicative denoising via block coordinate descent* Feb. 2024
SIAM Power of Diversity UQ24 (Trieste, IT) (poster)
 4. *Sparsity-promoting multiplicative denoising via block coordinate descent* Jan. 2024
AFOSR Electromagnetics Annual Portfolio Review (Washington, D.C.) (poster)
 3. *Uncertainty quantification of ice fog events* Jan. 2021
Joint Mathematics Meeting (virtual) (poster)
 2. *Bayesian SIR Models for COVID-19 in Texas* Jan. 2021
NSF Student Conference on COVID-19 Modelling (virtual) (poster)
 1. *Light beams at nonlinear interfaces* Nov. 2019
SIAM TX-LA Annual Section Meeting (Dallas, TX) (poster)

LAB
EXPERIENCE

Los Alamos National Laboratory, Theoretical Division (T-1)

Graduate research assistant (mentor: Jeff Leiding)

Jun. 2024 – Present
Jun. 2022 – Sept. 2022

Computational physics student summer workshop

Summer 2021

TEACHING EXPERIENCE	Dartmouth College , Hanover, NH	
	<i>Instructor</i>	
	<ul style="list-style-type: none"> Math 3: Calculus 	<i>Fall 2023</i>
	<i>Graduate teaching assistant</i>	
	<ul style="list-style-type: none"> Math 22: Linear Algebra and Applications Math 56: Computational and Experimental Mathematics Math 3: Calculus Math 3: Calculus Math 3: Calculus 	<i>Spring 2023</i> <i>Winter 2023</i> <i>Winter 2023</i> <i>Winter 2022</i> <i>Fall 2021</i>
OUTREACH	Dartmouth Mathematics Directed Reading Program , Hanover, NH	
	<i>Graduate student mentor</i>	
	The goal of this program is to enable undergraduate students to study mathematics at a deeper level than can be done in the classroom, to increase diversity in mathematics by involving undergraduates from various backgrounds, and to foster a supportive environment for students seeking to go into mathematics.	
	<ul style="list-style-type: none"> MCMC and Bayesian computation (students: Michael Bond and Vadin Thadhani) Computational Measure Transport (students: William O'Brien and Paul Chirkov) MCMC and Bayesian computation (student: Daniel Carstensen) Bayesian modelling and computation (student: Ivy Yan) Nonlinear dynamics, chaos, and ergodicity (student: Andrew White) 	<i>Spring 2024</i> <i>Winter 2024</i> <i>Spring 2023</i> <i>Spring 2022</i> <i>Fall 2022</i>
AWARDS	SIAM Student Travel Award	<i>Apr. 2022</i>
	Outstanding Graduate Student Teacher, Dartmouth College	<i>2022 – 2023</i>
	Charles J. Pipes Merit Award in Mathematics, Southern Methodist University	<i>Spring 2021</i>
	Florence Nightingale Prize for Data Visualization, ISI	<i>Spring 2021</i>
PROFESSIONAL SERVICE	<i>Seminar organizer</i>	
	<ul style="list-style-type: none"> Dartmouth College Applied & Computational Mathematics Seminar 	<i>Fall 2023 – Present</i>
	<i>Peer reviewer: IEEE Transactions on Network Science and Engineering</i>	