Nicholas M. Boffi: Curriculum Vitae

Department of Mathematical Sciences & Machine Learning Department
Carnegie Mellon University
Pittsburgh, PA 15213
nboffi@andrew.cmu.edu
https://nmboffi.github.io

Education

Harvard University 2015–2021

Ph.D. Applied Mathematics
Visiting Graduate Student Researcher, MIT
Advisors: Jean-Jacques E. Slotine (MIT) and Chris H. Rycroft (Harvard)
Thesis title: *Methods for scientific simulation, machine learning, and nonlinear control*

Northwestern University 2010–2014

B.A. Mathematics, Physics, and Integrated Science *with honors*
Advisor: Tamar Seideman
Thesis title: *High harmonic generation from simple aromatic molecules*

Professional Positions

Carnegie Mellon University 2024–present

Assistant Professor, Machine Learning Department (50%)
Assistant Professor, Department of Mathematical Sciences (50%)

Courant Institute of Mathematical Sciences 2021–2024

Courant Instructor & Assistant Professor

Google Brain 2020–2021

Student Researcher
Advisor: Vikas Sindhwani

Lawrence Berkeley National Lab 2016

Computational Science Graduate Fellowship Practicum
Advisor: Adam Arkin

Tel Aviv University 2014–2015

Fulbright Research Scholar
Advisor: Amir Natan

Research Interests

Broadly: machine learning, computational mathematics

Specifically: generative modeling, dynamical transport of measure, stochastic thermodynamics, active matter, partial differential equations, adaptive control and learning, optimal control, dynamical systems, deep learning, optimization, numerical analysis, elasticity, continuum mechanics, electronic structure

Honors and Awards

NSF Postdoctoral Fellowship in the Mathematical Sciences, *declined* 2021

Harvard University Certificate of Distinction in Teaching 2016

Department of Energy Computational Science Graduate Research Fellowship 2015–2019

Fulbright Research Fellowship 2014

Honorary Cambridge Trust Fellowship, *declined* 2014

Phi Beta Kappa, Northwestern Chapter 2014

Hypercube Award for excellence in theoretical chemistry research, Northwestern University 2013

Fletcher Undergraduate Research Award, Northwestern University, *Finalist* 2012

Grants

Carl & Amy Jones Endowed Interdisciplinary Seed Fund 2025

Breaking the curse of dimensionality in scientific computing with reinforcement learning-based stochastic control

Principal Investigator (with M. Simchowitz)

Awarded

Preprints

* indicates co-first authorship; † indicates co-advising.
Student co-authors are color-coded by role: PhD, masters, undergraduate, affiliated.

Ayhan Suleymanzade, Chanhyuk Lee, Floor Eijkelboom, Nicholas M. Boffi, İsmail İlkan Ceylan†, and Jinwoo Kim†. Thinking with looped flows. *arXiv:2609.11801*, 2026.

Jaehoon Yoo*, Wonjung Kim*, Floor Eijkelboom, Chanhyuk Lee, Nicholas M. Boffi, Seunghoon Hong†, and Jinwoo Kim†. Self-conditioned flow map language models via fixed-point flows. *arXiv:2607.00714*, 2026.

RuiKang OuYang, Hanlin Yu*, Xinyue Ai*, Yutong He, Nicholas M. Boffi, Pradeep Ravikumar, José Miguel Hernández-Lobato, Max Simchowitz, Benjamin Kurt Miller, and Omar Chehab. Few-step Boltzmann generators via scalable likelihood flow maps. *arXiv:2606.29110*, 2026.

Manan Agarwal*, Sheel Shah*, Chanhyuk Lee, Jaehoon Yoo, Jerry Huang, Seunghoon Hong, Aditi Raghunathan, Jinwoo Kim†, and Nicholas M. Boffi†. Posterior refinement: Fast language generation via any-order flow maps. *arXiv:2606.24773*, 2026.

Gianluca Scarpellini, Ron Shprints, Peter Holderrieth, Juno Nam, Pranav Murugan, Rafael Gómez-Bombarelli, Tommi Jaakkola, Maruan Al-Shedivat, Nicholas M. Boffi, and Avishek Joey Bose. Few-step cofolding with all-atom flow maps. *arXiv:2606.08375*, 2026.

Rishal Aggarwal, David Ryan Koes, Nicholas M. Boffi, and Eric Vanden-Eijnden. Reactive flux matching: Mechanism discovery and adaptive sampling of rare events. *arXiv:2606.06295*, 2026.

Sanjit Dandapanthula and Nicholas M. Boffi. Are we really tilting? The mechanics of reward guidance in flow and diffusion models. *arXiv:2606.02884*, 2026.

Chanhyuk Lee, Jaehoon Yoo, Manan Agarwal, Sheel Shah, Jerry Huang, Aditi Raghunathan, Seunghoon Hong, Nicholas M. Boffi†, and Jinwoo Kim†. One-step language modeling via continuous denoising. *arXiv:2602.16813*, 2026.

Naman Choudhary, Vedant Singh, Ameet Talwalkar, Nicholas M. Boffi, Mikhail Khodak, and Tanya Marwah. Pre-generating multi-difficulty PDE data for few-shot neural PDE solvers. *arXiv:2512.00564*, 2025.

Amirmojtaba Sabour, Michael S. Albergo, Carles Domingo-Enrich, Nicholas M. Boffi, Sanja Fidler, Karsten Kreis, and Eric Vanden-Eijnden. Test-time scaling of diffusions with flow maps. *arXiv:2511.22688*, 2025.

Matthew S. Zhang, Stephen Huan, Jerry Huang, Nicholas M. Boffi, Sitan Chen, and Sinho Chewi. Sublinear iterations can suffice even for DDPMs. *arXiv:2511.04844*, 2025.

Burak Varıcı, Che-Ping Tsai, Ritabrata Ray, Nicholas M. Boffi, and Pradeep Ravikumar. Eigenfunction extraction for ordered representation learning. *arXiv:2510.24672*, 2025.

Publications

* indicates co-first authorship; † indicates co-advising.
Student co-authors are color-coded by role: PhD, masters, undergraduate, affiliated.

Xinyue Ai, Yutong He, Albert Gu, Ruslan Salakhutdinov, J. Zico Kolter, Nicholas M. Boffi, and Max Simchowitz. Joint distillation for fast likelihood evaluation and sampling in flow-based models. In *International Conference on Learning Representations*, 2026.

Chaoyi Pan, Giri Anantharaman, Nai-Chieh Huang, Claire Jin, Daniel Pfrommer, Chenyang Yuan, Frank Permenter, Guannan Qu†, Nicholas M. Boffi†, Guanya Shi†, and Max Simchowitz†. Much ado about noising: Dispelling the myths of generative robotic control. In *International Conference on Learning Representations*, 2026.

Oscar Davis, Michael S. Albergo, Nicholas M. Boffi, Michael M. Bronstein, and Avishek Joey Bose. Generalised flow maps for few-step generative modelling on Riemannian manifolds. In *International Conference on Learning Representations*, 2026.

Jerry Y. Huang, Justin Lin, Sheel Shah, Kartik Nair, and Nicholas M. Boffi. How to guide your flow: Few-step alignment via flow map reward guidance. In *International Conference on Machine Learning*, 2026.

Peter Holderrieth, Douglas Chen, Luca Eyring, Ishin Shah, Giri Anantharaman, Yutong He, Zeynep Akata, Tommi Jaakkola, Nicholas M. Boffi†, and Max Simchowitz†. Diamond maps: Efficient reward alignment via stochastic flow maps. In *International Conference on Machine Learning*, 2026.

Rishal Aggarwal, Jacky Chen, Nicholas M. Boffi, and David Ryan Koes. BoltzNCE: Learning likelihoods for Boltzmann generation with stochastic interpolants and noise contrastive estimation. In *Advances in Neural Information Processing Systems*, 2025.

Nicholas M. Boffi, Michael S. Albergo, and Eric Vanden-Eijnden. How to build a consistency model: Learning flow maps via self-distillation. In *Advances in Neural Information Processing Systems*, 2025.

Nicholas M. Boffi and Eric Vanden-Eijnden. Model-free learning of probability flows: Elucidating the nonequilibrium dynamics of flocking. *Physical Review Letters*, 135(23):238301, 2025.

Nicholas M. Boffi, Arthur Jacot, Stephen Tu, and Ingvar Ziemann. Shallow diffusion networks provably learn hidden low-dimensional structure. In *International Conference on Learning Representations*, 2025.

Michael S. Albergo*, Nicholas M. Boffi*, and Eric Vanden-Eijnden. Stochastic Interpolants: A Unifying Framework for Flows and Diffusions. *Journal of Machine Learning Research*, 26(209):1–80, 2025.

Nicholas M. Boffi*, Michael S. Albergo*, and Eric Vanden-Eijnden. Flow map matching with stochastic interpolants: A mathematical framework for consistency models. *Transactions on Machine Learning Research*, 2025.

Nanye Ma, Mark Goldstein, Michael S. Albergo, Nicholas M. Boffi, Eric Vanden-Eijnden, and Saining Xie. Sit: Exploring flow and diffusion-based generative models with scalable interpolant transformers. In *Computer Vision – ECCV 2024*, pages 23–40. Springer Nature Switzerland, 2024.

Yifan Chen, Mark Goldstein, Mengjian Hua, Michael S. Albergo, Nicholas M. Boffi, and Eric Vanden-Eijnden. Probabilistic forecasting with stochastic interpolants and Föllmer processes. In *International Conference on Machine Learning*, 2024.

Michael S. Albergo, Mark Goldstein, Nicholas M. Boffi, Rajesh Ranganath, and Eric Vanden-Eijnden. Stochastic interpolants with data-dependent couplings. In *International Conference on Machine Learning*, 2024.

Nicholas M. Boffi and Eric Vanden-Eijnden. Deep learning probability flows and entropy production rates in active matter. *Proceedings of the National Academy of Sciences*, 121(25):e2318106121, June 2024.

Michael Samuel Albergo, Nicholas M. Boffi, Michael Lindsey, and Eric Vanden-Eijnden. Multimarginal generative modeling with stochastic interpolants. In *International Conference on Learning Representations*, 2024.

Nicholas M. Boffi, Yipei Guo, Chris H. Rycroft, and Ariel Amir. How microscopic epistasis and clonal interference shape the fitness trajectory in a spin glass model of microbial long-term evolution. *eLife*, 12, 2023.

Nicholas M. Boffi and Eric Vanden-Eijnden. Probability flow solution of the Fokker–Planck equation. *Machine Learning: Science and Technology*, 4(3):035012, 2023.

Saminda Abeyruwan, Alex Bewley, Nicholas M. Boffi, Krzysztof Marcin Choromanski, David B D'Ambrosio, Deepali Jain, Pannag R Sanketi, Anish Shankar, Vikas Sindhwani, Sumeet Singh, Jean-Jacques Slotine, and Stephen Tu. Agile catching with whole-body mpc and blackbox policy learning. In *Proceedings of The 5th Annual Learning for Dynamics and Control Conference*, volume 211 of *Proceedings of Machine Learning Research*, pages 851–863, 2023.

Nicholas M. Boffi*, Stephen Tu*, and Jean-Jacques E. Slotine. Nonparametric adaptive control and prediction: theory and randomized algorithms. *Journal of Machine Learning Research*, 23(281):1–46, 2022.

Thomas Zhang, Stephen Tu, Nicholas M. Boffi, Jean-Jacques Slotine, and Nikolai Matni. Adversarially robust stability certificates can be sample-efficient. In *Proceedings of The 4th Annual Learning for Dynamics and Control Conference*, volume 168 of *Proceedings of Machine Learning Research*, pages 532–545, 2022.

Nicholas M. Boffi*, Stephen Tu*, and Jean-Jacques Slotine. The role of optimization geometry in single neuron learning. In *Proceedings of The 25th International Conference on Artificial Intelligence and Statistics*, volume 151 of *Proceedings of Machine Learning Research*, pages 11528–11549, 2022.

Nicholas M. Boffi*, Stephen Tu*, Nikolai Matni, Jean-Jacques Slotine, and Vikas Sindhwani. Learning stability certificates from data. In *Proceedings of the 2020 Conference on Robot Learning*, volume 155 of *Proceedings of Machine Learning Research*, pages 1341–1350, 2021.

Katiana Kontolati, Darius Alix-Williams, Nicholas M. Boffi, Michael L. Falk, Chris H. Rycroft, and Michael D. Shields. Manifold learning for coarse-graining atomistic simulations: Application to amorphous solids. *Acta Materialia*, 215:117008, 2021.

Nicholas M. Boffi*, Stephen Tu*, and Jean-Jacques Slotine. Nonparametric adaptive control and prediction: Theory and randomized algorithms. In *Proceedings of the 60th IEEE Conference on Decision and Control (CDC)*, pages 2935–2942, 2021.

Nicholas M. Boffi*, Stephen Tu*, and Jean-Jacques E. Slotine. Regret bounds for adaptive nonlinear control **(selected for oral presentation)**. In *Proceedings of the 3rd Conference on Learning for Dynamics and Control*, volume 144 of *Proceedings of Machine Learning Research*, pages 471–483, 2021.

Nicholas M. Boffi and Jean-Jacques E. Slotine. Implicit regularization and momentum algorithms in nonlinearly parameterized adaptive control and prediction **(featured on the cover)**. *Neural Computation*, 33(3):590–673, 2021.

Nicholas M. Boffi and Chris H. Rycroft. Coordinate transformation methodology for simulating quasistatic elastoplastic solids. *Physical Review E*, 101:053304, 2020.

Nicholas M. Boffi and Chris H. Rycroft. Parallel three-dimensional simulations of quasi-static elastoplastic solids. *Computer Physics Communications*, 257:107254, 2020.

Nicholas M. Boffi and Jean-Jacques E. Slotine. A continuous-time analysis of distributed stochastic gradient. *Neural Computation*, 32(1):36–96, 2020.

Nicholas M. Boffi, Manish Jain, and Amir Natan. Efficient computation of the Hartree–Fock exchange in real-space with projection operators. *Journal of Chemical Theory and Computation*, 12(8):3614–3622, 2016.

Nicholas M. Boffi, Manish Jain, and Amir Natan. Asymptotic behavior and interpretation of virtual states: The effects of confinement and of basis sets. *The Journal of Chemical Physics*, 144(8):084104, 2016.

Nicholas M. Boffi, Judith C. Hill, and Matthew G. Reuter. Characterizing the inverses of block tridiagonal, block Toeplitz matrices. *Computational Science & Discovery*, 8(1):015001, 2014.

Matthew G. Reuter, Nicholas M. Boffi, Mark A. Ratner, and Tamar Seideman. The role of dimensionality in the decay of surface effects. *The Journal of Chemical Physics*, 138(8):084707, 2013.

Software

Author of `flow-maps`, official code for flow map self-distillation (NeurIPS 2025) 2025
https://github.com/nmboffi/flow-maps

Author of `structured_diffusion_public`, code for structured diffusion learning (ICLR 2025) 2025
https://github.com/nmboffi/structured_diffusion_public

Author of `jax-interpolants`, a clean implementation of the stochastic interpolant framework 2025
https://github.com/nmboffi/jax-interpolants

Author of `flow_map_matching_public`, an implementation of the flow map matching method 2025
https://github.com/nmboffi/flow_map_matching_public

Author of `jax-edm2`, JAX implementation of NVIDIA's EDM2 network 2025
https://github.com/nmboffi/jax-edm2

Author of `vicsek_public`, code for entropy production from trajectories in collective motion 2024
https://github.com/nmboffi/vicsek_public

Author of `active_probability_flows`, a method for learning physical probability flows 2024
https://github.com/nmboffi/active_pflows

Co-author of `stochastic-interpolants`, an implementation of the stochastic interpolant method 2023
https://github.com/malbergo/stochastic-interpolants

Author of `sbtm`, an implementation of the score-based transport modeling algorithm 2023
https://github.com/nmboffi/sbtm

Author of `spin_glass_evodyn`, a simulation of evolutionary dynamics via spin glass physics 2023
https://github.com/nmboffi/spin_glass_evodyn

Author of `stzpp`, a simulation of the shear transformation zone theory of amorphous plasticity 2021
https://github.com/nmboffi/stzpp

Contributor to `PARSEC`, a real-space electronic structure code 2015
http://real-space.org/

Teaching

Carnegie Mellon University

Methods of optimization, *Instructor* Spring 2025

Introduction to partial differential equations: A computational approach, *Instructor* Fall 2024

Courant Institute of Mathematical Sciences, New York University

Honors numerical analysis, *Instructor* Spring 2024
Linear and nonlinear optimization, *Instructor* Fall 2023
Linear and nonlinear optimization, *Instructor* Spring 2023
Numerical analysis, *Instructor* Fall 2022
Linear and nonlinear optimization, *Instructor* Spring 2022
Numerical analysis, *Instructor* Fall 2021

Harvard University

Advanced scientific computing: Numerical methods II, *Teaching Fellow* Spring 2021
Learning, estimation, and control of dynamical systems, *Teaching Fellow* Spring 2020
Advanced scientific computing: Numerical methods, *Teaching Fellow* Fall 2019
Advanced scientific computing: Numerical methods, *Teaching Fellow* Fall 2016

Northwestern University

Integrated Science Program 101, *Instructor* Academic Year 2013–2014
Integrated Science Program 101, *Teaching Assistant* Academic Year 2012–2013
Integrated Science Program 101, *Teaching Assistant* Spring 2012

Seminars and Summer Schools

Foundations of flow and diffusion-based generative models, *Co-instructor* Summer 2025
Summer seminar and reading group, Carnegie Mellon University
Co-taught with Max Simchowitz

Summer School on Scientific Machine Learning, *Invited lecturer* Summer 2025
Brin Mathematics Research Center, Department of Mathematics, University of Maryland
Delivered several lectures on flows and diffusions

Neural networks for partial differential equations, *Co-organizer* Fall 2024
Center for Nonlinear Analysis reading group, Carnegie Mellon University
Co-organized with Dejan Slepčev, Ameet Talwalkar, and Andrej Risteski
∼40 participants across mathematics, computer science, machine learning, statistics, and engineering

Mentoring

PhD Students

Jerry Huang 2024–Present
Computer Science Department, Carnegie Mellon University

Stephen Huan 2024–Present
Computer Science Department, Carnegie Mellon University
Co-advised with Andrej Risteski

Sanjit Dandapanthula 2025–Present
Department of Statistics and Machine Learning Department, Carnegie Mellon University
Co-advised with Aaditya Ramdas

Abbas Mammadov 2026–Present
Department of Statistics, University of Oxford
Co-advised with Yee Whye Teh

Masters Students

Justin Lin 2025–Present
Machine Learning Department, Carnegie Mellon University

Kartik Nair 2025–Present
Machine Learning Department, Carnegie Mellon University

Manan Agarwal Summer 2026
Machine Learning Department, Carnegie Mellon University

Partha Kaushik Summer 2026
Robotics Institute, Carnegie Mellon University

Sheel Shah 2025–Present
Machine Learning Department, Carnegie Mellon University

Undergraduate Students

Ishin Shah 2025–2026
Master's thesis, Department of Mathematical Sciences, Carnegie Mellon University
Thesis title: *Efficient reward alignment in generative models via diamond flow maps and stochastic optimal control*
Co-advised with Max Simchowitz

Jimmy Almgren-Bell 2017–2019
Senior thesis, Harvard University
Thesis title: *An agent-based numerical approach to Lenski's long-term evolution experiment*

Affiliated Students

Anna Wei
Machine Learning Department, Carnegie Mellon University
Advised by Ameet Talwalkar and Andrej Risteski

Rishal Aggarwal
Computational Biology Department, Carnegie Mellon University
Advised by David Ryan Koes

Summer Programs

Applied Mathematics Summer Undergraduate Research Experience (AM-SURE) 2022
Program coordinator, Courant Institute of Mathematical Sciences
Mentored ten undergraduate students through summer research projects

Professional activities

Workshop organizer

Theory of AI for Scientific Computing (TASC) June 30, 2025
COLT 2025, Mérieux Amphitheater, ENS Lyon, France
Jointly organized with Misha Khodak (Princeton), Jianfeng Lu (Duke), Tanya Marwah (Polymathic AI, Flatiron Institute), and Andrej Risteski (CMU)

Measure Transport, Diffusion Processes, and Sampling Dec. 4–6, 2023
Flatiron Institute, New York City
Jointly organized with Michael Albergo (NYU), Bob Carpenter (Flatiron Institute), Neha Wadia (Flatiron Institute), and Joan Bruna (Courant, Flatiron Institute)

Reviewer

Annals of Applied Probability, Banff International Research Center, Nature Physics, Journal of Statistical Mechanics: Theory and Experiment, Journal of Computational Physics, SIAM Journal on Scientific Computing, SIAM Journal on Applied Mathematics, Annals of Statistics, International Journal of Robotics Research, Applied and Computational Harmonic Analysis, Journal of Machine Learning Research, Proceedings of the National Academy of Sciences, Physica D: Nonlinear Phenomena, IEEE Transactions on Automatic Control, IEEE Systems & Control Letters, SIAM Journal on Mathematics of Data Science, Neural Information Processing Systems, International Conference on Learning Representations, International Conference on Machine Learning, AISTATS, Learning for Dynamics and Control

Area Chair

Learning for Dynamics and Control 2026

Selected Talks

Flow map language models 2026
Machine Learning Seminar, Flatiron Institute

Flow map language models 2026
Machine Learning Reading Group, Google DeepMind, London

Flow map language models 2026
Workshop on Geometry-grounded Representation Learning and Generative Modeling
International Conference on Learning Representations (ICLR)

Flow map language models 2026
Mathematical Foundations of Artificial Intelligence (MFAI) Workshop
Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas (IIMAS)
Universidad Nacional Autónoma de México

Flow map language models 2026
Machine Learning Reading Group, Cerebras

Flow map language models 2026
Starkly Speaking Reading Group

Flow map language models 2026
Frontiers of Flows for Generative AI Workshop, Carnegie Mellon University

Flow maps: Generative models with lightning-fast inference 2026
PSU-Purdue-UMD Joint Seminar on Mathematical Data Science

Flow maps: Generative models with lightning-fast inference 2026
CMX Lunch Seminar, California Institute of Technology

Lectures on flows and diffusions for scientific machine learning 2025
Summer School on Scientific Machine Learning
Brin Mathematics Research Center, Department of Mathematics, University of Maryland
Invited lecturer; delivered several lectures

Flow maps: Generative models with lightning-fast inference 2025
Workshop on Mathematical Analysis in Machine Learning, University of Pittsburgh

Flow maps: Generative models with lightning-fast inference 2025
Starkly Speaking Reading Group

Flow maps: Generative models with lightning-fast inference 2025
Statistics & Data Science Seminar, Carnegie Mellon University

Flow maps: Generative models with lightning-fast inference 2025
Kinetic Theory: Novel Statistical, Stochastic and Analytical Methods
SLMath (Simons Laufer Mathematical Sciences Institute)

How to build a consistency model (with stochastic interpolants) 2025
Workshop on Probabilistic Learning Methods for Inverse Problems
Applied Inverse Problems Conference, Rio de Janeiro, Brazil

Stochastic interpolants: from generative modeling to generative science and engineering 2025
Efficient and Reliable Deep Learning Methods and their Scientific Applications
Banff International Research Station

Stochastic interpolants: from generative modeling to generative science and engineering 2025
Statistical and Computational Challenges in Probabilistic Scientific Machine Learning
Institute for Mathematical and Statistical Innovation, University of Chicago

Stochastic interpolants: from generative modeling to generative science and engineering 2025
Frontiers in Applied Analysis Workshop, Carnegie Mellon University

Stochastic interpolants: from generative modeling to generative science and engineering 2025
Machine Learning Department Seminar, Carnegie Mellon University

Stochastic interpolants: from generative modeling to generative science and engineering 2025
Applied Mathematics and Statistics Seminar, Johns Hopkins University

Stochastic interpolants: from generative modeling to generative science and engineering 2025
Applied and Computational Mathematics Seminar
University of Wisconsin-Madison

Flow maps: Generative models with lightning-fast inference 2025
Advances in Generative AI Conference, Duke University

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2025
Oden Institute & Department of Mathematics Seminar
University of Texas at Austin

Stochastic interpolants: A unifying framework for flows and diffusions 2025
CMU-Pitt Joint Computational Biology Seminar
Carnegie Mellon University & University of Pittsburgh

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2025
Continuum Mechanics Seminar, University of Nebraska-Lincoln

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2024
Center for Computational Mathematics Seminar
Flatiron Institute

Stochastic interpolants: A unifying framework for flows and diffusions 2024
Genesis Therapeutics

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2024
Machine Learning / Duolingo Seminar, Carnegie Mellon University

Deep learning the entropy production rate in active matter physics 2024
CECAM Multiscale Simulations of Soft Matter IV, Technical University of Darmstadt

Stochastic interpolants: A unifying framework for flows and diffusions 2024
Allerton Control Conference, University of Illinois at Urbana-Champaign

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2024
Youth in High Dimensions Workshop, International Center for Theoretical Physics

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2024
CRUNCH Seminar, Brown University

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2024
Applied Mathematics Seminar, University of Washington

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2024
Applied and Interdisciplinary Mathematics Seminar, University of Michigan

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2024
Computational and Applied Mathematics Seminar, University of Chicago

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2024
Applied Mathematics Seminar, Massachusetts Institute of Technology

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2024
Mathematics Seminar, University of North Carolina

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2023
Center for Nonlinear Analysis Seminar, Carnegie Mellon University

On flows and diffusions: from many-body Fokker-Planck to stochastic interpolants 2023
Modeling and Simulation Seminar, Courant Institute of Mathematical Sciences

Deep learning probability flows and entropy production rates in active matter 2023
Generative Modeling Foundations, Courant Institute of Mathematical Sciences

Deep learning probability flows and entropy production rates in active matter 2023
Scientific Machine Learning Seminar, Courant Institute of Mathematical Sciences

Neural networks for computational mathematicians 2023
Modeling and Simulation Seminar, Courant Institute of Mathematical Sciences

A spin glass model of microbial long-term evolution 2023
Mostly Biomathematics Seminar, Courant Institute of Mathematical Sciences

On stochastic and deterministic generative models 2023
Generative Modeling Foundations, Courant Institute of Mathematical Sciences

Representation and optimization in adaptive control 2023
Azizan Group, Massachusetts Institute of Technology

Probability flow solution of the Fokker-Planck equation 2022
Google Brain Robotics, New York, New York

Probability flow solution of the Fokker-Planck equation 2022
Sampling, Transport, and Diffusions Workshop, Flatiron Institute

Probability flow solution of the Fokker-Planck equation 2022
Computational Mathematics Seminar, Courant Institute of Mathematical Sciences

Probability flow solution of the Fokker-Planck equation 2022
Generative Modeling Foundations, Courant Institute of Mathematical Sciences

Probability flow solution of the Fokker-Planck equation 2022
Bruna Group, Courant Institute of Mathematical Sciences

Nonparametric adaptive control: theory and randomized algorithms 2022
Courant Instructor Day, Courant Institute of Mathematical Sciences

A spin glass model of microbial long-term evolution 2021
Modeling and Simulation Seminar, Courant Institute of Mathematical Sciences

Nonlinear adaptive control theory: a view from optimization and machine learning 2021
Bruna Group, Courant Institute of Mathematical Sciences

Nonparametric adaptive control: theory and randomized algorithms 2021
CRAN, Université de Lorraine (Virtual)

Regret bounds for adaptive nonlinear control 2021
3rd Annual Conference on Learning for Dynamics and Control (Virtual)

Projection methods for quasi-static hypo-elastoplasticity 2021
Numerical Methods for PDEs Seminar, Massachusetts Institute of Technology

Projection methods for quasi-static hypo-elastoplasticity 2021
Modeling and Simulation Seminar, Courant Institute of Mathematical Sciences

Adaptive control theory 2021
Learning for Dynamics and Control Course, Google Brain (Virtual)

Learning stability certificates from data 2021
Anandkumar Group, California Institute of Technology

Learning stability certificates from data 2020
Neurophysics Group, Harvard University

A continuous-time analysis of distributed stochastic gradient 2020
Google Brain Robotics, New York, New York

Adaptive control and statistical learning 2020
Google Brain Robotics, New York, New York

Learning dynamical systems with deep feedforward and balanced recurrent networks 2020
Neurophysics Group, Harvard University

Parallel three-dimensional simulations of quasi-static elastoplastic solids 2019
Computational Science Graduate Fellowship Program Review, Arlington, Virginia

Continuum-level simulation of shear banding in metallic glasses on transforming grids 2019
American Physical Society March Meeting, Boston, Massachusetts

Three-dimensional continuum-level simulation of shear banding in metallic glasses 2018
American Physical Society March Meeting, Los Angeles, California

A quasi-static projection method for three-dimensional hypo-elastoplasticity 2017
SIAM Conference on Computational Science and Engineering, Atlanta, Georgia

Amorphous plasticity and the shear transformation zone theory 2016
Kavli Seminar, Harvard University