Mufan (Bill) Li

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RESEARCH POSITIONS	Postdoctoral Research Associate, Princeton University Department of ORFE, Supervised by Boris Hanin	2023–Present
DEGREES	Ph.D. Statistics, University of Toronto Thesis: *Analysis of Learning Algorithms via Diffusion Limits* Supervised by Daniel M. Roy and Murat A. Erdogdu	2017–2023
	M.Sc. Statistics, University of Toronto	2015–2016
	B.A.Sc. Engineering Science, University of Toronto	2010–2015

RESEARCH ARTICLES

See also my Google Scholar or Semantic Scholar pages.

1. Blake Bordelon, Lorenzo Noci, **M. Li**, Boris Hanin, and Cengiz Pehlevan, *Depthwise Hyperparameter Transfer in Residual Networks: Dynamics and Scaling Limit.* Preprint 2023. arXiv:2309.16620.

2. Lorenzo Noci*, Chuning Li*, **M. Li***, Bobby He, Thomas Hofmann, Chris Maddison, and Daniel M. Roy, *The Shaped Transformer: Attention Models in the Infinite Depth-and-Width Limit.* To appear at NeurIPS 2023. arXiv:2306.17759.

3. Matthew Zhang, Sinho Chewi, **M. Li**, Krishnakumar Balasubramanian, and Murat A. Erdogdu, *Improved Discretization Analysis for Underdamped Langevin Monte Carlo.* COLT 2023. arXiv:2302.08049.

4. **M. Li** and Murat A. Erdogdu, *Riemannian Langevin Algorithm for Solving Semidefinite Programs.* Bernoulli 2023. arXiv:2010.11176.

5. **M. Li**, Mihai Nica, and Daniel M. Roy, *The Neural Covariance SDE: Shaped Infinite Depth-and-Width Networks at Initialization.* NeurIPS 2022 (Selected for Oral, Nominated for Outstanding Paper Award). arXiv:2206.02768.

6. Raphaël Berthier and **M. Li**, *Acceleration of Gossip Algorithms through the Euler–Poisson–Darboux Equation.* IMA Journal of Applied Mathematics 2022. arXiv:2202.10742.

7. Sinho Chewi, Murat A. Erdogdu, **M. Li**, Ruoqi Shen, and Matthew Zhang, *Analysis of Langevin Monte Carlo from Poincaré to Log-Sobolev.* COLT 2022 Extended Abstract. arXiv:2112.12662.

8. **M. Li**, Mihai Nica, and Daniel M. Roy, *The Future is Log-Gaussian: ResNets and Their Infinite-Depth-and-Width Limit at Initialization.* NeurIPS 2021. arXiv:2106.04013.

9. **M. Li**, and Maxime Gazeau, *Higher Order Generalization Error for First Order Discretization of Langevin Diffusion.* Preprint 2021. arXiv:2102.06229.

AWARDS	Doctoral Award, University of Toronto	2023
	Ontario Graduate Scholarship	2019–2023
	Student Research Presentation Award, Stat. Soc. of Canada	2021
	MITACS Accelerate Fellowship, with Borealis AI	2018–2019
	Undergraduate Summer Research Fellowship, University of Toronto	2012

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*Equal Contribution.

INVITED TALKS	Google DeepMind	August 2023
	The Shaped Transformer: Attention Models in the Infinite Depth-and-Width Limit	
	DeepProb, University of Oxford	Feb 2023
	Neural Covariance SDE: Shaped Infinite Depth-and-Width Networks at Initialization	
	OPTML++, MIT (Video)	Feb 2023
	Neural Covariance SDE: Shaped Infinite Depth-and-Width Networks at Initialization	
	Deep Learning Foundations, University of Maryland (Video)	Sept 2022
	Neural Covariance SDE: Shaped Infinite Depth-and-Width Networks at Initialization	

CONTRIBUTED TALKS	Statistical Society of Canada Annual Meeting	May 2023
	Neural Covariance SDE: Shaped Infinite Depth-and-Width Networks at Initialization	
	Institute of Mathematical Statistics Annual Meeting	Jun 2022
	Analysis of Langevin Monte Carlo from Poincaré to Log-Sobolev	
	Statistical Society of Canada Annual Meeting	May 2022
	Analysis of Langevin Monte Carlo from Poincaré to Log-Sobolev	
	Statistical Society of Canada Annual Meeting	May 2021
	Riemannian Langevin Algorithm for Solving Semidefinite Programs	

TEACHING ASSISTANT POSITIONS	ESC103 Engineering Math and Computation, University of Toronto	2017–2021
	STA414 Statistical Learning, University of Toronto	2021–2022
	STA286 Probability and Statistics, University of Toronto	2018–2019
	STA410 Statistical Computing, University of Toronto	2017

WORK EXPERIENCE	Research Intern, Borealis AI	Aug 2018–Apr 2019
	Investment Analyst, Ontario Teachers' Pension Plan	Jul 2016–Jul 2017
	Electronic Trading Intern, RBC Capital Markets	May 2013–Aug 2014

PEER REVIEW	Journal of Machine Learning Research (JMLR)
	Transactions on Machine Learning Research (TMLR) Expert Reviewer
	SIAM Journal on Mathematics of Data Science (SIMODS)
	Journal of Computational and Graphical Statistics (JCGS)
	Neural Information Processing Systems (NeurIPS)
	International Conference on Learning Representations (ICLR)
	International Conference on Machine Learning (ICML)