

ACADEMIC EMPLOYMENT	<b>University of Toronto</b> <ul style="list-style-type: none"> <li>• Assistant Professor of Computer Science</li> <li>• Assistant Professor of Statistical Sciences</li> </ul>	Toronto, ON 7/2018-Current 7/2018-Current
	<b>Microsoft Research - New England</b> <ul style="list-style-type: none"> <li>• Postdoctoral Researcher</li> </ul>	Cambridge, MA 7/2017-7/2018
PROFESSIONAL AFFILIATIONS	<b>Vector Institute</b> <ul style="list-style-type: none"> <li>• Faculty member and CIFAR AI Chair</li> </ul>	Toronto, ON 7/2018-Current
	<b>Simons Institute for the Theory of Computing</b> <ul style="list-style-type: none"> <li>• Visiting scholar</li> </ul>	Berkeley, CA 6/2021-12/2021
EDUCATION	<b>Stanford University</b> <ul style="list-style-type: none"> <li>• Ph.D. in Statistics</li> <li>• M.S. in Computer Science</li> </ul>	Stanford, CA 2011-2017 2013-2015
	<b>Bogazici University</b> <ul style="list-style-type: none"> <li>• B.S. in Electrical Engineering</li> <li>• B.S. in Mathematics</li> </ul>	Istanbul, Turkey 2007-2011 2008-2011
INTERESTS	Machine Learning Theory, Complexity of Optimization and Sampling, High-dimensional Statistics.	
AWARDS & GRANTS	<ul style="list-style-type: none"> <li>• CIFAR Chair in Artificial Intelligence, \$1,000,000 Award</li> <li>• CIFAR AI Catalyst Grant, \$100,000</li> <li>• XSeed Competition, \$120,000</li> <li>• NSERC Discovery Grant, \$207,500</li> <li>• Connaught New Researcher Award, \$20,000</li> <li>• FAS Bridge Funding, \$50,000</li> <li>• Best Teaching Assistant Award, Department of Statistics, Stanford University</li> <li>• Dag Ozay Highest Achievement Award, Electrical Eng. Bogazici University</li> <li>• Ranked 4th/1.7M students in the Centralized University Entrance Exam</li> <li>• 2 gold medals at Mediterranean Mathematical Olympiads</li> <li>• Gold medal at National Mathematical Olympiads among juniors</li> </ul>	2018-2023 2020-2023 2020-2023 2019-2024 2019-2022 2019-2021 2012 2006 2006 2003 & 2004 2002
EDITORIAL SERVICE	<ul style="list-style-type: none"> <li>• NeurIPS, Neural Information Processing Systems (area chair)</li> <li>• COLT, Conference on Learning Theory (program committee)</li> <li>• AAAI, Association for the Advancement of AI (senior program committee)</li> <li>• JCGS, Journal of Computational and Graphical Statistics (associate editor)</li> <li>• TMLR, Transactions on Machine Learning Research (associate editor)</li> </ul>	2021–Current 2021–Current 2022–Current 2021–Current 2022–Current
TEACHING	<ul style="list-style-type: none"> <li>• <b>Undergraduate</b> (5): Machine Learning for Black &amp; Indigenous Students (Fall 2022), Probabilistic Machine Learning and Reasoning (Winter 2022), Statistical Methods for Machine Learning (Winter 2021 &amp; 2020), Introduction to Machine Learning (Fall 2020)</li> <li>• <b>Graduate</b> (4): Statistical Learning Theory (Winter 2022 &amp; 2021 &amp; 2020), Current Algorithms and Techniques in Machine Learning (Winter 2019)</li> </ul>	
SUPERVISION	<ul style="list-style-type: none"> <li>• <b>Current</b> (8): Ayoub El Hanchi (CS - PhD), Tyler Kastner (CS - PhD), Mufan Li (Stats - PhD), Chuning Lu (CS - PhD), Alireza Mousavi (CS - PhD), Nuri Mert Vural (CS - PhD), Denny Wu (CS - PhD), Matthew S. Zhang (CS - PhD)</li> <li>• <b>Past</b> (13): Sejun Park (postdoc at Vector Institute - now faculty at Korea University), Lu Yu (Stats PhD - now postdoc at ENSEA France), Ziyue Xu (MScAc), Yang Qu (MScAc), Sarah Hafez (MScAc), Farnam Mansouri (MSc), Gabriel Montero (MScAc), Rasa Hosseinzadeh (MSc), Andrew Toulis (MSc), Manisha Singh (MScAc), Peilin Sun (MScAc), Zhen Gou (MScAc), Feixiong Zhang (MScAc), Shu Jian Du (MScAc)</li> </ul>	

INVITED TALKS  
(LAST 2 YEARS)

- IBM T. J. Watson Research Center – mathematics group Ossining NY, 2022
- INFORMS, **Invited Tutorial** in the Applied Probability Society Indianapolis IN, 2022
- IMS at National University of Singapore **Invited Tutorial** Singapore, 2022
- Institute of Mathematical Statistics Annual Meeting London UK, 2022
- International Conference on Continuous Optimization Lehigh PA, 2022
- Rutgers University, Department of Mathematics Piscataway NJ, 2022
- Functional Inference and Machine Intelligence Workshop (FIMI) Tokyo Japan, 2022
- Massachusetts Institute of Technology (MIT), CSAIL Colloquium Cambridge MA, 2022
- Stanford University, Electrical Engineering Department, ISL Colloquium Stanford CA, 2021
- Simons Institute for the Theory of Computing at UC Berkeley Berkeley CA, 2021
- University of Oxford, Mathematics Department, Seminar on Data Science Oxford UK, 2021
- Simons Institute for the Theory of Computing at UC Berkeley Berkeley CA, 2021
- University of Pennsylvania, Wharton Statistics Philadelphia PA, 2021
- EPFL, Lab of Information Optimization and Systems Lausanne Switzerland, 2021
- University of Oxford, Department of Statistics Oxford UK, 2021

PUBLICATIONS  
(LAST 2 YEARS)

- [1] Sejun Park, Umut Simsekli, Murat A Erdogdu. Generalization Bounds for Stochastic Gradient Descent via Localized  $\epsilon$ -Covers. In **NeurIPS**, *Advances in Neural Information Processing Systems*, 2022.
- [2] Jimmy Ba, Murat A Erdogdu, Taiji Suzuki, Zhichao Wang, Denny Wu, Greg Yang. High-dimensional Asymptotics of Feature Learning: How One Gradient Step Improves the Representation. In **NeurIPS**, *Advances in Neural Information Processing Systems*, 2022.
- [3] Sinho Chewi, Murat A. Erdogdu, Mufan Li, Ruoqi Shen, and Matthew Zhang. Analysis of Langevin Monte Carlo from Poincaré to Log-Sobolev. In **COLT**, *Conference on Learning Theory*, 2022.
- [4] Nuri M. Vural, Lu Yu, Krishna Balasubramanian, Stanislav Volgushev and Murat A. Erdogdu. Mirror Descent Strikes Again: Optimal Stochastic Convex Optimization under Infinite Noise Variance. In **COLT**, *Conference on Learning Theory*, 2022.
- [5] Krishna Balasubramanian, Sinho Chewi, Murat A. Erdogdu, Adil Salim and Matthew S. Zhang. Towards a Theory of Non-Log-Concave Sampling: First-Order Stationarity Guarantees for Langevin Monte Carlo. In **COLT**, *Conference on Learning Theory*, 2022.
- [6] Jimmy Ba, Murat A Erdogdu, Marzyeh Ghassemi, Taiji Suzuki, Shengyang Sun, Denny Wu, and Tianzong Zhang. Understanding the Variance Collapse of Stein Variational Gradient Descent in High Dimensions. In **ICLR**, *International Conference on Learning Representations*, 2022.
- [7] Murat A. Erdogdu, Rasa Hosseinzadeh, and Matthew S. Zhang. Convergence of langevin monte carlo in chi-squared and renyi divergence. In **AISTATS**, *Artificial Intelligence and Statistics*, 2022.
- [8] Matthew S. Zhang, Murat A. Erdogdu, and Animesh Garg. Convergence and Optimality of Policy Gradient Methods in Weakly Smooth Settings. In **AAAI**, *Association for the Advancement of AI*, 2022.
- [9] Murat A Erdogdu, Asuman Ozdaglar, Pablo Parrilo, Nuri Vanli. Convergence rate of block-coordinate maximization Burer–Monteiro method for solving large SDPs. In **Mathematical Programming**, 2021.
- [10] Abhishek Roy, Krishna Balasubramanian, and Murat A Erdogdu. On Empirical Risk Minimization with Dependent and Heavy-Tailed Data. In **NeurIPS**, *Proceedings of Advances in Neural Information Processing Systems*, pages 8913–8926, 2021.
- [11] Hongjian Wang, Mert Gurbuzbalaban, Lingjiong Zhu, Umut Simsekli and Murat A Erdogdu. Convergence Rates of Stochastic Gradient Descent under Infinite Noise Variance. In **NeurIPS**, *Advances in Neural Information Processing Systems*, 2021.
- [12] Lu Yu, Krishna Balasubramanian, Stanislav Volgushev and Murat A Erdogdu. An Analysis of Constant Step Size SGD in the Non-convex Regime: Asymptotic Normality and Bias. In **NeurIPS**, *Advances in Neural Information Processing Systems*, 2021.
- [13] Alexander Camuto, George Deligiannidis, Murat A Erdogdu, Mert Gurbuzbalaban, Umut Simsekli, Lingjiong Zhu. Fractal Structure and Generalization Properties of Stochastic Optimization Algorithms. In **NeurIPS (Spotlight)**, *Advances in Neural Information Processing Systems*, 2021.
- [14] Ilya Shumailov, Zakhar Shumaylov, Dmitry Kazhdan, Yiren Zhao, Nicolas Papernot, Murat A Erdogdu, and Ross Anderson. Manipulating SGD with Data Ordering Attacks. In **NeurIPS**, *Advances in Neural Information Processing Systems*, 2021.
- [15] Melih Barsbey, Milad Sefidgaran, Murat A Erdogdu, Gael Richard, Umut Simsekli. Heavy Tails in SGD and Compressibility of Overparametrized Neural Networks. In **NeurIPS**, *Advances in Neural Information Processing Systems*, 2021.
- [16] Murat A Erdogdu and Rasa Hosseinzadeh. On the Convergence of Langevin Monte Carlo: The Interplay between Tail Growth and Smoothness. In **COLT**, *Conference on Learning Theory*, 2021.