

Mert Gürbüzbalaban

CONTACT INFORMATION	Department of Management Science & Information Systems, Rutgers Business School 100 Rockafellar Road, Room 5133, Piscataway, NJ 08854 United States	Office Phone: (617)324-0645 Web: http://mert-g.org/ E-mail: mg1366@rutgers.edu
CURRENT POSITION	Rutgers University, USA - Associate Professor (with tenure) in the Department of Management Science and Information Systems, Rutgers University (July 2022 - present).	
PREVIOUS POSITIONS	Princeton University, USA - Visiting Professor at the Princeton Center for Statistics and Machine Learning, on sabbatical leave from Rutgers University (July 2022 - June 2023). The Wharton School of the University of Pennsylvania, USA - Visiting Professor at the Department of Statistics and Data Science, on sabbatical leave from Rutgers University (January 2023 - June 2023). Rutgers University, USA - Tenure-track Assistant Professor in the Department of Management Science and Information Systems, Rutgers University (Sept 2016 - June 2022). Massachusetts Institute of Technology, USA - Postdoctoral Associate at the Laboratory for Information Decision Systems (LIDS) (July 2014 - Aug 2016), hosted by Prof. Asuman Ozdaglar and Prof. Pablo A. Parrilo.	
EDUCATION	Courant Institute, New York University, USA - Ph.D. in (Applied) Mathematics (May 2012), GPA: 4.00/4.00. • Awarded <i>Kurt Friedrichs Prize</i> for an outstanding dissertation. - M.S. in Mathematics (May 2009). École Polytechnique, France - B.Sc., M.S. (Diplôme d'ingénieur, Diplôme de l'École Polytechnique): Majors in Applied Mathematics and Economics, May 2007. Bogazici University, Turkey - B.Sc. in Electrical-Electronics Engineering, May 2005. - B.Sc. in Mathematics, May 2005. • Valedictorian.	
INDUSTRIAL POSITIONS	Bloomberg LLC, New York 05/2013 - 01/2014 Full-time Quantitative Researcher and Software Developer: Developed and implemented mathematical models that extract volatility from the options market data and predict dividend payments and borrow cost of stocks using signal denoising techniques and seasonality pattern analysis.	

Citadel LLC, New York

2012-2013

Full-time Quantitative Researcher: Devised and implemented mathematical models and trading strategies for high-frequency equity markets where large-scale data processing becomes the key. Analyzed, optimized strategies using parallel computing and tools from probability theory, data science and statistics.

PRIMARY
RESEARCH
INTERESTS

Machine learning and optimization, data science, statistical inference and operations research. Development of efficient optimization algorithms and statistical methods to address challenges in high-dimensional data analysis, statistics and data-driven business analytics.

FEDERAL
FUNDING

**Total federal research funding received personally amounts to \$1,496,069. The total funds including those provided to collaborators on these projects exceed \$2,300,000.*

F5. Office of Naval Research: PI for the project “*Primal-Dual Algorithms for Minimax Problems with Applications to Distributionally Robust Learning*” 2024-2027. **Awarded \$400,000.**

F4. Office of Naval Research: PI for the project “*Robust Primal-Dual Algorithms for Saddle Point Problems with Applications to Multi-Agent Systems*”. 2021-2024. **Awarded \$326,647.**

F3. National Science Foundation (NSF) DMS Division: PI for the project “*Langevin MCMC Methods for Machine Learning*”. 2021-2024 **Awarded \$180,009.**
https://www.nsf.gov/awardsearch/showAward?AWD_ID=2053485z

F2. NSF CCF Division: Single PI for the project “*Communication-Efficient Distributed Algorithms for Machine Learning*”. **Awarded \$464,412.** 2018-2022.
https://www.nsf.gov/awardsearch/showAward?AWD_ID=1814888

F1. NSF DMS Division: Single PI for the project “*Beyond With-replacement Sampling for Large-Scale Data Analysis and Optimization*”. **Awarded \$125,001.** 2017-2020.
https://nsf.gov/awardsearch/showAward?AWD_ID=1723085

IN PRESS /
PUBLISHED
JOURNAL
PUBLICATIONS

**All the authors are listed in alphabetical order except in some cases when there were collaborations with early-career researchers from engineering, operations research or computer science departments; the order was often non-alphabetical where the early career researchers were typically listed first to accomodate the culture in these research domains and to emphasize their contributions.*

Total number of Google Scholar citations: 3125 (As of May 22nd, 2025)

J33. M Gürbüzbalaban, Y Syed, NS Aybat, *Accelerated Gradient Methods with Biased Gradient Estimates: Risk Sensitivity, High-Probability Guarantees, and Large Deviation Bounds*, J. Nonlinear Variational Analysis (Special issue dedicated to the 70th birthday of Professor Yurii Nesterov), Volume 10, Issue 2, pages 231-285, 2026. **(55 pages)**, available online at the [link](#).

J32. Qiushui Xu, Necdet S. Aybat, Mert Gürbüzbalaban, *An accelerated primal dual algorithm with backtracking for decentralized constrained optimization*, J. Nonlinear Variational Analysis (Special issue dedicated to the 70th birthday of Professor Yurii Nesterov), Volume 10, Issue 3, pages 555-596, 2026, **(42 pages)**, available online at the [link](#).

- J31.** R Dixit, M Gürbüzbalaban, WU Bajwa, *Accelerated gradient methods for nonconvex optimization: Escape trajectories from strict saddle points and convergence to local minima*, Foundations of Computational Mathematics, 2026. **(173 pages)**, available online at the [link](#).
- J30.** M Gürbüzbalaban, *Robustly Stable Accelerated Momentum Methods With A Near-Optimal L_2 Gain and H_∞ Performance*, Mathematics of Operations Research, 2025. **(47 pages, arxiv version)**, available online at the [link](#).
- J29.** B Can, M Gürbüzbalaban, *Entropic risk-averse generalized momentum methods*, Optimization Methods and Software, 2025. **(53 pages, arxiv version)**, available online at the [link](#).
- J28.** L Zhu, M Gürbüzbalaban, A Ruszczyński, *Mean-semideviation-based distributionally robust learning with weakly convex losses: Convergence rates and finite-sample guarantees*, Mathematical Programming, 1-31, 2025.
- J27.** M Gürbüzbalaban, Y Hu, U Simsekli, K Yuan, L Zhu, *Heavy-Tail Phenomenon in Decentralized SGD*, IISE Transactions, 1-15, 2024 (Special Issue on Federated, Distributed Learning and Analytics).
- J26.** M Gürbüzbalaban, Y Hu, L Zhu, *Penalized Langevin and Hamiltonian Monte Carlo Algorithms for Constrained Sampling*, Journal of Machine Learning Research, 25(263), 1-67, 2024.
- J25.** Y Laguel, NS Aybat, M Gürbüzbalaban, *High probability and risk-averse guarantees for a stochastic accelerated primal-dual method*, Journal of Machine Learning Research, 25(421), 1-56, 2024.
- J24.** X Zhang, NS Aybat, M Gürbüzbalaban, *Robust accelerated primal-dual methods for computing saddle points*, SIAM Journal on Optimization, 34(1), 1097-1130, 2024.
- J23.** R. Dixit, M Gürbüzbalaban, WU Bajwa, *Exit time analysis for approximations of gradient descent trajectories around saddle points*, Information and Inference: A Journal of the IMA, 12(2), 714-786, 2023.
- J22.** M Gürbüzbalaban, Y Hu, U Simsekli, L Zhu, *Cyclic and Randomized Stepsizes Invoke Heavier Tails in SGD than Constant Stepsize*, Transactions on Machine Learning Research, issue number 2835-8856, 2023.
- J21.** Alireza Fallah, Mert Gürbüzbalaban*, Asuman Ozdaglar, Umut Simsekli, Lingjiong Zhu, *Robust Distributed Accelerated Stochastic Gradient Methods for Multi-Agent Networks*, Journal of Machine Learning Research (JMLR), 23(220), 1-96, 2022. (* denotes corresponding author)
- J20.** R Dixit, M Gürbüzbalaban, WU Bajwa, *Boundary Conditions for Linear Exit Time Gradient Trajectories Around Saddle Points: Analysis and Algorithm*, IEEE Transactions on Information Theory, 69(4), 2556-2602, 2022.
- J19.** M Gürbüzbalaban, A Ruszczyński, L Zhu, *A stochastic subgradient method for distributionally robust non-convex and non-smooth learning*, Journal of Optimization Theory and Applications, 194(3), 1014-1041, 2022.
- J18.** Bugra Can, Saeed Soori, Necdet S. Aybat, Maryam M. Dehvani, Mert Gürbüz-

balaban, *Randomized Gossiping with Effective Resistance Weights: Performance Guarantees and Applications*, IEEE Transactions on Control of Network Systems, 9(2), 524-536, 2022.

J17. Nurdan Kuru, Ilker S. Birbil, M. Gürbüzbalaban, Sinan Yildirim, *Differentially Private Accelerated Optimization Algorithms*, SIAM Journal on Optimization, 32.2 (2022): 795-821, 2022.

J16. Xuefeng Gao, Mert Gürbüzbalaban, Lingjiong Zhu, *Global Convergence of Stochastic Gradient Hamiltonian Monte Carlo for Non-Convex Stochastic Optimization: Non-Asymptotic Performance Bounds and Momentum-Based Acceleration*, Operations Research, 70(5), 2931-2947, 2022. ([Financial Times 50 Journal](#))

J15. M Gürbüzbalaban, Xuefeng Gao, Yuanhan Hu, Lingjiong Zhu, *Decentralized Stochastic Gradient Langevin Dynamics and Hamiltonian Monte Carlo*, Journal of Machine Learning Research, 22(239):1-69, 2021.

J14. M. Gürbüzbalaban, Asuman Ozdaglar, Pablo A. Parrilo, *Why Random Reshuffling Beats Stochastic Gradient Descent*, Mathematical Programming, 186 (49-84), 2021.

J13. Mert Gürbüzbalaban, Asuman Ozdaglar, Pablo A. Parrilo, *Convergence Rate of Incremental Gradient and Incremental Newton Methods*, SIAM Journal on Optimization, 29.4, 2542-2565, 2019.

J12. Necdet S. Aybat, Alireza Fallah, Mert Gürbüzbalaban, Asuman Ozdaglar, *Robust Accelerated Gradient Method for Smooth Strongly Convex Functions*, SIAM Journal on Optimization 30(1), 717-751, 2020.

J11. Mert Gürbüzbalaban, Asuman Ozdaglar, Nuri D. Vanli, Stephen J. Wright, *Randomness and Permutations in Coordinate Descent Methods*, Mathematical Programming volume 181, pages 349-376, 2020.

J10. Nuri D. Vanli, Mert Gürbüzbalaban, Asuman Ozdaglar, *Global Convergence Rate of Proximal Incremental Aggregated Gradient Methods*, SIAM Journal on Optimization, 2018, 28(2), 1282-1300.

J9. Aryan Mokthari, Mert Gürbüzbalaban, Alejandro Ribeiro, *Surpassing Gradient Descent Provably: A Cyclic Incremental Method with Linear Convergence Rate*, SIAM Journal on Optimization 28, no. 2, 1420-1447, 2018.

J8. Julie Eaton, Sara Gründel, Mert Gürbüzbalaban, Michael L. Overton, *Polynomial root radius optimization with affine constraints*, Mathematical Programming 165, no. 2, 509-528, 2017.

J7. Nicola Guglielmi, Mert Gürbüzbalaban, Tim Mitchell, Michael L. Overton, *Approximating the Real Structured Stability Radius with Frobenius Norm Bounded Perturbations*, SIAM Journal on Matrix Analysis and Applications, 38(4), 1323-1353, 2017.

J6. Mert Gürbüzbalaban, Asuman Ozdaglar, Pablo A. Parrilo, *On the Convergence Rate of Incremental Aggregated Gradient Algorithms*, SIAM Journal on Optimization, 27(2), 1035-1048, 2017.

J5. Mert Gürbüzbalaban, Asuman Ozdaglar, Pablo A. Parrilo, *A globally convergent*

incremental Newton method, Mathematical Programming 151.1, 283-313, 2015.

J4. Nicola Guglielmi, Mert Gürbüzbalaban, Michael L. Overton, *Fast approximation of the H_∞ norm via optimization over spectral value sets*, SIAM Journal on Matrix Analysis and Applications 34, no. 2, 709-737, 2013.

J3. Mert Gürbüzbalaban, Michael L. Overton, *Some regularity results for the pseudospectral abscissa and pseudospectral radius of a matrix*, SIAM Journal on Optimization 22.2, 281-285, 2012.

J2. Vincent D. Blondel, Mert Gürbüzbalaban, Alexandre Megretski, Michael L. Overton, *Explicit Solutions for Root Optimization of a Polynomial Family With One Affine Constraint*, IEEE Transactions on Automatic Control 57.12, 3078-3089, 2012.

J1. Mert Gürbüzbalaban, Michael L. Overton, *On Nesterov's Nonsmooth Chebyshev-Rosenbrock Functions*, Nonlinear Analysis: Theory, Methods & Applications 75.3, 1282-1289, 2012.

ACCEPTED
CONFERENCE
PAPERS

C30. Y Laguel, Y Syed, NS Aybat, M Gürbüzbalaban, *High-probability complexity bounds for stochastic non-convex minimax optimization*, Advances in Neural Information Processing Systems (NeurIPS) 37, 2024.

C29. A Raj, M Barsbey, M Gürbüzbalaban, L Zhu, U Simsekli, *Algorithmic Stability of Heavy-Tailed Stochastic Gradient Descent on Least Squares*, Proceedings of Machine Learning Research vol 201:1-51, 2023.

C28. H Wang, M Gürbüzbalaban, L Zhu, U Simsekli, MA Erdogdu, *Convergence rates of stochastic gradient descent under infinite noise variance*, Advances in Neural Information Processing Systems (NeurIPS) 34, 18866-18877, 2023.

C27. L Zhu, M Gürbüzbalaban, A Raj, U Simsekli, *Uniform-in-Time Wasserstein Stability Bounds for (Noisy) Stochastic Gradient Descent*, Neural Information Processing Systems Conference (NeurIPS), 36, 1794-1832, 2023.

C26. A Raj, L Zhu, M Gürbüzbalaban, U Simsekli, *Algorithmic stability of heavy-tailed SGD with general loss functions*, International Conference on Machine Learning (ICML), pp. 28578-28597, 2023.

C25. A Raj, M Barsbey, M Gürbüzbalaban, L Zhu, U Simsekli, *Algorithmic Stability of Heavy-Tailed Stochastic Gradient Descent on Least Squares*, International Conference on Algorithmic Learning, pp. 1292-1342, 2023.

C24. X Zhang, NS Aybat, M Gürbüzbalaban, *SAPD+: An accelerated stochastic method for nonconvex-concave minimax problems*, Advances in Neural Information Processing Systems (NeurIPS), 35, pp. 21668-21681, 2022.

C23. B Mu, S Soori, B Can, M Gürbüzbalaban, MM Dehnavi, *HYLO: A hybrid low-rank natural gradient descent method*, SC22: International Conference for High Performance Computing, Networking, Storage and Analysis, pp. 1-16, IEEE, 2022.

C22. Alexander Camuto, George Deligiannidis, Murat A. Erdogdu, Mert Gürbüzbalaban*, Umut Simsekli*, Lingjiong Zhu, *Fractal Structure and Generalization Properties of Stochastic Optimization Algorithms*, Advances in Neural Information Processing Systems (NeurIPS), 34, pp. 18774-18788, December 2021. (* denotes corresponding

authors).

C21. Bugra Can, Saeed Soori, Maryam M. Dehnavi, Mert Gürbüzbalaban, *L-DQN: An Asynchronous Limited-Memory Distributed Quasi-Newton Method*, IEEE Conference on Decision and Control (CDC), pp. 2386-2393. IEEE, December 2021.

C20. Alexander Camuto, Xiaoyu Wang, Lingjiong Zhu, Chris Holmes, Mert Gürbüzbalaban, Umut Simsekli, *Asymmetric Heavy Tails and Implicit Bias in Gaussian Noise Injections*, 38th International Conference on Machine Learning (ICML), PMLR, pp. 1249-1260, 2021.

C19. Mert Gürbüzbalaban, Yuanhan Hu, *Fractional moment-preserving initialization schemes for training fully-connected neural networks*, 24th International Conference on Artificial Intelligence and Statistics (AISTATS), PMLR 130:2233-2241, 2021.

C18. Mert Gürbüzbalaban, Umut Simsekli, Lingjiong Zhu, *The Heavy-Tail Phenomenon in SGD*, International Conference on Machine Learning (ICML), pp. 3964-3975, PMLR, 2021.

C17. Xuefeng Gao, Mert Gürbüzbalaban, Lingjiong Zhu, *Breaking Reversibility Accelerates Langevin Dynamics for Global Non-Convex Optimization*, Advances in Neural Information Processing Systems (NeurIPS) Conference, pp. 17850 - 1786, 2020.

C16. Yossi Arjevani, Joan Bruna, Bugra Can, Mert Gürbüzbalaban, Stefanie Jegelka, Hongzhou Lin, *IDEAL: Inexact DEcentralized Accelerated Augmented Lagrangian Method*, Neural Information Processing Systems (NeurIPS) Conference, 33, pp.20648-20659, 2020.

C15. Umut Simsekli, Lingjiong Zhu, Yee Whye Teh, Mert Gürbüzbalaban, *Fractional Underdamped Langevin Dynamics*, 37th International Conference on Machine Learning, PMLR 119, 2020.

C14. Saeed Soori, Bugra Can, Mert Gürbüzbalaban, Maryam M. Dehnavi, *ASYNCR: A Cloud Engine with Asynchrony and History for Distributed Machine Learning*, 34th IEEE International Parallel & Distributed Processing Symposium (IPDPS), pp. 429-439, IEEE, 2020.

C13. Saeed Soori, Konstantin Mischenko, Aryan Mokhtari, Maryam M. Dehnavi, Mert Gürbüzbalaban, *DAve-QN: A Distributed Averaged Quasi-Newton Method with Local Superlinear Convergence Rate*, 23rd International Conference on Artificial Intelligence and Statistics (AISTATS), pp. 1965-1976, 2020.

C12. Umut Simsekli, Levent Sagun, Mert Gürbüzbalaban, *A Tail-Index Analysis of Stochastic Gradient Noise in Deep Neural Networks*, International Conference on Machine Learning (ICML), pp. 5827-5837, PMLR, 2019.

C11. Thanh H. Nguyen, Umut Simsekli, Mert Gürbüzbalaban, Gäel Richard, *First Exit Time Analysis of Stochastic Gradient Descent Under Heavy-Tailed Gradient Noise*, Advances in Neural Information Processing Systems (NeurIPS) Conference, 32, 2019.

C10. Necdet S. Aybat, Alireza Fallah, Mert Gürbüzbalaban, Asuman Ozdaglar, *A Universally Optimal Multistage Accelerated Stochastic Gradient Method*, Advances in Neural Information Processing Systems (NeurIPS) Conference, 32, 2019.

C9. Bugra Can, Mert Gürbüzbalaban, Lingjiong Zhu, *Accelerated Linear Convergence of Stochastic Momentum Methods in Wasserstein Distances*, International Conference in Machine Learning (ICML), pp. 891-901, PMLR, 2019.

C8. Saeed Soori, Aditya Devarakonda, Zachary Blanco, James Demmel, Mert Gürbüzbalaban, Maryam M. Dehnavi, *Reducing Communication in Proximal Newton Methods for Sparse Least Squares Problems*, Proceedings of the 47th International Conference on Parallel Processing (ICPPC), pp. 1-10, 2018.

C7. Mert Gürbüzbalaban, Asuman Ozdaglar, Pablo A. Parrilo, Nuri D. Vanli, *When Cyclic Coordinate Descent Outperforms Randomized Coordinate Descent*, Proceedings of the 31st International Conference on Neural Information Processing Systems, 30, 2017.

C6. Necdet S. Aybat, Mert Gürbüzbalaban, *Decentralized Computation of Effective Resistances and Acceleration of Consensus Algorithms*, 5th IEEE Global Conference on Signal and Information Processing (GlobalSIP), pp. 538-542. IEEE, 2017.

C5. Aryan Mokthari, Mert Gürbüzbalaban, Alejandro Ribeiro, *A Double Incremental Aggregated Gradient Method with Linear Convergence Rate for Large-scale Optimization*, 42nd IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 4696-4700. IEEE, 2017.

C4. Nuri D. Vanli, Mert Gürbüzbalaban, Asuman Ozdaglar, *A Simple Proof for the Iteration Complexity of the Proximal Gradient Algorithm*, OPT 2016 Workshop, 30th Conference on Neural Information Processing Systems (NeurIPS), 2016.

C3. Nuri D. Vanli, Mert Gürbüzbalaban, Asuman Ozdaglar, *Global convergence rate of incremental aggregated gradient methods for nonsmooth problems*, Proceedings of the 2016 IEEE 55th Conference on Decision and Control (CDC), pp. 173-178, 2016.

C2. Julie Eaton, Sara Gründel, Mert Gürbüzbalaban, Michael L. Overton, *Polynomial Stabilization with Bounds on the Controller Coefficients*, 8th IFAC Symposium on Robust Control Design (ROCOND), 8(14), 382-387, 2015.

C1. Vincent D. Blondel, Mert Gürbüzbalaban, Alexandre Megretski, Michael L. Overton, *Explicit Solutions for Root Optimization of a Polynomial Family*, Proceedings of the 49th IEEE Conference on Decision and Control (CDC 2010), pp. 485-488. IEEE, 2010.

SUBMITTED/IN
REVIEW JOURNAL
PAPERS

R9. WU Bajwa, M Gurbuzbalaban, MA Kutbay, L Zhu, M Zulqarnain, *DIGing-SGLD: Decentralized and Scalable Langevin Sampling over Time-Varying Networks*, arXiv preprint arXiv:2511.12836, **(60 pages)** available online at the [link](#).

R8. M Gürbüzbalaban, MR Islam, X Wang, L Zhu, *Generalized EXTRA stochastic gradient Langevin dynamics*, arXiv preprint arXiv:2412.01993, 2025. **(43 pages)** available online at the [link](#).

R7. C Fang*, R Dixit*, WU Bajwa, M Gürbüzbalaban, *RESIST: Resilient Decentralized Learning Using Consensus Gradient Descent*, arXiv preprint arXiv:2502.07977, 2025. **(100 pages)** (* denotes equal contribution), available online at the [link](#).

R6. T Dang, M Barsbey, AKM Sonet, M Gürbüzbalaban, U Simsekli, L Zhu, *Algorithmic Stability of Stochastic Gradient Descent with Momentum under Heavy-Tailed*

Noise, arXiv preprint arXiv:2502.00885, 2025. (**64 pages**), available online at the [link](#).

R5. U Şimşekli, M Gürbüzbalaban, S Yıldırım, L Zhu, *Differential Privacy of Noisy (S) GD under Heavy-Tailed Perturbations*, arXiv preprint arXiv:2403.02051, 2025. (**38 pages**), available online at the [link](#).

R4. Q Xu, X Zhang, NS Aybat, M Gürbüzbalaban, *A stochastic GDA method with backtracking for solving nonconvex (strongly) concave minimax problems*, arXiv preprint arXiv:2403.07806, 2024. (**38 pages**), available online at the [link](#).

R3. B Can, M Gürbüzbalaban, NS Aybat. *A Variance-Reduced Stochastic Accelerated Primal Dual Algorithm*, arXiv preprint arXiv:2202.09688, 2023. (**27 pages**), available online at the [link](#).

R2. Y Hu, X Wang, X Gao, M Gürbüzbalaban, L Zhu, *Non-convex optimization via non-reversible stochastic gradient Langevin dynamics*, arXiv preprint arXiv:2004.02823, 2023. (**45 pages**), available online at the [link](#).

R1. Umut Simsekli*, Mert Gürbüzbalaban*, Thanh H. Nguyen, Gaël Richard, Levent Sagun, *On the Heavy-Tailed Theory of Stochastic Gradient Descent for Deep Neural Networks*, 2023 (* denotes equal contribution). (**32 pages**), available online at the [link](#).

HONORS AND AWARDS

Co-recipient of a Dean’s Research Seed Fund Award (jointly with Professor Andrzej Ruszczyński and Professor Xiaodong Lin)	2025
Awarded the Office of Naval Research Grant for \$400,000	2024
Dean’s Meritorious Teaching Award	2024
Dean’s Research Professor Award	2022-2025
Dean’s Summer Fellowship Award	2021
Awarded the Office of Naval Research Grant for \$326,648 till June 2024	2021
Awarded the NSF grant DMS-2053485 for \$180,009 till June 2024	2021
Dean’s Young Research Fellow Award	2020
Co-recipient of Best Paper Honorable Mention Award (jointly with Umut Simsekli and Levent Sagun), International Conference on Machine Learning Conference 2019	
RBS Junior Faculty Research Excellence Award	2019
Awarded the NSF grant CCF-1814888 for \$464,412 till June 2021	2018
Awarded the NSF grant DMS-1723085 for \$125,000 till June 2020	2017
XX Householder Symposium Travel Award	2017
Society for Industrial and Applied Mathematics (SIAM) Travel Award	2015
Kurt Friedrichs Award for the best dissertation, NYU	2013
Henry MacCracken Fellowship, NYU	2007-2012
French Government Scholarship (Bourse d’études), École Polytechnique	2005-2007
Bronze Medal recipient in Ecole Polytechnique Scientific Project Competition with the “Biometric Iris Recognition” project	2006
Ranked 1st among all graduating engineering majors, all mathematics majors and all double major students from Bogazici University	2005
Graduated from the double major program of Bogazici University with a double-major GPA record (3.98/4.00)	2005
Nadir Orhan Bengisu Award, given to the best graduating student in the Electrical-Electronics Engineering Department, Bogazici University, Turkey	2005
Silver Medal in National Mathematical Olympiad, organized by Akdeniz University, Turkey	1999

PH.D. STUDENTS ADVISED

Can, Bugra, “Theory and methods for stochastic, accelerated and distributed optimiza-

tion,” completed May 2022, Rutgers Business School; currently an applied scientist at Amazon, New York.

Hu, Yuanhan, “Stochastic gradient and stochastic gradient MCMC methods for Bayesian learning and non-convex optimization: centralized and decentralized settings,” completed May 2023, Rutgers Business School; currently a data scientist at Wells Fargo, New York.

Zhu, Landi, “Scalable stochastic optimization methods for risk-averse and distributionally robust learning”, completed May 2023 (co-supervised with Professor Andrzej Ruszczyński), Rutgers Business School; currently a quantitative researcher at Barclays, New York, NY.

Dixit, Rishabh, “Gradient Based Methods For Nonconvex Optimization: A Dynamical Systems Viewpoint”, completed May 2024 (co-supervised with Professor Waheed Bajwa); currently a visiting research professor at the University of California, San Diego, CA.

Syed, Yasa, “Multi-Level Monte Carlo and Risk-Sensitive Stochastic Gradient Methods” (title subject to change), completion December 2025 (co-supervised with Professor Guanyang Wang), currently a quantitative researcher/developer at the financial services company Venerable, West Chester, PA.

Rafi, Hamza, 2nd year Ph.D. student, Department of Electrical and Computer Engineering, Rutgers University (jointly advised with Professor Waheed Bajwa), 2026 – present.

Kutbay, Mustafa, 1st year Ph.D. student, Rutgers Business School, 2025 – present.

Chen, Meija, 2nd year Ph.D. student, Rutgers Business School (jointly advised with Tom Lidbetter and Jian Yang), 2025 – present.

POSTDOCTORAL ADVISING

Laguel, Yassine, Postdoctoral Associate, 2022-2023; currently tenured professor at the University of Nice, France.

TEACHING & CURRICULUM DEVELOPMENT

Rutgers University

2016- present

- Created and designed the course “Optimization Methods for Machine Learning” for our Masters In Information Technology and Analytics (MITA) Program.
- Redesigned the content for our Ph.D. course ”Introduction to Linear Statistical Models” to allow more modern topics and techniques arising in business data analytics.
- (Primary) Instructor for
 - Linear Programming (Fall 2017, 2019)
 - Operations Management (Spring 2019-2025)
 - Introduction to Linear Statistical Models (Fall 2016-2022)
 - Business Research Methods (Spring 2017, Spring 2024)
 - Optimization Methods for Machine Learning (Spring 2020, Fall 2021)

Courant Institute, New York University

2007-2014

- (Primary) Instructor for
 - Calculus (Summer 2009)

- Multivariable Analysis (Spring 2014, graduate level)
- Teaching Assistant:
 - Partial Differential Equations for Finance (Spring 2011, graduate level)
 - Introduction to Math Analysis II (Spring 2010, graduate level)
 - Calculus I (Fall 2010)
 - Probability and Statistics (Spring 2009)
 - Probability, Statistics and Decision Making (Spring 2008)
 - Algebra and Calculus (Fall 2008)
- Grader:
 - Derivative Securities for Finance (Fall 2009)
 - Partial Differential Equations for Finance (Spring 2011, graduate level)

INDUSTRIAL EXPERIENCE

- Barclays Capital**, New York **Summer 2011**
 Quantitative Summer Associate: Implemented and calibrated a quasi-Gaussian short rate model with local volatility. Devised a hybrid model with an interest rate skew and developed a forward-induction based PDE approach for its calibration to local volatility.
- Jump Trading**, Chicago **Summer 2010**
 Summer Intern: Development and implementation of novel automatized quantitative strategies for high-frequency trading of index futures
- AXA Investment Managers**, Quant Team, Paris **Spring 2007**
 Visiting Quantitative Researcher: The performance of variance reduction techniques for the pricing of exotic options with Monte-Carlo and Quasi-Monte Carlo Methods are compared using theoretical analysis and experimental study. Improved the speed of the generic Monte Carlo Pricer.

SELECTED TALKS

Selected Recent Invited Talks

- The Portuguese American Optimization Workshop (PAOW) June 2025
- DIMACS Workshop on Modeling Randomness in Neural Network Training June 2024
- One World Optimization Seminars, University of Vienna May 2024
- RBS Dean's Research Professor Seminars February 2024
- Heavy Tails in Machine Learning Workshop, University of Cambridge, Newton Institute for Mathematical Sciences April 2024
- Erice Workshop on Robustness and Resilience in Stochastic Optimization and Statistical Learning: Mathematical Foundations May 2022

PROFESSIONAL SERVICE

- Associate Editor, Mathematics of Operations Research**, 2024 - present.
- Program Committee Member for the 7th Learning for Dynamics and Control (L4DC) Conference**, Michigan, 2025.
- Co-Organizer and Program Chair for the NeurIPS Workshop "Heavy Tails in ML: Structure, Stability, Dynamics"** in December 2023 jointly with Michael Mahoney (Berkeley), Stefanie Jegelka (MIT) and Umut Simsekli (Ecole Normale Su-

perieure/INRIA). Only a relatively small number of workshops are admitted to NeurIPS Conference each year among all the applications. It involves reviewing about 30 submitted papers, and handling invited talks and posters. Further details are available at <https://sites.google.com/view/heavy-tails-ml-2023>.

Informs Nicholson Prize Committee (2021)

Track Chair in Operations Research for the Institute of Industrial and Systems Engineers (IISE) 2019 Conference.

Session co-organizer, Informs Annual Conference, Phoenix, Arizona, 2023.

Session co-organizer, SIAM Conference in Optimization, Seattle, 2023.

Session co-organizer, Informs Annual Conference, Indianapolis, 2022.

Session co-organizer, Informs Annual Conference, Anaheim, California, 2021.

Special Issue Editor for the “Probability in the Engineering and Informational Sciences” (PEIS) journal with editor-in-chief Prof. Sheldon Ross, Special Issue Title: “Probability in Service Operations and Data Analytics”.

Panel participant in the “National Science Foundation” to evaluate research proposals and referee for the grant agency “Natural Sciences and Engineering Research, Canada”.

Conference on Learning Theory (COLT), Reviewing Committee, 2020.

Session organizer, Informs Annual Conference, 2018-2020.

Session organizer, Informs International Conference, Hawaii, 2016.

REVIEWER FOR

Operations Research, Mathematics of Operations Research, INFORMS Journal On Optimization, Journal of Machine Learning Research, Mathematical Programming, SIAM Journal on Optimization, Optimization Methods and Software, Neural Information Processing Systems Conference, International Conference on Machine Learning, Conference on Learning Theory (COLT), SIAM Journal on Mathematics of Data Science, SIAM Journal on Control and Optimization, SIAM Journal on Scientific Computing, SIAM Journal on Matrix Analysis and Applications, IEEE Transactions on Automatic Control, IEEE Transactions on Control of Network Systems, IEEE Global Conference on Signal and Information Processing (GlobalSIP), IEEE Access, IEEE Transactions on Signal Processing, BIT Numerical Mathematics, Experimental Mathematics, Journal of Nonlinear Analysis

UNIVERSITY SERVICE

Senator at Rutgers University (Spring 2024 - present).

Member of the Visiting Professor Hiring Committee, Department of Management and Information Systems, Rutgers Business School, Fall 2024.

Co-Organizer of the Signal and Information Processing (SIP) Seminars at the Busch campus with Dr. Waheed Bajwa and Dr. Shirin Jalali, 2023-2024.

Rutgers Business School New Brunswick Undergraduate Program Policy Committee (2021 - 2023).

Co-organizer of the “Optimization Seminars” jointly with Dr. Yassine Laguel at the MSIS department, Spring 2023.

Rutgers Business School Curriculum Redesign Committee (2021/2022 Academic Year).

Rutgers University SASHP Faculty Mentor (Spring 2021, Fall 2021).

Member of the PhD Qualifier Exam Committee 2020-present, Department of MSIS, Rutgers University.

Rutgers University Scarlet Honor Council Member 2020-2021.

Organizer for the departmental seminars, (Department of Management Science and Information Systems, Rutgers University), September 2016-Spring 2020 (jointly with Thomas Lidbetter).

Member of the Masters in Information Technology and Analytics Curriculum Review Committee, Rutgers Business School, September 2019.

Admission committee for the PhD in Operations Research, Rutgers Business School. 2017 - 2018.

Advisor for the summer research projects of Ehsan Teymourian, Landi Zhu and Bugra Can at the Rutgers Business School.

Representative for Management Science and Information Systems Department at Rutgers Business School:

- AACSB Accreditation Meeting, March 2019.
- Member of the hiring committee for the Ph.D. program in Operations Research, September 2017-present.
- AACSB Accreditation Meeting, October 2016.
- RBS Graduation Ceremony, 2019.
- MBA and graduate programs open house, Rutgers Business School, Newark, September 2016-2021.

LANGUAGES

Turkish (Native), English (Fluent), French (Fluent), German (Advanced Beginner)