JELENA DIAKONIKOLAS

Department of Computer Sciences, University of Wisconsin-Madison
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maiden name: Marašević

ACADEMIC APPOINTMENTS

Assistant Professor — **Jan. 2020–Present**, University of Wisconsin-Madison, Madison, WI,
Department of Computer Sciences

Postdoctoral Fellow — **2018–Dec. 2019**, UC Berkeley, Berkeley, CA,
UC Berkeley Foundations of Data Analysis Institute
Host: Prof. Michael I. Jordan

Research Fellow — **Fall 2018**, UC Berkeley, Berkeley, CA,
Simons Institute for the Theory of Computing: Program on Foundations of Data Science

Postdoctoral Associate — **2016–2018**, Boston University, Boston, MA,
College of Arts and Sciences, Department of Computer Science
Host: Prof. Lorenzo Orecchia

VISITING POSITIONS

Visiting Professor — **Fall 2021**, Simons Institute for the Theory of Computing, Berkeley, CA
Program on Geometric Methods in Optimization and Sampling

Visiting Scholar — **Fall 2017**, Simons Institute for the Theory of Computing, Berkeley, CA
Program on Bridging Continuous and Discrete Optimization

Visiting Scholar — **2016–2017**, Massachusetts Institute of Technology, Cambridge, MA
Laboratory for Information & Decision Systems
Host: Prof. Eytan Modiano

EDUCATION

Ph.D. in Electrical Engineering — **2012–2016**, Columbia University, New York, NY
Graduate School of Arts and Sciences, Department of Electrical Engineering
Cumulative GPA: 4.11/4.0, M.Phil. awarded in Oct. 2015
Thesis: Resource Allocation in Wireless Networks: Theory and Applications
Advisors: Prof. Gil Zussman and Prof. Cliff Stein

M.S. in Electrical Engineering — **2011–2012**, Columbia University, New York, NY
School of Engineering and Applied Science, Department of Electrical Engineering
Final GPA: 4.09/4.0
Master of Science Award of Excellence

B.S. in Electrical Engineering and Computing — **2007–2011**, University of Belgrade, Belgrade, Serbia
School of Electrical Engineering
Major: Communication Systems and Microwave Engineering
Final GPA: 9.82/10.0 (top 2%)
Thesis: Antenna Array Optimization Using a Genetic Algorithm
Thesis advisor: Prof. Dragan Olćan

AWARDS & HONORS

Faculty Awards — **2024**, AFOSR Young Investigator Award

Fellowship Awards — **2018**, Simons-Berkeley Research Fellowship and Microsoft Research Fellowship,
Foundations of Data Science program
2015, Qualcomm Innovation Fellowship

2010, Government of the Republic of Serbia, Ministry of Youth and Sports, *Dositeja* (Awarded annually to top 1% of senior undergraduate students from Serbian universities.)
2009, Government of the Republic of Serbia, Ministry of Education and Science – Republic Foundation for the Development of Scientific and Artistic Youth Fellowship (Awarded annually to 35 students from all engineering schools in Serbia.)

Academic Honors

2017, Morton B. Friedman Memorial Prize for Excellence at Columbia Engineering
2017, Columbia University, EE dept. Collaborative Research Award
2013, Columbia University, EE dept. Master of Science Award of Excellence

Teaching & Mentoring Awards

2023, UW-Madison, Provost's Award for Mentoring Undergraduates in Research, Scholarly, and Creative Activities
2013, Columbia University, EE dept. Jacob Millman Prize for Excellence in Teaching Assistance

Recognitions

2016, Networking Networking Women, 10 Women in Networking/Communications That You Should Watch
2015, MIT EECS Rising Star

Service Awards

2023, Mathematical Programming Meritorious Service Award
2021, Golden bricks (CS department service award)
2019 NeurIPS Top Reviewer

PUBLICATIONS

Preprints & Manuscripts

X. Cai, J. Diakonikolas, "Last Iterate Convergence of Incremental Methods and Applications in Continual Learning," arXiv:2403.06873, 2024.

R. Mehta, J. Diakonikolas, Z. Harchaoui, "A Primal-Dual Algorithm for Faster Distributionally Robust Optimization," arXiv:2403.10763, 2024.

X. Cai, CY. Lin, J. Diakonikolas, "Empirical Risk Minimization with Shuffled SGD: A Primal-Dual Perspective and Improved Bounds," arXiv:2306.12498, 2023.

J. Kim, C. Park, A. Ozdaglar, J. Diakonikolas, E. Ryu "Mirror Duality in Convex Optimization," arXiv:2311.17296, 2023.

J. Diakonikolas, L. Orecchia, "Conjugate Gradients and Accelerated Methods Unified: The Approximate Duality Gap View," arXiv preprint, arxiv:1907.00289, 2019. Unpublished note.

J. Diakonikolas and L. Orecchia, "Solving Packing and Covering Linear Programs in $\tilde{O}(\epsilon^{-2})$ Distributed Iterations with a Single Algorithm and Simpler Analysis," arXiv preprint, arXiv:1710.09002, 2017. Unpublished note.

Conference Proceedings & Refereed Workshops

N. Zarifis, P. Wang, I. Diakonikolas, J. Diakonikolas, "Robustly Learning Single-Index Models via Alignment Sharpness," *accepted to* ICML'24, 2024.

X. Cai, A. Alacaoglu, J. Diakonikolas, "Variance-reduced Halpern Iteration for Finite-Sum Monotone Inclusions," in Proc. ICLR'24, 2024.

D. Chakrabarti, J. Diakonikolas, C. Kroer, "Block-coordinate Methods and Restarting for Solving Extensive-form Games," in Proc. NeurIPS'23, 2023. (α-β ordering)

I. Diakonikolas, J. Diakonikolas, D. Kane, P. Wang, N. Zarifis, "Near-optimal Bounds for Learning Gaussian Halfspaces with Random Classification Noise," in Proc. NeurIPS'23, 2023. (α-β ordering)

S. Li, Y. Cheng, I. Diakonikolas, J. Diakonikolas, R. Ge, S. Wright, "Robust Second-Order Nonconvex Optimization and Its Application to Low-Rank Matrix Sensing," in Proc. NeurIPS'23, 2023. (α-β ordering of non-first authors)

P. Wang, N. Zarifis, I. Diakonikolas, J. Diakonikolas, "Robustly Learning a Single Neuron via Sharpness," in Proc. ICML'23, 2023. **Oral presentation.**

CY. Lin, C. Song, J. Diakonikolas, "Accelerated Cyclic Coordinate Dual Averaging with

Extrapolation for Composite Convex Optimization," in Proc. ICML'23, 2023.

X. Cai, C. Song, S. Wright, J. Diakonikolas, "Cyclic Block Coordinate Descent with Variance Reduction for Composite Nonconvex Optimization," in Proc. ICML'23, 2023.

I. Diakonikolas, J. Diakonikolas, D. Kane, P. Wang, N. Zarifis, "Information-Computation Tradeoffs for Learning Margin Halfspaces with Random Classification Noise," in Proc. COLT'23, 2023. (α-β ordering)

C. Song, CY. Lin, S. Wright, J. Diakonikolas, "Coordinate Linear Variance Reduction for Generalized Linear Programming," in Proc. NeurIPS'22, 2022.

J. Diakonikolas, C. Li, S. Padmanabhan, C. Song, "A Fast, Scale-Invariant Algorithm for Non-negative Least Squares with Non-negative Data," in Proc. NeurIPS'22, 2022. (α-β ordering)

X. Cai, C. Song, C. Guzmán, J. Diakonikolas, "A Stochastic Halpern Iteration with Variance Reduction for Stochastic Monotone Inclusion," in Proc. NeurIPS'22, 2022.

C. Song, S. Wright, J. Diakonikolas "Variance Reduction via Primal-Dual Accelerated Dual Averaging for Nonsmooth Convex Finite-Sums," in Proc. ICML'21, 2021. **Long talk.**

A. Carderera, J. Diakonikolas, E. Lin, S. Pokutta "Parameter-free Locally Accelerated Conditional Gradients," in Proc. ICML'21, 2021. (α-β ordering)

J. Diakonikolas, C. Daskalakis, M. I. Jordan, "Efficient Methods for Structured Nonconvex-Nonconcave Min-Max Optimization," in Proc. AISTATS'21, 2021.

J. Diakonikolas, "Halpern Iteration for Near-Optimal and Parameter-Free Monotone Inclusion and Strong Solutions to Variational Inequalities", in Proc. COLT'20, 2020.

N. Chatterji*, J. Diakonikolas*, M. I. Jordan, P. L. Bartlett, "Langevin Monte Carlo Without Smoothness," in Proc. AISTATS'20, 2020. (*equal contribution)

J. Diakonikolas, A. Carderera, S. Pokutta, "Locally Accelerated Conditional Gradients," in Proc. AISTATS'20, 2020.

J. Diakonikolas, A. Carderera, S. Pokutta, "Breaking the Curse of Dimensionality (Locally) to Accelerate Conditional Gradients," NeurIPS OPT-ML'19, 2019.

J. Diakonikolas, C. Guzmán, "Lower Bounds for Parallel and Randomized Convex Optimization," in Proc. COLT'19, 2019. (α-β ordering)

M. Xu, J. Diakonikolas, E. Modiano, S. Subramaniam, "A Hierarchical and Reconfigurable WDM-based Data Center Network Architecture," in Proc. IEEE ICC'19, 2019.

M. B. Cohen, J. Diakonikolas, L. Orecchia, "On Acceleration with Noise-Corrupted Gradients," in Proc. ICML'18, 2018. (α-β ordering)

J. Diakonikolas, L. Orecchia, "Alternating Randomized Block Coordinate Descent," in Proc. ICML'18, 2018. **Long talk.**

J. Diakonikolas and L. Orecchia, "Accelerated Extra-Gradient Descent: A Novel Accelerated First-Order Method," in Proc. ITCS'18, 2018.

T. Chen, J. Diakonikolas, J. Ghaderi, G. Zussman, "Hybrid Scheduling in Heterogeneous Half- and Full-Duplex Wireless Networks" in Proc. IEEE INFOCOM'18, 2018.

T. Chen, J. Diakonikolas, J. Ghaderi, G. Zussman, "Fairness and Delay in Heterogeneous Half- and Full-Duplex Wireless Networks," in Proc. Asilomar'18, 2018, **invited paper**.

J. Marašević, C. Stein, G. Zussman, "A Fast Distributed Stateless Algorithm for $\alpha-$Fair Packing Problems," in Proc. ICALP'16, 2016.

J. Marašević, T. Chen, J. Zhou, N. Reiskarimian, H. Krishnaswamy, and G. Zussman, "Full-Duplex Wireless: Algorithms and Rate Improvement Bounds for Integrated Circuit Implementations," in Proc. ACM HotWireless'16, Oct. 2016, **invited paper**.

H. Krishnaswamy, G. Zussman, J. Zhou, J. Marašević, T. Dinc, N. Reiskarimian, and T. Chen,

"Full-Duplex in a Hand-held Device - From Fundamental Physics to Complex Integrated Circuits, Systems, and Networks: An Overview of the Columbia FlexICoN Project," in Proc. Asilomar'16, 2016, **invited paper**.

J. Marašević, G. Zussman, "On the Capacity Regions of Single-Channel and Multi-Channel Full-Duplex Links," in Proc. ACM MobiHoc'16, 2016.

J. Marašević, J. Zhou, H. Krishnaswamy, Y. Zhong, G. Zussman, "Resource Allocation and Rate Gains in Practical Full-Duplex Systems," in Proc. ACM SIGMETRICS'15, 2015.

J. Marašević, C. Stein, G. Zussman, "Max-min Fair Rate Allocation and Routing in Energy Harvesting Networks: Algorithmic Analysis," in Proc. ACM MobiHoc'14, 2014.

J. Marašević, J. Janak, H. Schulzrinne, G. Zussman, "WiMAX in the Classroom: Designing a Cellular Networking Hands-on Lab," in Proc. The Second GENI Research and Educational Experiment Workshop (GREE2013), Mar. 2013, **Best Educational Paper Award**.

Journal and Magazine Publications

J. Diakonikolas, C. Guzmán, "Complementary Composite Optimization, Small Gradients in General Norms, and Applications," Mathematical Programming Series A, 2024.

C. Song, J. Diakonikolas "Cyclic Coordinate Dual Averaging with Extrapolation," SIAM Journal on Optimization, vol. 33, no. 4, pp. 2935–2961, 2023.

J. Diakonikolas, P. Wang, "Potential Function-based Framework for Making the Gradients Small in Convex and Min-Max Optimization," SIAM Journal on Optimization, vol. 32., no. 3, 2022.

J. Diakonikolas, M. I. Jordan, "Generalized Momentum-Based Methods: A Hamiltonian Perspective," , SIAM Journal on Optimization, vol. 31, no. 1, pp. 915–944, 2021.

J. Diakonikolas, M. Fazel, L. Orecchia, "Fair Packing and Covering on a Relative Scale," (earlier title: "Width-Independence Beyond Linear Objectives: Distributed Fair Packing and Covering Algorithms"), SIAM Journal on Optimization, vol. 30, no. 4, pp. 3284–3314, 2020.

J. Diakonikolas, C. Guzmán, "Lower Bounds for Parallel and Randomized Convex Optimization," Journal of Machine Learning Research, vol. 21, no. 5, pp. 5:1-5:31, 2020. (α-β ordering)

T. Chen, J. Diakonikolas, J. Ghaderi, G. Zussman, "Hybrid Scheduling in Heterogeneous Half- and Full-Duplex Wireless Networks" IEEE/ACM Transactions on Networking, vol. 28, no. 2, pp. 764–777, 2020.

J. Diakonikolas and L. Orecchia, "The Approximate Duality Gap Technique: A Unified Theory of First-Order Methods," SIAM Journal on Optimization, vol. 29, no. 1, pp. 660–689, 2019.

N. Reiskarimian, T. Dinc, J. Zhou, M. B. Dastjerdi, T. Chen, J. Diakonikolas, G. Zussman, H. Krishnaswamy, "A one-way ramp to a two-way highway: Integrated magnetic-free non-reciprocal antenna interfaces for full duplex wireless," IEEE Microwave Magazine, vol. 20, no. 2, pp. 56–75, 2019, **invited paper**.

J. Marašević and G. Zussman, "On the Rate Regions of Single-Channel and Multi-Channel Full-Duplex Links," IEEE/ACM Transactions on Networking, vol. 26, no. 1, pp. 47–60, Feb. 2018.

J. Zhou, N. Reiskarimian, J. Diakonikolas, T. Dinc, T. Chen, G. Zussman, H. Krishnaswamy, "Integrated Full-Duplex Radios," IEEE Communications Magazine, vol. 55, no. 4, pp. 142–151, 2017, **invited paper**.

J. Marašević, C. Stein, G. Zussman, "Max-min Fair Rate Allocation and Routing in Energy Harvesting Networks: Algorithmic Analysis," Algorithmica, vol. 78, no. 2, pp. 521–557, 2017.

J. Marašević, J. Zhou, H. Krishnaswamy, Y. Zhong, G. Zussman, "Resource Allocation and

Rate Gains in Practical Full-Duplex Systems," IEEE/ACM Transactions on Networking, vol. 25, no. 1, pp. 292–305, Feb. 2017.

Non-Refereed Workshops

J. Zhou, J. Marašević, G. Zussman, H. Krishnaswamy, "Co-design of Full-duplex RFIC and Resource Allocation Algorithms," IEEE Power Amplifier Symposium, Sept. 2015.

Demos

T. Chen, J. Zhou, M. B. Dastjerdi, J. Diakonikolas, H. Krishnaswamy, G. Zussman, "Demo Abstract: Full-Duplex with a Compact Frequency Domain Equalization-based RF Canceller," in Proc. IEEE INFOCOM'17, 2017.

T. Chen, J. Zhou, N. Grimwood, R. Fogel, J. Marašević, H. Krishnaswamy, G. Zussman, "Demo: Full-Duplex Wireless based on a Small Form-Factor Analog Self-Interference Canceller," in Proc. ACM MobiHoc'16, 2016.

T. Chen, J. Zhou, J. Marasevic, H. Krishnaswamy, and G. Zussman, "Double-Talk: Full-Duplex Wireless for Next-Generation Communications," presented at NYC Media Lab's Annual Summit, Columbia University, New York, NY, 2016, **Honorable Mention Award**.* *Selected among the total of 13 awarded demos out of about 140 presented demos.

TALKS

UWashington

April 2024, "Fine-Grained Complexity of Nonsmooth Optimization," Distinguished Seminar in Optimization & Data, University of Washington, Seattle, WA, **invited talk**

Berkeley IEOR

March 2024, "Cyclic Block Coordinate Methods on a Finer Scale: Tighter Bounds and New Methods," Berkeley IEOR Seminar Series, UC Berkeley, Berkeley, CA, **invited talk**

IPAM

February 2024, "Robust Learning of a Single Neuron: Bridging Computational Gaps Using Insights from Optimization," IPAM EnCore Workshop on Computational vs Statistical Gaps in Learning and Optimization, IPAM UCLA, Los Angeles, CA, **invited talk**

UPenn

February 2024, "Cyclic Block Coordinate Methods on a Finer Scale: Tighter Bounds and New Methods," Optimization Seminar, UPenn, Philadelphia, PA, **invited talk**

Simons

November 2023, "Robust Learning of a Single Neuron via Sharpness," Workshop on Optimization and Algorithm Design, Simons Institute for the Theory of Computing, Berkeley, CA, **invited talk**

ICSP

July 2023, "Robust ReLU Regression via Stochastic Optimization and Local Error Bounds," International Conference on Stochastic Programming, Davis, CA, **invited talk**

SIAM OP23

June 2023, "Advances in Cyclic Block Coordinate Methods: Gradient Extrapolation, Acceleration, and Variance Reduction," SIAM Conference on Optimization, Minisymposium on Recent Advancements in Optimization Methods for Machine Learning, Seattle, WA, **invited talk**

Purdue SODS

May 2023, "Advances in Cyclic Block Coordinate Methods: Gradient Extrapolation, Acceleration, and Variance Reduction," Statistics and Optimization in Data Science Workshop, Purdue University, West Lafayette, IN, **invited talk**

OSL

January 2023, "Recent Advances in Cyclic Block Coordinate Methods," Optimization and Statistical Learning Workshop, Les Houches, France, **invited talk**

IFDS Monthly

June 2022, "Halpern Iteration and Min-Max Problems," *IFDS All-Hands Montly Meeting*, online, **invited talk**

Columbia IEOR & DRO

May 2022, "Halpern Iteration and Min-Max Problems," *Columbia University IEOR-DRO Seminar Series*, online, **invited talk**

ECOM

April 2022, "Faster Empirical Risk Minimization," *East Coast Optimization Meeting*, online, **(invited) guest lecture**

IFDS

March 2022, "How to Make the Gradients Small in Convex and Min-Max Optimization," *IFDS Ideas Forum*, UW-Madison.

Simons

February 2022, "Halpern Iteration and Equilibria Problems," *Workshop on Adversarial*

Approaches in Machine Learning, Simons Institute, UC Berkeley, **invited talk**

NeurIPS OPT-ML **December 2021**, "Faster Empirical Risk Minimization," *NeurIPS OPT-ML Workshop*, online, **plenary talk**

MIT **November 2021**, "How to Make the Gradients Small in Convex and Min-Max Optimization," *Operations Research Center Colloquium Series*, MIT, **invited talk**

HIM **October 2021**, "Locally Accelerated Frank-Wolfe Methods," *Workshop on Continuous Approaches to Discrete Optimization*, Hausdorff Institute for Mathematics, **invited talk**

OPTML++ **September 2021**, "Faster Empirical Risk Minimization," *MIT LIDS OPTML++ Seminar Series*, **invited talk**

ICML **July 2021**, "Faster Empirical Risk Minimization," *ICML Workshop: Beyond First-Order Information in Machine Learning Systems*, **plenary talk**

SIAM OP21 **July 2021**, "Structure in Min-Max Optimization (and How to Use It!)," *SIAM Conference on Optimization, Minisymposium on New Results on Minimax (Saddle-Point) Problems*, **invited talk**

MTL MLOpt **June 2021**, "Structure in Min-Max Optimization (and How to Use It!)," *Montreal MLOpt Seminar Series*, **invited talk**

Digital Futures **June 2021**, "Structure in Min-Max Optimization (and How to Use It!)," *Digital Futures Fly-high Fika Seminars, KTH*, **invited talk**

Google **May 2021**, "Fair Packing and Applications to Congestion Control," *Google Algorithms Workshop – Mobility Workshop*, **invited talk**

Cornell ORIE **April 2021**, "Structure in Min-Max Optimization (and How to Use It!)," *Cornell ORIE*, **colloquium talk**

IMSI **April 2021**, "On Min-Max Optimization and Halpern Iteration," *The Multifaceted Complexity of Machine Learning Workshop*, Institute for Mathematical and Statistical Innovation (IMSI), Chicago, IL, **invited talk**

WiTML **April 2021**, "Structure in Min-Max Optimization (and How to Use It!)," *Women in Theoretical Machine Learning Symposium*, TTIC & IMSI, **invited talk**

JHU MINDS/CIS **September 2020**, "On Min-Max Optimization and Halpern Iteration," *Johns Hopkins University*, **MINDS & CIS Seminar, invited**

UW-Madison **February 2020**, "Langevin Monte Carlo Without Smoothness," *University of Wisconsin-Madison*, Madison, WI, **Probability seminar**

Simons **December 2019**, "Langevin Monte Carlo Without Smoothness," *Foundations of Data Science Reunion*, Simons Institute for the Theory of Computing, Berkeley CA

TTIC **November 2019**, "Langevin Monte Carlo Without Smoothness," *TTIC*, Chicago, IL, **invited talk**

BAIR Seminar **November 2019**, "Langevin Monte Carlo Without Smoothness," *UC Berkeley*, Berkeley, CA, **BAIR seminar**

INFORMS **October 2019**, "Distributed Algorithms For Fair Packing and Covering Problems," *INFORMS session Bridging Discrete and Continuous Optimization*, Seattle, WA

INFORMS **October 2019**, "On Acceleration With Noise-corrupted Gradients," *INFORMS session Optimization in Machine Learning: Accelerated Methods and Stochastic Optimization*, Seattle, WA

INFORMS **October 2019**, "A Hamiltonian Perspective On Momentum-based Methods," *INFORMS session Continuous-time Perspective in Optimization*, Seattle, WA

MURI Annual PI Meeting **September 2019**, "Langevin Monte Carlo Without Smoothness," *MURI Annual PI Meeting @UCLA*, Los Angeles, CA

UW-Madison **September 2019**, "Continuous-time Perspective on Optimization Algorithms in Machine Learning," *Machine Learning and Optimization Research Consortium Industry Affiliates Day, University of Wisconsin-Madison*, Madison, WI, **invited talk**

UW-Madison **September 2019**, "Langevin Monte Carlo Without Smoothness," *University of Wisconsin-Madison*, Madison, WI, **IFDS seminar**

ADSI Summer School **August 2019**, "A Tutorial on Convex Optimization: First-order Methods," *ADSI Summer School on Foundations of Data Science*, UW-Seattle, Seattle, WA, **invited lecture**

MLSE **June 2019**, "The Approximate Duality Gap Technique and Applications," *Machine Learning in Science and Engineering Conference*, Atlanta, GA, **invited talk**

MMLS **June 2019**, "Lower Bounds for Parallel and Randomized Convex Optimization," *Midwest Machine Learning Symposium*, Madison, WI, **invited talk**

UC Chile **April 2019**, "Invariance in First-Order Optimization," *Instituto de Ingeniería Matemática y Computacional*, Universidad Cátolica de Chile, Santiago, Chile, **invited talk**

OSL **March 2019**, "Invariance in First-Order Optimization," *Optimization and Statistical Learning Workshop*, Les Houches, France, **invited talk**

ITA **February 2019**, "Lower Bounds for Parallel and Randomized Convex Optimization," *Information Theory and Applications Workshop*, San Diego, CA, **invited talk**

UC Davis **February 2019**, "Invariance in First-Order Convex Optimization," *Math of Data and Decisions Seminar*, UC Davis, Davis, CA, **invited talk**

Simons **December 2018**, "Lower Bounds for Parallel and Randomized Convex Optimization," *Data Science Mini-Workshop*, Simons Institute for the Theory of Computing, Berkeley CA

Simons **December 2018**, "Width-Independence Beyond Linear Objectives: Distributed Algorithms for Fair Packing and Covering Problems," *Bridging Continuous and Discrete Optimization Reunion*, Simons Institute for the Theory of Computing, Berkeley CA

WoLA **June 2018**, "Block Coordinate Descent and Exact Minimization," *Workshop on Local Algorithms*, MIT, Cambridge, MA, **invited talk**

USC **May 2018**, "Conservation Laws and First-Order Optimization: Novel Insights and Algorithms," *University of Southern California*, Los Angeles, CA, **ISE colloquium talk**

UW-Madison **April 2018**, "Conservation Laws and First-Order Optimization: Novel Insights and Algorithms," *University of Wisconsin-Madison*, Madison, WI, **CS colloquium talk**

Dartmouth **March 2018**, "Conservation Laws and First-Order Optimization: Novel Insights and Algorithms," *Thayer School of Engineering at Dartmouth*, Hanover, NH, **special seminar**

Schloss Dagstuhl **March 2018**, "Fairness, Congestion Control, and Scheduling," *Schloss Dagstuhl Seminar on Scheduling*, Wadern, Germany, **invited talk**

MSR **February 2018**, "A Unifying Theory of First-Order Methods and Applications," *Microsoft Research*, Redmond, WA, **invited talk**

USC **April 2017**, "From Networked Systems to Theory and Back: Full-Duplex Wireless and Beyond," *University of Southern California*, Los Angeles, CA, **CS colloquium talk**

Caltech **April 2016**, "A Fast Distributed Algorithm for α-Fair Packing Problems," *Caltech*, Pasadena, CA, **RSRG seminar**

Bell-Labs **November 2015**, "Full-Duplex Wireless: Resource Allocation and Rate Gains for Realistic Hardware Models," *Bell-Labs*, Murray Hill, NJ, **invited talk**

Google Research **June 2015**, "A Fast Distributed Algorithm for α-Fair Packing Problems," *Google Research*, New York, NY, **invited talk**

USC **May 2015**, "Full-Duplex Wireless: Resource Allocation and Rate Gains for Realistic Hardware Models," *University of Southern California*, Los Angeles, CA, **CS colloquium talk**

MSR **May 2015**, "A Fast Distributed Algorithm for α-Fair Packing Problems," *Microsoft Research Redmond Theory Group*, Redmond, WA, **invited talk**

UCSB **May 2015**, "Full-Duplex Wireless: Resource Allocation and Rate Gains for Realistic Hardware Models," *UCSB*, Santa Barbara, CA, **CS colloquium talk**

GENI **March 2014**, "GENI in the Classroom: Teaching Cellular Networking with WiMAX Hands-on Labs," *19th GENI Engineering Conference (GEC19)*, Atlanta, GA, **invited talk**

FUNDING

AFOSR **06/01/2024–05/31/2027**, Air Force Office of Scientific Research Young Investigator Program, Mathematical Optimization "Towards Fine-Grained Complexity of Nonsmooth Optimization"
Amount awarded: $450K
Role: (sole) PI

ONR **04/01/2022–03/31/2025**, Office of Naval Research, Mathematical Data Science Program "Structure-Based Optimization for Data Science"
Amount awarded: $360K
Role: (sole) PI

NSF Small AF **10/01/2020–9/30/2023**, National Science Foundation, "AF: RI: Small: Computationally Efficient Approximation of Stationary Points in Convex and Min-Max Optimization"
Amount awarded: $350K
Role: (sole) PI

WARF Fall Competition **09/01/2022–06/30/2023**, Wisconsin Alumni Research Foundation (WARF), Fall Research Competition, "Robust Stochastic Optimization for Machine Learning"
Amount awarded: $42.2K
Role: (sole) PI

exploreCSR **10/21/2022–08/31/2023**, Google Research, "Wisconsin Science and Computing Emerging Research Stars (WISCERS)"
Amount awarded: $32K
Role: program organizer, jointly with Shivaram Venkataraman

exploreCSR **10/21/2021–08/31/2022**, Google Research, "Wisconsin Science and Computing Emerging Research Stars (WISCERS)"
Amount awarded: $29K
Role: program organizer, jointly with Shivaram Venkataraman

exploreCSR **10/21/2020–08/31/2021**, Google Research, "Wisconsin Science and Computing Emerging Research Stars (WISCERS)"
Amount awarded: $18K
Role: program organizer, jointly with Shivaram Venkataraman

MENTORING AND ADVISING

Postdoc **Nov. 2020–April 2022**, Chaobing Song, UW-Madison CS & IFDS (now at Huawei)

Ph.D. **Spring 2020–Present**, Cheuk Yin (Eric) Lin, CS Ph.D. student at UW-Madison

Fall 2020–Present, Xufeng Cai, CS Ph.D. student at UW-Madison

Fall 2020–Summer 2022, Chenghui Li, Stat Ph.D. student at UW-Madison

Fall 2021–Present, Puqian Wang, CS M.S./Ph.D. student at UW-Madison

Fall 2021–Present, Shuyao Li, CS M.S./Ph.D. student at UW-Madison

Intern **Summer 2021**, Swati Padmanabhan, Ph.D. student at University of Washington

M.S. **Spring 2023–Spring 2024**, Rahul Choudhary, optimization on a relative scale, M.S. student at UW-Madison CS

Spring 2023, Govind Gopakumar, strategic classification, M.S. student at UW-Madison CS

Summer 2022, Lakshmi Muraleedharan, fast optimization for packing & covering linear programs, M.S. student at UW-Madison ISyE

Spring 2018–Summer 2018, Cheuk Yin (Eric) Lin, nonconvex optimization, M.S. student at

Boston University (now a Ph.D. student at UW-Madison)

Undergraduate

Spring 2023–Fall 2023, Nott Laoaron, multiplicative gradient methods, CS undergrad at UW-Madison

Spring 2022–Spring 2023, Xintong Li, adaptive gradient methods, CS undergrad at UW-Madison (now a Ph.D. student at UCSD)

Summer 2022–Spring 2023, Binhao Chen, faster optimization for packing & covering linear programs, CS undergrad at UW-Madison (now a Ph.D. student at Brown)

Summer & Fall 2020, Puqian Wang, project on optimal complexity of minimizing gradients in convex and min-max optimization, math undergrad exchange student from Shandong University at UW-Madison (now a Ph.D. student at UW-Madison)

TEACHING EXPERIENCE

2020–Present University of Wisconsin-Madison, Madison, WI

Spring 2024, CS 639 Theoretical Foundations of Data Science

Instructor

Fall 2023, CS/ISyE/Math/Stat 726 Nonlinear Optimization I

Spring 2023, CS 639 Foundations of Data Science

Fall 2022, CS/ISyE/Math/Stat 726 Nonlinear Optimization I

Spring 2022, CS 639 Foundations of Data Science **[new course]**

Fall 2020, CS/ISyE/Math/Stat 726 Nonlinear Optimization I

Spring 2020, CS/ISyE/Math/Stat 726 Nonlinear Optimization I

SERVICE AND OUTREACH

Thesis Committees

2023, *UW-Madison*. Committee member on Augustine Tang's Ph.D. preliminary exam committee (advisor: Anru Zhang).
2023, *UW-Madison*. Committee member on Sourav Pal's Ph.D. preliminary exam committee (advisor: Vikas Singh).
2023, *UW-Madison*. Committee member on Thanasis Pittas' Ph.D. qualifying exam committee (advisor: Ilias Diakonikolas).
2023, *UW-Madison*. Committee member on Nikos Zarifis' Ph.D. preliminary exam committee (advisor: Ilias Diakonikolas).
2023, *UW-Madison*. Committee member on Yue Gao's Ph.D. thesis committee (advisor: Garvesh Raskutti).
2023, *UW-Madison*. Committee member on Dekun Zhou's Ph.D. preliminary exam committee (advisor: Alberto Del Pia).
2022, *UW-Madison*. Committee member on Sourav Pal's Ph.D. qualifying exam committee (advisor: Vikas Singh).
2021, *Georgia Institute of Technology*. Committee member on Alejandro Carderera's Ph.D. thesis committee (advisor: Sebastian Pokutta).
2021, *UW-Madison*. Committee member on Yue Gao's Ph.D. preliminary exam committee (advisor: Garvesh Raskutti).
2021, *UW-Madison*. Committee member on Yuxin Sun's Ph.D. preliminary exam committee (advisor: Ilias Diakonikolas).
2021, *Université Toulouse 1 Capitole and D.I. École Normale Supérieure*. Committee member on Radu-Alexandru Dragomir's Ph.D. thesis committee (advisors: Jérôme Bolte and Alexandre d'Aspremont).
2020, *UW-Madison*. Committee member and reader on Michael O'Neill's Ph.D. thesis committee (advisor: Stephen Wright).
2020, *Tsinghua University*. Committee member and reviewer on Chaobing Song's

Ph.D. thesis committee (advisors: Yi Ma and Yong Jiang).
2018, *MIT*. Reader on Thomas Stahlbuhk's Ph.D. thesis committee (advisor: Eytan Modiano).

Program Committees

2024, *SODA'24*. Program committee member.
2024, *FOCS'24*. Program committee member.
2024, *NeurIPS'24*. Workshop review committee member (declined AC invitation).
2024, *COLT'24*. Senior PC Member.
2024, *ICML'24*. Area Chair.
2024, *ITCS'24*. Program committee member.
2024, *ICLR'24*. Area Chair.
2023, *NeurIPS'23*. Workshop review committee member (declined AC invitation).
2023, *COLT'23*. Senior PC Member.
2023, *ICML'23*. Area Chair.
2023, *ICLR'23*. Area Chair.
2022, *NeurIPS'22*. Area Chair.
2022, *COLT'22*. Senior PC Member.
2022, *ICLR'22*. Area Chair.
2021, *NeurIPS'21*. Area Chair.
2021, *ICML'21*. Workshop review committee member.
2021, *ICLR'21*. Area Chair.
2020, *ICML'20*. Meta-reviewer (Area Chair).
2020, *ICALP'20*. Program committee member.
2018, *ICNP'18*. Technical program committee member.
2018, *NETGCOOP'18*. Technical program committee member.

Workshops & Symposia

2024, *Optimization for Machine Learning (OPT-ML 2024)*.
2023, *Advances in First-Order Primal-Dual Methods Minisymposium at SIAM OP'23*. Minisymposium co-organizer.
2022, *Order Up! The Benefits of Higher-Order Optimization in Machine Learning, NeurIPS'22 Workshop*. Workshop co-organizer.
2021, *Sampling Algorithms and Geometries on Probability Distributions, Simons Institute for the Theory of Computing*. Workshop chair.
2021, *INFORMS sessions: Frontiers in Stochastic Optimization* and *Faster Conditional Gradient Methods*. Session chair.
2019, *Conference on Optimization, Focus Program on Data Science and Optimization, Fields Institute Toronto*. Workshop co-organizer.
2019, *INFORMS session: Continuous-time Perspective in Optimization*. Session chair.

Broadening Participation

2020–Present, *WISCERS exploreCSR*. Co-organizing a research-focused mentorship program whose goal is to increase research participation among undergraduate students from historically underrepresented groups in computing.
2020/2021, *UW-Mercile J. Lee Scholars Program (MJLSP)*. Serving as a "mentor-friend:" a faculty mentor to one of the undergraduate Powers-Knapp Scholars.

Journal Reviews

2012–Present, *SIAM Journal on Optimization*, *Mathematical Programming*, *Mathematics of Operations Research*, *IEEE Transactions on Wireless Communications*, *IEEE Transactions on Mobile Computing*, *IEEE/ACM Transactions on Networking*, *IEEE Transactions on Control of Network Systems*, *Elsevier Ad Hoc Networks*, *IEEE Communication Letters*, *IEEE Transactions on Vehicular Technology*, *ACM Transactions on Embedded Computing Systems*, *Algorithmica*

Conference Reviews

2012–Present, *NeurIPS* (a top reviewer in 2019 – awarded free registration), *COLT, AISTATS, ACM SIGMETRICS, ACM MobiHoc, ACM MobiCom, IEEE INFOCOM, ACM PODC, EATCS ICALP, ACM-SIAM SODA, APPROX*