

# Ahmet Alacaoglu

## PERSONAL INFORMATION

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Wisconsin Institute for Discovery  
University of Wisconsin-Madison  
330 N Orchard St  
Madison, WI 53715 USA

alacaoglu@wisc.edu  
ahmetalacaoglu.github.io

## RESEARCH INTERESTS

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Continuous/stochastic optimization, machine learning, min-max games/variational inequalities, reinforcement learning theory

## EMPLOYMENT HISTORY

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**University of Wisconsin–Madison**, Madison, WI, USA

Wisconsin Institute for Discovery

*Postdoctoral Research Associate*

September 2021 - present

Advisor: Prof. Stephen J. Wright

**École Polytechnique Fédérale de Lausanne (EPFL)**, Lausanne, Switzerland

Institute of Electrical and Micro Engineering

*Doctoral Assistant*

September 2016 - August 2021

**University of North Carolina at Chapel Hill**, Chapel Hill, NC, USA

Department of Statistics and Operations Research

*Visiting Researcher*

September 2017 - October 2017

Host: Prof. Quoc Tran-Dinh

## EDUCATION

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**École Polytechnique Fédérale de Lausanne (EPFL)**, Lausanne, Switzerland

Ph.D. Computer and Communication Sciences

September 2016 - August 2021

Advisor: Prof. Volkan Cevher

**Bilkent University**, Ankara, Turkey

B.S. Electrical and Electronics Engineering

August 2012 - June 2016

## UNDER REVIEW

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1. **A. Alacaoglu**, V. Cevher, S. J. Wright, “On the Complexity of a Practical Primal-Dual Coordinate Method”, arXiv: 2201.07684

## PUBLICATIONS

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2. X. Cai, **A. Alacaoglu**, J. Diakonikolas, “Variance Reduced Halpern Iteration for Finite-Sum Monotone Inclusions”, *International Conference on Learning Representations (ICLR)*, 2024
3. **A. Alacaoglu**, S. J. Wright, “Complexity of Single Loop Algorithms for Nonlinear Programming with Stochastic Objective and Constraints”, *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2024
4. **A. Alacaoglu**, H. Lyu, “Convergence of First-Order Methods for Constrained Nonconvex Optimization with Dependent Data”, *International Conference on Machine Learning (ICML)*, 2023
5. **A. Alacaoglu**, A. Böhm, Y. Malitsky, “Beyond the Golden Ratio for Variational Inequality Algorithms”, *Journal of Machine Learning Research (JMLR)*, 2023

6. **A. Alacaoglu**, Y. Malitsky. “Stochastic Variance Reduction for Variational Inequality Methods”, *Conference on Learning Theory (COLT)*, 2022
7. **A. Alacaoglu**, O. Fercoq, V. Cevher. “On the convergence of stochastic primal-dual hybrid gradient”, *SIAM Journal on Optimization (SIOPT)*, 2022
8. **A. Alacaoglu**, L. Viano, N. He, V. Cevher. “A Natural Actor-Critic Framework for Zero-Sum Markov Games”, *International Conference on Machine Learning (ICML)*, 2022
9. **A. Alacaoglu**, Y. Malitsky, V. Cevher. “Convergence of adaptive algorithms for constrained weakly convex optimization”, *Advances in Neural Information Processing Systems (NeurIPS)*, 2021
10. **A. Alacaoglu**, Y. Malitsky, V. Cevher. “Forward-reflected-backward method with variance reduction”, *Computational Optimization and Applications (COAP)*, 2021
11. **A. Alacaoglu**, O. Fercoq, V. Cevher. “Random extrapolation for primal-dual coordinate descent”, *International Conference on Machine Learning (ICML)*, 2020
12. **A. Alacaoglu**, Y. Malitsky, P. Mertikopoulos, V. Cevher. “A new regret analysis for Adam-type algorithms”, *International Conference on Machine Learning (ICML)*, 2020
13. M.-L. Vladarean, **A. Alacaoglu**, Y.-P. Hsieh, V. Cevher. “Conditional gradient methods for stochastically constrained convex minimization”, *International Conference on Machine Learning (ICML)*, 2020
14. M. F. Sahin, A. Eftekhari, **A. Alacaoglu**, F. Latorre, V. Cevher. “An Inexact Augmented Lagrangian Framework for Nonconvex Optimization with Nonlinear Constraints”, *Advances in Neural Information Processing Systems (NeurIPS)*, 2019
15. O. Fercoq, **A. Alacaoglu**, I. Necoara, V. Cevher. “Almost surely constrained convex optimization”, *International Conference on Machine Learning (ICML)*, 2019
16. Q. Tran-Dinh, **A. Alacaoglu**, O. Fercoq, V. Cevher. “An Adaptive Primal-Dual Framework for Nonsmooth Convex Minimization”, *Mathematical Programming Computation*, 2019
17. A. A. Ozaslan, **A. Alacaoglu**, O. B. Demirel, T. Cukur, E. U. Saritas. “Fully automated gridding reconstruction for non-Cartesian x-space magnetic particle imaging”, *Physics in Medicine & Biology*, 2019
18. **A. Alacaoglu**, Q. Tran-Dinh, O. Fercoq, V. Cevher. “Smooth Primal-Dual Coordinate Descent Algorithms for Nonsmooth Convex Optimization”, *Advances in Neural Information Processing Systems (NeurIPS)*, 2017

## PROFESSIONAL SERVICE

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- Conference reviewer: ICML 2020-2024, NeurIPS 2019-2023, ICLR 2020-2022, 2024, COLT 2022-2024, AISTATS 2024
- Expert reviewer: ICML 2021
- Journal reviewer: SIAM J. Optim. (SIOPT), Math. Prog. (MP), Math. Oper. Res. (MOR), J. Mach. Learn (JMLR), Trans. Mach. Learn. Res. (TMLR), J. Optim. Theory Appl. (JOTA), IEEE Trans. Automat. Contr., Comput. Optim. Appl., Optim. Methods., EURO J. Comput. Optim.
- Seminar organizer, IFDS Ideas Forum, UW-Madison, Fall 2021
- Session chair, INFORMS Optimization Society Meeting, SC, USA, 2022
- Session organizer/chair, International Conference on Continuous Optimization (ICCOPT), PA, USA, 2022
- Session organizer/chair, SIAM Conference on Mathematics of Data Science (MDS), CA, USA, 2022
- Session organizer/chair, SIAM Conference on Optimization (OP23), WA, USA, 2023

## TEACHING EXPERIENCE

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Tutorial:

- “Adaptive Optimization Methods for Machine Learning and Signal Processing”, with Kfir Levy, Ali Kavis, Volkan Cevher, *EUSIPCO 2020*, Virtual

Teaching assistant for the courses:

- Mathematics of data: from theory to computation (EPFL)
- Theory and methods for reinforcement learning (EPFL)
- Advanced topics in machine learning (EPFL)
- Advanced information, computation, communication II (EPFL)
- Linear algebra and differential equations (Bilkent University)

## HONORS AND AWARDS

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- Selected as an outstanding reviewer, NeurIPS 2019, 2021, 2023, ICML 2020, ICLR 2021
- Student Travel Award, NeurIPS, 2017, 2019
- EPFL IC School Fellowship for Doctoral Studies, 2016
- Bilkent University EE Department Academic/Research Excellence Awards, 2016
- Comprehensive scholarship (tuition waiver and monthly stipend) for undergraduate study awarded by Bilkent University, 2012

## CONFERENCE PRESENTATIONS AND INVITED SEMINARS

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1. University of Minnesota, CSE DSI Machine Learning Seminar Series, Twin Cities, MN, USA, Oct 2023
2. Foundations of Computational Mathematics (FoCM 2023), Paris, France, 2023
3. SIAM Conference on Optimization (OP23), Seattle, WA, USA, 2023
4. UC Berkeley, Industrial Engineering and Operations Research Seminar, CA, USA, 2023
5. Purdue University, Industrial Engineering Seminar, IN, USA, 2023
6. University of British Columbia, Mathematics Seminar, BC, Canada, 2023
7. Washington University in St. Louis, ESE Seminar, MO, USA, 2023
8. Purdue University, Mathematics Seminar, IN, USA, 2023
9. CISP, Seminar, Germany, 2023
10. NC State University, Industrial and Systems Engineering Seminar, NC, USA, 2023
11. 12th US-Mexico Workshop on Optimization and Its Applications, Huatulco, Oaxaca, Mexico, 2023
12. Optimization in the Big Data Era, Institute for Mathematical Sciences, National University of Singapore, Singapore, 2022
13. Rensselaer Polytechnic Institute Mathematical Sciences Colloquium, NY, USA, 2022
14. Rutgers University Optim & ML Seminar, NJ, USA, 2022
15. INFORMS Annual Meeting, Indianapolis, IN, USA, 2022
16. SIAM Conference on Mathematics of Data Science (MDS), San Diego, CA, USA (Hybrid), 2022
17. International Conference on Continuous Optimization (ICCOPT), Bethlehem, PA, USA, 2022
18. Conference on Learning Theory (COLT), London, UK, 2022
19. INFORMS Optimization Society (IOS) Meeting, Greenville, SC, USA, 2022
20. International Symposium on Mathematical Programming (ISMP), Virtual, 2022
21. EUROPT, Toulouse, France (Virtual), 2021
22. International Conference on Machine Learning (ICML), Baltimore, MD, USA (Virtual), 2022
23. Advances in Neural Information Processing Systems (NeurIPS), Virtual, 2021

24. Vector Institute Seminar, Toronto, ON, Canada, 2021
25. Telecom Paris, Paris, France, 2021
26. International Conference on Machine Learning (ICML), Virtual, 2020
27. Advances in Neural Information Processing Systems (NeurIPS), Virtual, 2020
28. International Conference on Continuous Optimization (ICCOPT), Berlin, Germany, 2019
29. Advances in Neural Information Processing Systems (NeurIPS), Vancouver, BC, Canada, 2019
30. International Conference on Machine Learning (ICML), Long Beach, CA, USA, 2019
31. International Symposium on Mathematical Programming (ISMP), Bordeaux, France, 2018
32. Advances in Neural Information Processing Systems (NeurIPS), Long Beach, CA, USA, 2017