Ali Kavis

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Degrees

École Polytechnique Fédérale de Lausanne, 9/2017-8/2023
Ph.D. in School of Computer and Communication Sciences
Thesis: Universal and adaptive methods for robust stochastic optimization

Bilkent University, Ankara, Turkey, 8/2012 - 6/2017
B.S. in Computer Engineering (Salutatorian with GPA: 3.99/4.00)

Employment History

Postdoctoral Fellow, 11/2023 - Present
The University of Texas at Austin, ECE Department.

Research Assistant, 9/2017 - 8/2023
École Polytechnique Fédérale de Lausanne (EPFL), IC Department.

Research Grants

Swiss National Science Foundation, Postdoc.Mobility Grant (**CHF 120K**)
Project: *Universal and robust stochastic optimization*
Duration: 11/2023 - 10/2025. (Individual Grant, single PI)

Swiss National Science Foundation Postdoc.Mobility Return Grant (**CHF 115K**)
Project: *Parameter-free adaptive methods for robust large-scale optimization*
Duration: 09/2026 - 08/2027. (Individual Grant, single PI)

Selected Publications

(Total # of publications: 16 + 1 preprint)

[Preprint] R. Jiang*, **A. Kavis***, A. Mokhtari*. *Online Learning-guided Learning Rate Adaptation via Gradient Alignment*, Under review for ICLR 2026

[1] S. Sanyal*, H. Prairie*, R. Das*, **A. Kavis***, S. Sanghavi. *Upweighting Easy Samples in Fine-Tuning Mitigates Forgetting*, ICML 2025

[2] R. Jiang, **A. Kavis**, Q. Jin, S. Sanghavi, A. Mokhtari. *Adaptive and Optimal Second-order Optimistic Methods for Minimax Optimization*, NeurIPS 2024

[3] A. Rodomanov, **A. Kavis**, Y. Wu, K. Antonakopoulos, V. Cevher. *Universal Gradient Methods for Stochastic Convex Optimization*, ICML 2024

[4] **A. Kavis***, S. Skoulakis*, K. Antonakopoulos, L. T. Dadi, V. Cevher. *Adaptive Stochastic Variance Reduction for Non-convex Finite-Sum Minimization*, NeurIPS 2022

[5] K. Antonakopoulos*, **A. Kavis***, V. Cevher. *Extra-Newton: A First Approach to Noise-Adaptive Accelerated Second-Order Methods*, NeurIPS 2022

[6] **A. Kavis**, K. Y. Levy, V. Cevher. *High Probability Bounds for a Class of Nonconvex Algorithms with AdaGrad Stepsize*, ICLR 2022

[7] K. Y. Levy, **A. Kavis**, V. Cevher. *STORM+: Fully Adaptive SGD with Recursive Momentum for Nonconvex Optimization*, NeurIPS 2021

[8] P. Mertikopoulos, N. Hallak, **A. Kavis**, V. Cevher. *On the almost sure convergence of stochastic gradient descent in non-convex problems*, NeurIPS 2020

[9] **A. Kavis***, K. Y. Levy*, F. Bach, V. Cevher. *UniXGrad: A Universal, Adaptive Algorithm with Optimal Guarantees for Constrained Optimization*, NeurIPS 2019

[10] Y. P. Hsieh, **A. Kavis**, P. T. Y. Rolland, V. Cevher. *Mirrored Langevin Dynamics*, NeurIPS 2018

Invited Talks

INFORMS 2025, Atlanta, 2025.
Parameter-free second-order methods for min-max optimization.

ICCOPT 2025, USC, 2025.
Parameter-free second-order methods for min-max optimization.

EUROPT 2025, University of Southampton, 2025.
Parameter-free second-order methods for min-max optimization.

IFML Symposium Workshop, Simons Institute, UC Berkeley, 2024.
Parameter-free second-order methods for min-max optimization.

ODI Group (Prof. Niao He), ETH Zurich, 2024.
Parameter-free second-order methods for min-max optimization.

IFML, UT Austin, 2024.
Designing fast, parameter-free algorithms for convex optimization

SIAM Conference on Optimization, 2023.
A first approach to noise-adaptive accelerated second-order methods

SIAM MDS Conference, 2022.
High probability convergence of AdaGrad for non-convex optimization.

Teaching Experience

Teaching Assistant
Mathematics of Data: From Theory to Computation (2018-2022, Head TA in 2021)
Theory and Methods for Reinforcement Learning (2022)
Information, Computation, Communication (2020)
Practice of Object-Oriented Programming (2018)

Tutorial at EUSIPCO 2020, 1/2021
Title: *Adaptive Optimization Methods for Machine Learning and Signal Processing*
Co-lecturers: Ali Kavis*, Ahmet Alacaoglu, Kfir Levy, Volkan Cevher*

Guest Lecturer at ECE-461P Data Science Principles, UT Austin, 2024 & 2025
Lectures: *Stochastic Gradient Descent, Convex Functions*

Supervision Experience

Research paper supervision: Yongtao Wu (PhD, EPFL), paper [3]
Research paper supervision: Ruichen Jiang (PhD, UT Austin), papers [Preprint] and [2]
Research paper supervision: Qiujiang Jin (PhD, UT Austin), paper [2]
Research paper supervision: Parikshit Bansal (PhD, UT Austin), paper at the link
Research paper supervision: Rudrajit Das (PhD, UT Austin), paper [1]
Research paper supervision: Sunny Sanyal (PhD, UT Austin), paper [1]
Research paper supervision: Hayden Prairie (BSc, UT Austin), paper [1]

Honors and Awards

Spotlight Paper. NeurIPS 2018, 2019 & 2023; ICML 2025

Top Reviewer. NeurIPS 2024, ICML 2025.

Travel Award. NeurIPS 2019

EPFL IC Doctoral Studies Fellowship, 2017-2018

Bilkent University Comprehensive Scholarship (tuition waiver & stipend), 2012-2017

Professional Service

Reviewer Duty
NeurIPS, COLT, ICLR, ICML, JMLR, OJMO, Springer Machine Learning, IEEE Transactions on Information Theory

Minisymposium at SIAM OP23 (Organizer), 5/2023
Adaptivity and universality: First-order methods and beyond

Session at EUROPT 2025 (Organizer), 6/2025
Recent advances in min-max optimization

Language Skills

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