Vasilis Kontonis

University of Texas at Austin
Department of Computer Sciences
2317 Speedway, Austin, TX, USA

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Research Interests

Machine Learning, Statistics, Theoretical Computer Science

Work Experience

University of Texas at Austin
IFML Postdoctoral Fellow, 2023 – present.

Research Intern Google Research
2022, Google Research, Mountain View, California

Systems and Services Engineer GRNET
2016, Greek Research and Technology Network, Athens

Education

University of Wisconsin-Madison
Ph.D., Computer Science, 2018 – 2023.
Thesis: Learning From Imperfect Data: Noisy Labels, Truncation, and Coarsening
Advisor: Christos Tzamos

National Technical University of Athens
Master of Engineering in Electrical & Computer Engineering
Thesis: Learning Powers of Poisson Binomial Distributions
Advisor: Dimitris Fotakis

Publications [1]

***Smoothed Analysis for Learning Concepts with Low Intrinsic Dimension**
Gautam Chandrasekaran, Adam Klivans, Vasilis Kontonis,
Raghu Meka, Konstantinos Stavropoulos
Proceedings of the 37th Annual Conference on Learning Theory
Best Paper Award
COLT 2024

Active Learning with Simple Questions
Vasilis Kontonis, Mingchen Ma, Christos Tzamos
Proceedings of the 37th Annual Conference on Learning Theory
COLT 2024

***Agnostically Learning Multi-index Models with Queries**
Ilias Diakonikolas, Daniel M. Kane, Vasilis Kontonis,
Christos Tzamos, Nikos Zarifis

[1] Top publications are marked with *. Order of authors is alphabetical unless otherwise.

Proceedings of the 65th Annual Symposium on Foundations of Computer Science
FOCS 2024

Super Non-singular Decompositions of Polynomials and their Application to Robustly Learning Low-degree PTFs
Ilias Diakonikolas, Daniel M Kane, Vasilis Kontonis,
Sihan Liu, Nikos Zarifis
Proceedings of the 56th Annual ACM Symposium on Theory of Computing
STOC 2024

Active Classification with Few Queries under Misspecification
Vasilis Kontonis, Mingchen Ma, Christos Tzamos
Proceedings of the 38th Conference on Neural Information Processing Systems
NeurIPS 2024

Learning Noisy Halfspaces with a Margin: Massart is no Harder than Random
Gautam Chandrasekaran, Vasilis Kontonis, Kostas Stavropoulos, Kevin Tian
Proceedings of the 38th Conference on Neural Information Processing Systems
NeurIPS 2024

Efficient Discrepancy Testing for Learning with Distribution Shift
Gautam Chandrasekaran, Adam Klivans Vasilis Kontonis,
Kostas Stavropoulos, Arsen Vasilyan
Proceedings of the 38th Conference on Neural Information Processing Systems
NeurIPS 2024

Optimizing Solution-Samplers for Combinatorial Problems: The Landscape of Policy Gradient Methods
Constantinos Caramanis, Dimitris Fotakis, Alkis Kalavasis
Vasilis Kontonis, Christos Tzamos
Proceedings of the 37th Conference on Neural Information Processing Systems
Selected for Oral Presentation
NeurIPS 2023

SLaM: Student Label Mixing for Distillation with Unlabeled Examples
Vasilis Kontonis, Fotis Iliopoulos, Khoa Trinh,
Cenk Baykal, Gaurav Menghani, Erik Vee
Proceedings of the 37th Conference on Neural Information Processing Systems
NeurIPS 2023

The Gain from Ordering in Online Learning
Vasilis Kontonis, Mingchen Ma, Christos Tzamos
Proceedings of the 37th Conference on Neural Information Processing Systems
NeurIPS 2023

Efficient Testable Learning of Halfspaces with Adversarial Label Noise
Ilias Diakonikolas, Daniel M Kane, Vasilis Kontonis,
Sihan Liu, Nikos Zarifis
Proceedings of the 37th Conference on Neural Information Processing Systems
NeurIPS 2023

Self Directed Linear Classification
Ilias Diakonikolas, Vasilis Kontonis, Christos Tzamos, Nikos Zarifis
Proceedings of the 36th Annual Conference on Learning Theory
COLT 2023

Weighted Distillation with Unlabeled Examples
Fotis Iliopoulos, Vasilis Kontonis, Cenk Baykal,
Gaurav Menghani, Khoa Trinh, Erik Vee
Proceedings of the 36th Conference on Neural Information Processing Systems
NeurIPS 2022

Linear Label Ranking with Bounded Noise
Dimitris Fotakis, Alvertos Kalavasis, Vasilis Kontonis, Christos Tzamos
Proceedings of the 36th Conference on Neural Information Processing Systems
Selected for Oral Presentation
NeurIPS 2022

***Learning General Halfspaces with General Massart Noise under the Gaussian Distribution**
Ilias Diakonikolas, Daniel M. Kane, Vasilis Kontonis,
Christos Tzamos, Nikos Zarifis
Proceedings of the 54th Annual ACM Symposium on Theory of Computing
STOC 2022

Learning a Single Neuron with Adversarial Label Noise via Gradient Descent
Ilias Diakonikolas, Vasilis Kontonis, Christos Tzamos, Nikos Zarifis
Proceedings of the 35th Annual Conference on Learning Theory
COLT 2022

Learning General Halfspaces with Adversarial Label Noise via Online Gradient Descent
Ilias Diakonikolas, Vasilis Kontonis, Christos Tzamos, Nikos Zarifis
Proceedings of the 39th International Conference on Machine Learning
ICML 2022

A Statistical Taylor's Theorem and Extrapolation of Truncated Densities

Costis Daskalakis, Vasilis Kontonis, Christos Tzamos, Manolis Zampetakis
Proceedings of the 34th Annual Conference on Learning Theory
COLT 2021

Efficient Algorithms for Learning from Coarse Labels
Dimitris Fotakis, Alvertos Kalavasis, Vasilis Kontonis, Christos Tzamos
Proceedings of the 34th Annual Conference on Learning Theory
COLT 2021

Agnostic Proper Learning of Halfspaces under Gaussian Marginals
Ilias Diakonikolas, Daniel M. Kane, Vasilis Kontonis,
Christos Tzamos, Nikos Zarifis
Proceedings of the 34th Annual Conference on Learning Theory
COLT 2021

Learning Online Algorithms with Distributional Advice
Ilias Diakonikolas, Vasilis Kontonis, Christos Tzamos,
Ali Vakilian, Nikos Zarifis
Proceedings of the 38th International Conference on Machine Learning
ICML 2021

A Polynomial Time Algorithm For Learning Halfspaces with Tsybakov Noise
Ilias Diakonikolas, Daniel M. Kane, Vasilis Kontonis,
Christos Tzamos, Nikos Zarifis
Proceedings of the 53rd Annual ACM Symposium on Theory of Computing
STOC 2021

Learning Halfspaces with Tsybakov Noise
Ilias Diakonikolas, Vasilis Kontonis, Christos Tzamos, Nikos Zarifis
Proceedings of the 53rd Annual ACM Symposium on Theory of Computing
STOC 2021 *(Conference version merged with the above paper)*

Non-Convex SGD Learns Halfspaces with Adversarial Label Noise
Ilias Diakonikolas, Vasilis Kontonis, Christos Tzamos, Nikos Zarifis
Proceedings of the 34th Conference on Neural Information Processing Systems
NeurIPS 2020

***Learning Halfspaces with Massart Noise Under Structured Distributions**
Ilias Diakonikolas, Vasilis Kontonis, Christos Tzamos, Nikos Zarifis
Proceedings of the 33th Annual Conference on Learning Theory
COLT 2020

***Algorithms and SQ lower bounds for PAC Learning**

One-Hidden-layer ReLU Networks
Ilias Diakonikolas, Daniel M. Kane, Vasilis Kontonis, Nikos Zarifis
Proceedings of the 33th Annual Conference on Learning Theory
COLT 2020

Truncated Statitistics with Unknown Truncation
Vasilis Kontonis, Christos Tzamos, Manolis Zambetakis
Proceedings of the 60th Annual IEEE Symposium on Foundations of Computer Science, ***FOCS 2019***

Opinion Dynamics with Limited Information
Dimitris Fotakis, Vardis Kandiros, Vasilis Kontonis, and Stratis Skoulakis
Proceedings of the 14th Conference on Web and Internet Economics
WINE 2018

Teaching

Spring 2023, National Technical University of Athens
"Online Learning and Bandits"
Instructors: Constantine Caramanis, Vasilis Kontonis

Spring 2022, University of Wisconsin-Madison
Teaching Assistant, "Introduction to Artificial Intelligence", CS 540
Instructors: Sharon Li, Ilias Diakonikolas, Jerry Zhu

Fall 2021, University of Wisconsin-Madison
Teaching Assistant, "Introduction to Numerical Methods", CS 412
Instructor: Amos Ron

Spring 2021, University of Wisconsin-Madison
Teaching Assistant, "Introduction to Algorithms", CS 577
Instructors: Christos Tzamos, Marc Renault

Fall 2020, University of Wisconsin-Madison
Teaching Assistant, "Programming II", CS 300
Instructors: Mouna Ayari Ben Hadj Kacem, Laura Legault

Spring 2020, University of Wisconsin-Madison
Teaching Assistant, "Introduction to Algorithms", CS 577
Instructor: Christos Tzamos

Spring 2019, University of Wisconsin-Madison
Teaching Assistant, "Introduction to Algorithms", CS 577
Instructor: Dieter van Melkebeek

Fall 2018, University of Wisconsin-Madison
Teaching Assistant, "Introduction to Algorithms", CS 577

Instructors: Christos Tzamos, Shuchi Chawla

Fall 2017, National Technical University of Athens
Teaching Assistant, "Algorithms and Complexity"
Instructor: Aris Pagourtzis

Fall 2016, National Techincal University of Athens
Teaching Assistant, "Operating Systems"
Instructors: Nectarios Koziris, Georgios Goumas, Vangelis Koukis

Service

Program Committees
ITCS 2025

Conference Reviewer
FOCS 2024, STOC 2024, NeurIPS 2023, ICML 2022, NeurIPS 2021,
ICML 2021, EC 2021, STOC 2020, ALT 2020, SODA 2019
ICML 2019, EC 2019, WINE 2019, MFCS 2018

Journal Reviewer
Theoretical Computer Science (TCS)

Talks

Learning from Noisy Labels: Beyond Worst Case Models
2024, UC Santa Cruz, Computer Science and Engineering Colloquium
2024, Banff International Research Station (BIRS)
New Directions in Machine Learning Theory

Learning from Noisy Labels and Imperfect Teachers
2024, UC San Diego, EnCORE Presentation
2023, UT Austin, IFML Seminar

Smoothed Analysis for Learning Concepts with Low Intrinsic Dimension
2024, INFORMS Annual Meeting, Seattle, WA
2024, COLT, ***Best Paper Award Talk***
2024, EnCORE Workshop on Computational vs Statistical
Gaps in Learning and Optimization, UCLA
2024, Theory Seminar, USC

Optimizing Solution-Samplers for Combinatorial Problems
2023, 37th Conference on Neural Information Processing Systems
(Oral, NeurIPS 2023)

SLaM: Student-Label Mixing for Distillation with Unlabeled Examples
2023, 37th Conference on Neural Information Processing Systems (NeurIPS 2023)

Linear Label Ranking with Bounded Noise

2022, 36th Conference on Neural Information Processing Systems (NeurIPS 2022)

Learning General Halfspaces with General Massart Noise under the Gaussian Distribution
2022 54th ACM Symposium on Theory of Computing (STOC2022)

A Statistical Taylor's Theorem and Extrapolation of Truncated Densities
2022, 34th Annual Conference on Learning Theory (COLT 2021)

A Statistical Taylor's Theorem and Extrapolation of Truncated Densities
2021, 34th Annual Conference on Learning Theory (COLT 2021)

Agnostic Proper Learning of Halfspaces under Gaussian Marginals
2021, 34th Annual Conference on Learning Theory (COLT 2021)

Efficient Algorithms for Learning Halfspaces with Tsybakov Noise
2021, 53rd Symposium on Theory of Computing (STOC 2021)

Non-Convex SGD Learns Halfspaces with Adversarial Label Noise
2020, 34th Conference on Neural Information Processing Systems (NerurIPS 2020)

Learning Halfspaces with Massart Noise Under Structured Distributions
2020, 33th Annual Conference on Learning Theory (COLT 2020)

Truncated Statistics with Unknown Truncation
Symposium on Foundations of Computer Science (FOCS 2019)
Workshop on Algorithms for Learning and Economics (WALE 2019)
14th Athens Colloquium on Algorithms and Complexity (ACAC 2019)
Theory Study Group, University of Wisconsin-Madison

Learning Powers of Poisson Binomial Distributions
2017, ECCO Research Seminar, University of Liverpool

Bias-Variance Tradeoff, **VC-Dimension**
2017, Learning Theory Study Group, Corelab, NTUA

Applications of LP, QP, SOCP and SDP.
SDP Relaxations: MaxCut.
Vector Optimization, Duality
2017, Convex Optimization Minicourse, Corelab, NTUA.

Awards

Recipient of the Best Paper Award

at Conference on Learning Theory (COLT) 2024, Edmonton, CA
"Smoothed Agnostic Learning of Concepts with Low-Intrinsic Dimension"

Recipient of the Bodossakis Fellowship 2022

Recipient of the Gerondellis Fellowship 2020

Recipient of the Eurobank Grant "The great moment for Education" in 2010 for graduating first in my high-school.

Recipient of the Touramanoglou Grant in 2010 for ranking among the top high school graduates of the cities of Ilioupolis and Ymittos.

Languages and Skills

English(native), German (advanced)
Pytorch, Tensorflow, Mathematica, Python, LaTeX, GNU/Linux