

# 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    **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  
*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**

**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 Statistics 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 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 Technical University of Athens**

Teaching Assistant, “Operating Systems”

Instructors: Nectarios Koziris, Georgios Goumas, Vangelis Koukis

Service

**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

**Smoothed Analysis for Learning Concepts with Low Intrinsic Dimension**

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 (NeurIPS 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)

Mathematica, Python, L<sup>A</sup>T<sub>E</sub>X, GNU/Linux

**References**

**Christos Tzamos**

Assistant Professor, University of Wisconsin-Madison (UWM)

**Costantinos Daskalakis**

Professor, Massachusetts Institute of Technology (MIT)

**Ilias Diakonikolas**

Professor, University of Wisconsin-Madison (UWM)

**Dimitris Fotakis**

Professor, National Technical University of Athens (NTUA)

**Erik Vee**

Google Research