Nikos Zarifis

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EDUCATION

University of Wisconsin-Madison 2019 - 2025
Ph.D. in Computer Sciences
Thesis: Robustly Learning Multi-Index Models
Advisor: Ilias Diakonikolas

National Technical University of Athens 2012 - 2018
Diploma in Electrical and Computer Engineering
Major: Computer Science Minor: Mathematics
Advisor: Dimitris Fotakis

RESEARCH INTERESTS

Foundations of Machine Learning

PUBLICATIONS*

*Ordering in publications is alphabetical by convention in Theoretical Computer Science/Learning Theory unless otherwise specified.

1. **Robustly Learning Monotone Generalized Linear Models via Data Augmentation** with I. Diakonikolas, J. Diakonikolas, P. Wang (**COLT 2025**)
2. **Robust Learning of Multi-index Models via Iterative Subspace Approximation** with I. Diakonikolas, G. Iakovidis, D. Kane (**FOCS 2025**)
3. **Online Learning of Halfspaces with Massart Noise** with I. Diakonikolas, V. Kontonis, C. Tzamos (**ICML 2025**)
4. **A Near-optimal Algorithm for Learning Margin Halfspaces with Massart Noise** with I. Diakonikolas (**NeurIPS 2024**) **Selected for Spotlight Presentation**
5. **Reliable Learning of Halfspaces under Gaussian Marginals** with I. Diakonikolas, L. Ren (**NeurIPS 2024**) **Selected Spotlight Presentation**
6. **Sample and Computationally Efficient Robust Learning of Gaussian Single-Index Models** with I. Diakonikolas, J. Diakonikolas, P. Wang (**NeurIPS 2024**) (Second Author)
7. **Agnostically Learning Multi-index Models with Queries** with I. Diakonikolas, D. M. Kane, V. Kontonis, C. Tzamos (**FOCS 2024**) **Invited to SIAM Journal on Computing Special Issue for FOCS 2024**
8. **Robustly Learning Single-Index Models via Alignment Sharpness** with I. Diakonikolas, J. Diakonikolas, P. Wang (**ICML 2024**)
9. **Testable Learning of General Halfspaces with Adversarial Label Noise** with I. Diakonikolas, D. M. Kane, S. Liu (**COLT 2024**)
10. **Statistical Query Lower Bounds for Learning Truncated Gaussians** with I. Diakonikolas, D. M. Kane, T. Pittas (**COLT 2024**)
11. **Super Non-singular Decompositions of Polynomials and their Application to Robustly Learning Low-degree PTFs** with I. Diakonikolas, D. M. Kane, V. Kontonis, S. Liu (**STOC 2024**)
12. **Near-Optimal Bounds for Learning Gaussian Halfspaces with Random Classification Noise** with I. Diakonikolas, J. Diakonikolas, D. M. Kane, P. Wang (**NeurIPS 2023**)

13. **Efficient Testable Learning of Halfspaces with Adversarial Label Noise** with I. Diakonikolas, D. M. Kane, V. Kontonis, S. Liu (**NeurIPS 2023**)
14. **Robustly Learning a Single Neuron via Sharpness** with I. Diakonikolas, J. Diakonikolas, P. Wang (**ICML 2023**) **Selected for Oral Presentation**
15. **Information-Computation Tradeoffs for Learning Margin Halfspaces with Random Classification Noise** with I. Diakonikolas, J. Diakonikolas, D. M. Kane, P. Wang (**COLT 2023**)
16. **Self-Directed Linear Classification** with I. Diakonikolas, V. Kontonis, C. Tzamos (**COLT 2023**)
17. **SQ Lower Bounds for Learning Mixtures of Separated and Bounded Covariance Gaussians** with I. Diakonikolas, D. M. Kane, T. Pittas (**COLT 2023**)
18. **Learning a Single Neuron with Adversarial Label Noise via Gradient Descent** with I. Diakonikolas, V. Kontonis, C. Tzamos (**COLT 2022**)
19. **Learning General Halfspaces with Adversarial Label Noise via Online Gradient Descent** with I. Diakonikolas, V. Kontonis, C. Tzamos (**ICML 2022**)
20. **Learning General Halfspaces with General Massart Noise under the Gaussian Distribution** with I. Diakonikolas, D. M. Kane, V. Kontonis, C. Tzamos (**STOC 2022**)
21. **Agnostic Proper Learning of Halfspaces under Gaussian Marginals** with I. Diakonikolas, D. M. Kane, V. Kontonis, C. Tzamos (**COLT 2021**)
22. **The Optimality of Polynomial Regression for Agnostic Learning under Gaussian Marginals** with I. Diakonikolas, D. M. Kane, T. Pittas (**COLT 2021**)
23. **Learning Online Algorithms with Distributional Advice** with I. Diakonikolas, V. Kontonis, C. Tzamos, A. Vakilian (**ICML 2021**)
24. **A Polynomial Time Algorithm for Learning Halfspaces with Tsybakov Noise** with I. Diakonikolas, D. M. Kane, V. Kontonis, C. Tzamos (**STOC 2021**)
25. **Learning Halfspaces with Tsybakov Noise** with I. Diakonikolas, V. Kontonis, C. Tzamos (**STOC 2021**). Conference version merged with paper above
26. **Near-Optimal SQ Lower Bounds for Agnostically Learning Halfspaces and ReLUs under Gaussian Marginals** with I. Diakonikolas, D. M. Kane (**NeurIPS 2020**)
27. **Non-Convex SGD Learns Halfspaces with Adversarial Label Noise** with I. Diakonikolas, V. Kontonis, C. Tzamos (**NeurIPS 2020**)
28. **Algorithms and SQ Lower Bounds for PAC Learning One-Hidden-Layer ReLU Networks** with I. Diakonikolas, D. M. Kane, V. Kontonis (**COLT 2020**)
29. **Learning Halfspaces with Massart Noise under Structured Distributions** with I. Diakonikolas, V. Kontonis, C. Tzamos (**COLT 2020**)
30. **Reallocating Multiple Facilities on the Line** with D. Fotakis, L. Kavouras, P. Koutsopanagiotis, P. Lazos, S. Skoulakis (**TCS 2021**)

COLT: Conference on Learning Theory, **ICML**: International Conference on Machine Learning, **NeurIPS**: Advances in Neural Information Processing Systems, **STOC**: ACM Symposium on Theory of Computing, **FOCS**: Annual Symposium on Foundations of Computer Science, **TCS**: Theoretical Computer Science (Journal)

AWARDS

2019-2025, UW Madison

2025: Outstanding Graduate Student Research Award, UW Madison (for Best Ph.D. thesis in Computer Science)
2024: Ivanisevic Award, UW Madison
2022: Bodossaki Foundation Fellowship

2021: Outstanding Reviewer Award (NeurIPS 2021): Top 8%
2020: Gerondellis Foundation Fellowship
2012-2018, National Technical University of Athens
2014: South Eastern European Mathematical Olympiad for University Students (SEEMOUS) 2014: Gold Medal (Rank: 3rd) & Member of Greek National Team (after internal competition)
2013: South Eastern European Mathematical Olympiad for University Students (SEEMOUS) 2013: Silver Medal (Rank: 14th)
2012-2013: Papakyriakopoulos award for excellence in Mathematics

TEACHING EXPERIENCE

Teaching Assistant, UW-Madison

CS760: "*Machine Learning*"	Fall 2022, Spring 2025
CS540: "*Introduction to Artificial Intelligence*"	Spring 2022
CS639: "*Intro to Computational Learning Theory*"	Fall-Spring 2020
CS300: "*Introduction to Programming II*"	Fall 2019

Teaching Assistant, NTUA

"Introduction to Computer Programming"	Fall 2013-2019
"Discrete Mathematics"	Spring 2018
"Algorithms and Complexity"	Fall 2017-2019

SERVICE

Conference Reviewer
Neural Information Processing Systems (NeurIPS): 2024, 2023, 2022, 2021
Conference on Learning Theory (COLT): 2025, 2024, 2022
ACM Symposium on Theory of Computing (STOC): 2025,2023
IEEE Symposium on Foundations of Computer Science (FOCS): 2025
Innovations in Theoretical Computer Science (ITCS): 2024
Journal Reviewer
Theoretical Computer Science (TCS): 2022
Transactions on Machine Learning Research (TMLR): 2022

TECHNICAL SKILLS

Python, Mathematica, LaTeX, GNU/Linux

LANGUAGES

English (fluent), **Greek** (native)