Nikos Zarifis

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EDUCATION

University of Wisconsin-Madison Aug 2019 - now
Ph.D. in Computer Sciences
Advisor: Ilias Diakonikolas

National Technical University of Athens Sep 2012 - Nov 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.

A Near-optimal Algorithm for Learning Margin Halfspaces with Massart Noise with I. Diakonikolas (**NeurIPS 2024**) **Spotlight**

Reliable Learning of Halfspaces under Gaussian Marginals with I. Diakonikolas, L. Ren (**NeurIPS 2024**) **Spotlight**

Sample and Computationally Efficient Robust Learning of Gaussian Single-Index Models with I. Diakonikolas, J. Diakonikolas, P. Wang (**NeurIPS 2024**)

Agnostically Learning Multi-index Models with Queries with I. Diakonikolas, D. M. Kane, V. Kontonis, C. Tzamos (**FOCS 2024**)

Robustly Learning Single-Index Models via Alignment Sharpness with I. Diakonikolas, J. Diakonikolas, P. Wang (**ICML 2024**)

Testable Learning of General Halfspaces with Adversarial Label Noise with I. Diakonikolas, D. M. Kane, S. Liu (**COLT 2024**)

Statistical Query Lower Bounds for Learning Truncated Gaussians with I. Diakonikolas, D. M. Kane, T. Pittas (**COLT 2024**)

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**)

Near-Optimal Bounds for Learning Gaussian Halfspaces with Random Classification Noise with I. Diakonikolas, J. Diakonikolas, D. M. Kane, P. Wang (**NeurIPS 2023**)

Efficient Testable Learning of Halfspaces with Adversarial Label Noise with I. Diakonikolas, D. M. Kane, V. Kontonis, S. Liu (**NeurIPS 2023**)

Robustly Learning a Single Neuron via Sharpness with I. Diakonikolas, J. Diakonikolas, P. Wang (**ICML 2023**) **Selected for Oral Presentation**

Information-Computation Tradeoffs for Learning Margin Halfspaces with Random Classification Noise with I. Diakonikolas, J. Diakonikolas, D. M. Kane, P. Wang (**COLT 2023**)

Self-Directed Linear Classification with I. Diakonikolas, V. Kontonis, C. Tzamos (**COLT 2023**)

SQ Lower Bounds for Learning Mixtures of Separated and Bounded Covariance Gaussians with I. Diakonikolas, D. M. Kane, T. Pittas (**COLT 2023**)

Learning a Single Neuron with Adversarial Label Noise via Gradient Descent with I. Diakonikolas, V. Kontonis, C. Tzamos (**COLT 2022**)

Learning General Halfspaces with Adversarial Label Noise via Online Gradient Descent with I. Diakonikolas, V. Kontonis, C. Tzamos (**ICML 2022**)

Learning General Halfspaces with General Massart Noise under the Gaussian Distribution with I. Diakonikolas, D. M. Kane, V. Kontonis, C. Tzamos (**STOC 2022**)

Agnostic Proper Learning of Halfspaces under Gaussian Marginals with I. Diakonikolas, D. M. Kane, V. Kontonis, C. Tzamos (**COLT 2021**)

The Optimality of Polynomial Regression for Agnostic Learning under Gaussian Marginals with I. Diakonikolas, D. M. Kane, T. Pittas (**COLT 2021**)

Learning Online Algorithms with Distributional Advice with I. Diakonikolas, V. Kontonis, C. Tzamos, A. Vakilian (**ICML 2021**)

A Polynomial Time Algorithm for Learning Halfspaces with Tsybakov Noise with I. Diakonikolas, D. M. Kane, V. Kontonis, C. Tzamos (**STOC 2021**)

Learning Halfspaces with Tsybakov Noise with I. Diakonikolas, V. Kontonis, C. Tzamos (**STOC 2021**). Conference version merged with paper above

Near-Optimal SQ Lower Bounds for Agnostically Learning Halfspaces and ReLUs under Gaussian Marginals with I. Diakonikolas, D. M. Kane (**NeurIPS 2020**)

Non-Convex SGD Learns Halfspaces with Adversarial Label Noise with I. Diakonikolas, V. Kontonis, C. Tzamos (**NeurIPS 2020**)

Algorithms and SQ Lower Bounds for PAC Learning One-Hidden-Layer ReLU Networks with I. Diakonikolas, D. M. Kane, V. Kontonis (**COLT 2020**)

Learning Halfspaces with Massart Noise under Structured Distributions with I. Diakonikolas, V. Kontonis, C. Tzamos (**COLT 2020**)

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-Present

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: 11th)
2012-2013: Papakyriakopoulos award for excellence in Mathematics

TEACHING EXPERIENCE

Teaching Assistant, UW-Madison

CS760: "*Machine Learning*" Fall 2022
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): 2024, 2022
ACM Symposium on Theory of Computing (STOC): 2023
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, Linux

LANGUAGES

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