Arsen Vasilyan

Austin, Texas

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Research Interests

– Computational learning theory

– Foundations of Machine Learning

– Computational Statistics

Appointments

University of Texas at Austin   January 2025 - Present
Postdoctoral Fellow
Advisor: Adam Klivans

Simons Institute for Theory of Computation at UC Berkeley   August 2024 - December 2024
Research Fellow
Programs: Modern Paradigms in Generalization, Large Language Models and Transformers

Massachusetts Institute of Technology (MIT)   May 2024 - August 2024
Research Specialist
Advisor: Ronitt Rubinfeld

Education

Massachusetts Institute of Technology (MIT)   June 2020 - March 2024
Ph.D. in Computer Science
Thesis Title: Enhancing Learning Algorithms via Sublinear-Time Methods
Advisors: Jonathan Kelner, Ronitt Rubinfeld

Massachusetts Institute of Technology (MIT)   September 2019 - June 2020
M.S. in Electrical Engineering and Computer Science
Thesis: *Approximating the Noise Sensitivity of a Monotone Boolean Function*
Advisor: Ronitt Rubinfeld

Massachusetts Institute of Technology (MIT)   September 2015 - June 2019
B.S. in Computer Science
Minor in Physics / Minor in Philosophy

Awards

Best Paper Award   *December 2025*
Reliable ML from Unreliable Data Workshop, NeurIPS
San Diego, California

Dimitris N. Chorafas Foundation Thesis Award   *September 2024*
Vitznau, Switzerland

Second Place — William A. Martin Master's Thesis Award   *August 2021*
Cambridge, Massachusetts

Silver Medal — International Physics Olympiad   *July 2014*
Astana, Kazakhstan

List of Publications

Note: all author lists are alphabetical.

Testable algorithms for approximately counting edges and triangles in sublinear time and space
Talya Eden, Ronitt Rubinfeld, Arsen Vasilyan
17th Innovations in Theoretical Computer Science Conference (**ITCS 2026**, to appear)

Robust Learning of Halfspaces under Log-Concave Marginals
Jane Lange, Arsen Vasilyan
39th Conference on Neural Information Processing Systems (**NeurIPS 2025**, to appear)
Accepted as a Spotlight presentation

The Power of Iterative Filtering for Supervised Learning with (Heavy) Contamination
Adam R. Klivans, Konstantinos Stavropoulos, Kevin Tian, Arsen Vasilyan
39th Conference on Neural Information Processing Systems (**NeurIPS 2025**, to appear)
Accepted as a Spotlight presentation

Learning Constant-Depth Circuits in Malicious Noise Models
Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan
38th Annual Conference on Learning Theory (**COLT 2025**)

Local Lipschitz Filters for Bounded-Range Functions
Jane Lange, Ephraim Linder, Sofya Raskhodnikova, Arsen Vasilyan
36th ACM-SIAM Symposium on Discrete Algorithms (**SODA 2025**)

Tolerant Algorithms for Learning with Arbitrary Covariate Shift
Surbhi Goel, Abhishek Shetty, Konstantinos Stavropoulos, Arsen Vasilyan
38th Conference on Neural Information Processing Systems (**NeurIPS 2024**)
Accepted as a Spotlight presentation.

Efficient Discrepancy Testing for Learning with Distribution Shift
G. Chandrasekaran, A. R. Klivans, Vasilis Kontonis, K. Stavropoulos, A. Vasilyan
38th Conference on Neural Information Processing Systems (**NeurIPS 2024**)

Plant-and-Steal: Truthful Fair Allocations via Predictions
Ilan Reuven Cohen, Alon Eden, Talya Eden, Arsen Vasilyan
38th Conference on Neural Information Processing Systems (**NeurIPS 2024**)

Learning Intersections of Halfspaces with Distribution Shift: Improved Algorithms and SQ Lower Bounds
Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan
37th Annual Conference on Learning Theory (**COLT 2024**)

Testable Learning with Distribution Shift
Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan
37th Annual Conference on Learning Theory (**COLT 2024**)

An Efficient Tester-Learner for Halfspaces
Aravind Gollakota, Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan
12th International Conference on Learning Representations (**ICLR 2024**)

Tester-Learners for Halfspaces: Universal Algorithms
Aravind Gollakota, Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan
37th Conference on Neural Information Processing Systems (**NeurIPS 2023**)
Accepted as an Oral Presentation.

Agnostic Proper Learning of Monotone Functions: Beyond the Black-box Correction Barrier
Jane Lange and Arsen Vasilyan
64th IEEE Symposium on Foundations of Computer Science (**FOCS 2023**)
Invited to special issue of SIAM Journal on Computing.

Testing Distributional Assumptions of Learning Algorithms
Ronitt Rubinfeld, Arsen Vasilyan
55th ACM Symposium on Theory of Computing (**STOC 2023**)

Properly Learning Monotone Functions via Local Reconstruction
Jane Lange, Ronitt Rubinfeld, Arsen Vasilyan
63rd IEEE Symposium on Foundations of Computer Science (**FOCS 2022**)

Monotone Probability Distributions over the Boolean Cube Can Be Learned with Sublinear Samples
Ronitt Rubinfeld, Arsen Vasilyan
11th Innovations in Theoretical Computer Science Conference (**ITCS 2020**)

Approximating the Noise Sensitivity of a Monotone Boolean Function
Ronitt Rubinfeld, Arsen Vasilyan
International Conference on Randomization and Computation (**RANDOM 2019**)

Journal Articles

Agnostic Proper Learning of Monotone Functions: Beyond the Black-box Correction Barrier
Jane Lange and Arsen Vasilyan
SIAM Journal on Computing, 2025.

Preprints

Testing Noise Assumptions of Learning Algorithms
Surbhi Goel, Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan
Preprint arXiv:2501.09189 (2025)
Best Paper Award at Reliable ML from Unreliable Data Workshop @ NeurIPS 2025

Invited Talks

– IFML Seminar, University of Texas at Austin   *January 2025*

– Joint IFML/MPG Symposium, Simons Institute at UC Berkeley *November 2024*

– University of Michigan Theory Seminar *October 2024*

– Sublinear Algorithms Program, Simons Institute at UC Berkeley *May 2024*

– Princeton Theory Seminar *February 2024*

– Toyota Technological Institute at Chicago, Junior Theorists Workshop *December 2023*

– Carnegie Mellon University, Theory seminar *November 2023*

– Bar-Ilan University, Theory seminar *June 2023*

– Harvard-MIT Theory Reading Group (joint talk with Ronitt Rubinfeld) *April 2023*

– Carnegie Mellon University, Theory seminar *October 2022*

– Columbia University, Theory seminar *September 2022*

– Stanford University *February 2022*

Teaching

Massachusetts Institute of Technology (MIT)
Teaching Assistant

– **6.UAR Advanced Undergraduate Research Program** Spring 2023
Trained advanced undergraduate students in computer science communication skills. Ensured their research projects are on track.

– **6.875 [Graduate course] Cryptography and Cryptanalysis** Fall 2019
Developed homework assignments and held weekly office hours.

Service

– **External referee**
ACM Symposium on Theory of Computing (**STOC**), Symposium on Foundations of Computer Science (**FOCS**), Innovations in Theoretical Computer Science (**ITCS**), Symposium on Discrete Algorithms (**SODA**), International Conference on Randomization and Computation (**RANDOM**), International Colloquium on Automata, Languages, and Programming (**ICALP**), The International Conference on Learning Representations (**ICLR**), Conference on Learning Theory (**COLT**), Conference on Neural Information Processing Systems (**NeurIPS**)
NeurIPS 2025 **Outstanding reviewer**

– **Program Committee:**
29th International Conference on Randomization and Computation (**RANDOM** 2025)

Outreach

– **MIT Graduate Application Assistance Program (GAAP)** 2021 - 2023
Mentored 1:1 underrepresented applicants to computer science program at MIT. Held meetings through the graduate application process, meeting periodically with applicants all the way up to the deadline.