

**Arsen Vasilyan**  
GDC-4.808 • Austin, Texas  
ArsenVasilyan@gmail.com

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## Research Interests

- Computational learning theory
  - Distribution learning and testing
  - Computational statistics
  - Sublinear algorithms
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## Appointments

**University of Texas at Austin** January 2025 - Present  
**Postdoctoral Fellow**  
Programs: Modern Paradigms in Generalization, Large Language Models and Transformers  
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

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## 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 2016 - June 2019  
**B.S. in Computer Science**  
Minor in Physics / Minor in Philosophy

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## List of Publications

**Note that author order in all publications below is alphabetical, following the standard conventional practice in theoretical computer science.**

*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**).  
**Spotlight.**

*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 for oral presentation (top 2.1% of accepted papers).**

*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.**

*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

Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques (**APPROX/RANDOM 2019**).

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## Journal Articles

*Agnostic Proper Learning of Monotone Functions: Beyond the Black-box Correction Barrier*

Jane Lange and Arsen Vasilyan

SIAM Journal on Computing, 2025.

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## Preprints

*Testing Noise Assumptions of Learning Algorithms*

Surbhi Goel, Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan

Preprint arXiv:2501.09189 (2025).

*Learning Constant-Depth Circuits in Malicious Noise Models*

Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan

Preprint arXiv:2411.03570 (2024).

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## Invited Talks

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| • IFML Seminar, University of Texas at Austin                          | January 2025   |
| • Joint IFML/MPG Symposium, Simons Institute at UC Berrkeley           | November 2024  |
| • University of Michigan Theory Seminar                                | October 2024   |
| • Sublinear Algorithms Program, Simons Institute at UC Berrkeley       | 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  |
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## 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.

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## 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**)

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## 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.

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## Awards

- **Dimitris N. Chorafas Foundation Award** Vitznau, Switzerland  
September 2024
- **Second Place – William A. Martin Master's Thesis Award** Cambridge, Massachusetts  
August 2021
- **Silver Medal – International Physics Olympiad** Astana, Kazakhstan  
July 2014