

# Adam R. Klivans

## Contact

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## Education

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**MIT**

*Ph.D. in Mathematics*

**Cambridge, MA**

2002

**Carnegie-Mellon University**

*MS in Mathematics*

**Pittsburgh, PA**

1997

**Carnegie-Mellon University**

*B.S. in Math/Computer Science*

**Pittsburgh, PA**

1997

## Professional Experience

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**The University of Texas**

*Professor of Computer Science*

**Austin, TX**

2019–current

**Carnegie-Mellon University**

*Visiting Professor of Computer Science*

**Pittsburgh, PA**

2012

**The University of Texas**

*Associate Professor of Computer Science*

**Austin, TX**

2010–2018

**The University of Texas**

*Assistant Professor of Computer Science*

**Austin, TX**

2005–2010

**Toyota Technological Institute**

*Visiting Professor of Computer Science*

**Chicago, IL**

2004–2005

**Harvard University**

*NSF Postdoctoral Fellowship*

**Boston, MA**

2002–2004

## Dissertation Advisor

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**Advisor:** Prof. Daniel Spielman

## Postdoctoral Advisor

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**Advisor:** Prof. Leslie Valiant

## Current research interests

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Theoretical Computer Science, Machine Learning, Protein Engineering

## Grants

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### Funded as PI.....

National Science Foundation (NSF); "NSF AI Institute for Foundations of Machine Learning"; \$20,000,000; 9/2020–9/2025

National Science Foundation (NSF); "Efficient Algorithms for Nonconvex Regression"; \$400,000; 9/2019–9/2024

National Science Foundation (NSF); "Efficiently Learning Neural Network Architectures with Applications"; \$450,000; 9/2017–9/2021

National Science Foundation (NSF); "Learning in Worst-Case Noise Models"; \$500,000; 2/2010–2/2016

Texas Advanced Research Program Award; "Efficient Algorithms for Complex Machine Learning Tasks"; \$150,000; 5/2008–5/2010

National Science Foundation (NSF) CAREER Award; "CAREER: The Computational Complexity of Halfspace-Based Learning"; \$400,000; 2/2007–2/2012

### Funded as coPI.....

National Institute of Standards and Technology (NIST) "GENIE-RFIC: Generative ENgine for IntElligent RFIC Design"; \$9,597,024; 12/2024–6/2027

National Institutes of Health (NIH) "America's SHIELD: Strategic Herpesvirus Immune Evasion and Latency Defense, through an AI/ML toolkit for broad genus-level immunity to chronic disease and cancer"; \$2,500,000; 7/2024–6/2029

National Science Foundation (NSF); "HDR Tripods: UT-Austin Institute for Foundations of Data Science"; \$1,500,000 9/2019 – 9/2022

## Paper Awards

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**2024: Best Paper Award**, COLT 2024 for "Smoothed Analysis for Learning Concepts with Low Intrinsic Dimension"

**2023:** Invited to SICOMP, special issue for top papers in STOC for "A Moment-Matching Approach to Testable Learning and a New Characterization of Rademacher Complexity"

**2023:** Oral Presentation, NeurIPS 2023 for "Tester-Learners for Halfspaces: Universal Algorithms"

**2022:** Oral Presentation, NeurIPS 2022 for "Hardness of Noise-Free Learning for Two-Hidden-Layer Neural Networks"

**2019:** Spotlight Presentation, NeurIPS 2019 for "List-Decodable Linear Regression"

**2019:** Spotlight Presentation, NeurIPS 2019 for "Time/Accuracy Tradeoffs for Learning a ReLU with Gaussian Marginals"

**2014:** Oral Presentation, NIPS for "Sparse Polynomial Learning and Graph Sketching."

**2010:** Invited to Theory of Computing Journal for a special issue on Fourier Analysis in TCS for "Bounding the Sensitivity of Polynomial Threshold Functions."

**2006:** Invited to Journal of Computer and System Sciences, special issue for top papers in FOCS 2006 for "Cryptographic Hardness for Learning Intersections of Halfspaces."

**2006:** Invited to Journal of Computer and System Sciences, special issue for top papers in learning theory for “Efficient Learning Algorithms Yield Circuit Lower Bounds.”

**2006:** COLT **Best Student Paper Award** (with A. Sherstov) for “Unconditional Lower Bounds for Learning Intersections of Halfspaces.”

**2006:** Invited to Machine Learning Journal, special issue for top Learning Theory papers of 2006 for “Unconditional Lower Bounds for Learning Intersections of Halfspaces.”

**2005:** Invited to Journal of Computer and System Sciences, special issue for top papers in FOCS 2005 for “Agnostically Learning Halfspaces.”

**2004:** Invited to Journal of Computer and System Sciences, special issue for top papers in FOCS 2004 for “Learnability and Automatizability.”

**2004:** Invited to Journal of Computer and System Sciences, special issue for top learning theory papers of 2004 for “Learning Intersections of Halfspaces with a Margin.”

**2002:** Invited to Journal of Computer and System Sciences, special issue for top papers in FOCS 2002 for “Learning Intersections and Thresholds of Halfspaces.”

**2001:** STOC **Danny Lewin Best Student Paper Award** for “Learning DNF in Time  $2^{\tilde{O}(n^{1/3})}$ .”

**2001:** Invited to Journal of Computer and System Sciences, special issue for top papers in STOC 2001 for “Learning DNF in Time  $2^{\tilde{O}(n^{1/3})}$ ”

**1999:** Invited to Machine Learning Journal, special issue for top Learning Theory papers of 1999 for “Boosting and Hard-Core Sets.”

## Other Honors

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**2020:** Director, NSF AI Institute for Foundations of Machine Learning

**2019:** Member, IAS School of Mathematics (special year on Machine Learning and Optimization).

**2017:** Microsoft Data Science Initiative Award

**2013:** College of Natural Sciences Teaching Excellence Award

**2011:** Research Professorship, MSRI Program on Quantitative Geometry

**2007:** National Science Foundation Faculty Early Career Development Award (NSF CAREER)

**2004:** National Science Foundation Postdoctoral Research Fellowship

**2001:** Charles W. and Jennifer C. Johnson Prize for best paper among MIT Department of Mathematics Graduate Students

**1997:** Andrew Carnegie Presidential Scholar; *Given to one graduating CS major at CMU each year.*

## Graduate Students

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Current Students.....

**Konstantinos Stavropoulos:** Expected graduation 2025.

**Kulin Shah:** Expected graduation 2025.

**Gautam Chandrasekaran:** Expected graduation 2026.

**Georgios Gkrinias:** Expected graduation 2028.

Past Students.....

**Aravind Gollakota:** PhD 2023. Current position: Researcher, Apple Computer, Inc.

**Sushrut Karmalkar:** PhD 2022. Current position: Researcher, Microsoft Cambridge.

**Surbhi Goel:** PhD 2021. Current position: Professor, UPenn.

**Pravesh Kothari:** PhD 2016. Current position: Professor, Princeton. Presburger Award, Sloan Fellowship, NSF Career Award.

**Raghu Meka:** PhD 2011. Professor, UCLA. Primary advisor was David Zuckerman.

**Alexander Sherstov:** PhD 2009. Current position: Professor, UCLA. Sloan Fellowship, NSF Career Award.

## Postdocs

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### Current Postdocs.....

**Arsen Vasilyan:** 2025-2027

**Vasilis Kontonis:** 2023-2025

**Daniel Diaz:** 2023-2025

### Past Postdocs.....

**Prahladh Harsha:** Professor, Tata Institute of Fundamental Research.

**Parikshit Gopalan:** Researcher, Apple Computer, Inc.

## Publications

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### All Publications while in rank of Professor

87. Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan. Learning Constant-Depth Circuits in Malicious Noise Models. Arxiv, 2024.
86. Daniel J Diaz, Chengyue Gong, Jeffrey Ouyang-Zhang, James M Loy, Jordan Wells, David Yang, Andrew D Ellington, Alexandros G Dimakis, Adam R Klivans. Stability Oracle: a structure-based graph-transformer framework for identifying stabilizing mutations. Nature Communications 15 (1), 6170.
85. Hyunsu Chae, Keren Zhu, Bhyrav Mutnury, Douglas Wallace, Douglas Winterberg, Daniel De Araujo, Jay Reddy, Adam R. Klivans, David Z. Pan. ISOP+: Machine Learning-Assisted Inverse Stack-Up Optimization for Advanced Package Design. IEEE Trans. Comput. Aided Des. Integr. Circuits Syst. 43(1): 2-15 (2024).
84. Hyunsu Chae, Keren Zhu, Bhyrav Mutnury, Zixuan Jiang, Daniel De Araujo, Douglas Wallace, Douglas Winterberg, Adam R. Klivans, David Z. Pan. ISOP-Yield: Yield-Aware Stack-Up Optimization for Advanced Package using Machine Learning. ASPDAC 2024.
83. Gautam Chandrasekaran, Adam R. Klivans, Vasilis Kontonis, Raghu Meka, Konstantinos Stavropoulos. Smoothed Analysis for Learning Concepts with Low Intrinsic Dimension. COLT 2024.
82. Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan. Learning Intersections of Halfspaces with Distribution Shift: Improved Algorithms and SQ Lower Bounds. COLT 2024.
81. Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan. Testable Learning with Distribution Shift. COLT 2024.
80. Aravind Gollakota, Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan. An Efficient Tester-Learner for Halfspaces. ICLR 2024.

79. Chengyue Gong, Adam R. Klivans, James Loy, Tianlong Chen, Qiang Liu, Daniel Jesus Diaz. Evolution-Inspired Loss Functions for Protein Representation Learning. ICML 2024.
78. Sitan Chen, Zehao Dou, Surbhi Goel, Adam R. Klivans, Raghu Meka. Learning Narrow One-Hidden-Layer ReLU Networks. COLT 2023.
77. Hyunsu Chae, Bhyrav Mutnury, Keren Zhu, Douglas Wallace, Douglas Winterberg, Daniel De Araujo, Jay Reddy, Adam R. Klivans, David Z. Pan. ISOP: Machine Learning-Assisted Inverse Stack-Up Optimization for Advanced Package Design. DATE 2023.
76. Sriram Ravula, Varun Gorti, Bo Deng, Swagato Chakraborty, James Pingenot, Bhyrav Mutnury, Douglas Wallace, Douglas Winterberg, Adam R. Klivans, Alexandros G. Dimakis. One-Dimensional Deep Image Prior for Curve Fitting of S-Parameters from Electromagnetic Solvers. ICCAD 2023.
75. Tianlong Chen, Chengyue Gong, Daniel Jesus Diaz, Xuxi Chen, Jordan Tyler Wells, Qiang Liu, Zhangyang Wang, Andrew D. Ellington, Alex Dimakis, Adam R. Klivans. HotProtein: A Novel Framework for Protein Thermostability Prediction and Editing. ICLR 2023.
74. Giannis Daras, Kulin Shah, Yuval Dagan, Aravind Gollakota, Alex Dimakis, Adam R. Klivans. Ambient Diffusion: Learning Clean Distributions from Corrupted Data. NeurIPS 2023.
73. Aravind Gollakota, Parikshit Gopalan, Adam R. Klivans, Konstantinos Stavropoulos. Agnostically Learning Single-Index Models using Omnipredictors. NeurIPS 2023.
72. Aravind Gollakota, Adam R. Klivans, Konstantinos Stavropoulos, Arsen Vasilyan. Tester-Learners for Halfspaces: Universal Algorithms. NeurIPS 2023.
71. Jeffrey Ouyang-Zhang, Daniel Jesus Diaz, Adam R. Klivans, Philipp Krähenbühl. Predicting a Protein's Stability under a Million Mutations. NeurIPS 2023.
70. Kulin Shah, Sitan Chen, Adam R. Klivans. Learning Mixtures of Gaussians Using the DDPM Objective. NeurIPS 2023.
69. Aravind Gollakota, Adam R. Klivans, Pravesh K. Kothari. A Moment-Matching Approach to Testable Learning and a New Characterization of Rademacher Complexity. STOC 2023.
68. Sitan Chen, Aravind Gollakota, Adam R. Klivans, Raghu Meka. Hardness of Noise-Free Learning for Two-Hidden-Layer Neural Networks. In NeurIPS 2022.
67. Sitan Chen, Adam R. Klivans, Raghu Meka. Learning Deep ReLU Networks Is Fixed-Parameter Tractable. In FOCS 2021.
66. Surbhi Goel, Adam R. Klivans, Pasin Manurangsi, Daniel Reichman. Tight Hardness Results for Training Depth-2 ReLU Networks. In ITCS 2021.
65. Ilias Diakonikolas, Surbhi Goel, Sushrut Karmalkar, Adam R. Klivans, Mahdi Soltanolkotabi. Approximation Schemes for ReLU Regression. In COLT 2020.
64. Surbhi Goel, Aravind Gollakota, Zhihan Jin, Sushrut Karmalkar, Adam R. Klivans. Superpolynomial Lower Bounds for Learning One-Layer Neural Networks using Gradient Descent. In ICML 2020.
63. Mao Ye, Chengyue Gong, Lizhen Nie, Denny Zhou, Adam R. Klivans, Qiang Liu. Good Subnetworks Provably Exist: Pruning via Greedy Forward Selection. In ICML 2020.

62. Surbhi Goel, Aravind Gollakota, Adam R. Klivans. Statistical-Query Lower Bounds via Functional Gradients. In *NeurIPS 2020*.
61. Surbhi Goel, Adam R. Klivans, Frederic Koehler. From Boltzmann Machines to Neural Networks and Back Again. In *NeurIPS 2020*.
60. Sushrut Karmalkar, Pravesh Kothari, Adam Klivans. List-Decodable Linear Regression. In *NeurIPS*, 2019 (Spotlight).
59. Surbhi Goel, Sushrut Karmalkar, Adam Klivans. Time/Accuracy Tradeoffs for Learning a ReLU with Gaussian Marginals. In *NeurIPS*, 2019 (Spotlight).
58. Surbhi Goel, Adam Klivans. Learning Neural Networks with Two Nonlinear Layers in Polynomial-Time. In *COLT*, 2019.
57. Surbhi Goel, Daniel Kane, Adam Klivans. Learning Ising Models with Independent Failures. In *COLT*, 2019.

#### **Journal Publications while in rank of Associate Professor**

All articles are refereed. For latest articles see “Articles in Conference Proceedings” below.

56. Prahladh Harsha, Adam Klivans, Raghu Meka. Bounding the Sensitivity of Polynomial Threshold Functions In *Theory of Computing*, Vol 10(1) pages 1–26, 2014.
55. Prahladh Harsha, Adam Klivans, Raghu Meka. An Invariance Principle for Polytopes. In *Journal of the ACM*, Vol. 59(6) pages 1–25, 2012.

See also Articles in Conference Proceedings.

#### **Journal Publications while in rank of Assistant Professor**

54. Adam Klivans, Alexander Sherstov. Lower Bounds for Agnostic Learning via Approximate Rank. In *Computational Complexity*, Vol. 19(4) pages 581–604, 2010.
53. Adam Klivans, Alexander Sherstov. Cryptographic Hardness for Learning Intersections of Halfspaces. In *J. Comput. Syst. Sci.*, Vol 75(1) pages 2–12, 2009.
52. Lance Fortnow, Adam Klivans. Efficient Learning Algorithms Yield Circuit Lower Bounds. In *J. Comput Syst. Sci.*, Vol75(1) pages 27–36, 2009.
51. Adam Klivans, Philip Long, Rocco Servedio. Learning Halfspaces with Malicious Noise. In *Journal of Machine Learning Research*, Vol 10 pages 2715–2740, 2009.
50. Michael Alekhnovich, Mark Braverman, Vitaly Feldman, Adam Klivans, Toniann Pitassi. The complexity of properly learning simple concept classes. In *J. Comput. Syst. Sci.*, Vol 74(1) pages 16–34, 2008.
49. Adam Klivans, Rocco Servedio. Learning Intersections of Halfspaces with a Margin. In *J. Comput. Syst Sci.*, Vol 74(1) pages 35–48, 2008.
48. Adam Kalai, Adam Klivans, Yishay Mansour, Rocco Servedio. Agnostically Learning Halfspaces. In *SIAM J. Comput.*, Vol 37(6) pages 1777–1805, 2008.
47. Adam Klivans, Alexander Sherstov. Unconditional Lower Bounds for Learning Intersections of Halfspaces. In *Machine Learning*, Vol. 69(2-3) pages 97–114, 2007.

46. Adam Klivans, Rocco Servedio. Toward Attribute Efficient Learning of Decision Lists and Parities. In *Journal of Machine Learning Research*, Vol. 7 pages 587–602, 2006.
45. Adam Klivans, Amir Shpilka. Learning Restricted Models of Arithmetic Circuits. In *Theory of Computing*, Vol. 2(10) pages 185–206, 2006.

See also Articles in Conference Proceedings.

#### **Journal Publications as a Postdoctoral Fellow**

44. Adam Klivans, Rocco Servedio. Learning DNF in Time  $2^{\tilde{O}(n^{1/3})}$ . In *J. Comput. Syst. Sci.*, Vol. 68(2) pages 303–318, 2004.
43. Adam Klivans, Dieter van Melkebeek. Graph Nonisomorphism has Subexponential Size Proofs Unless the Polynomial-Time Hierarchy Collapses. In *SIAM J. Comput.*, Vol. 31(5) pages 1501–1526, 2002.

See also Articles in Conference Proceedings.

#### **Articles in Conference Proceedings as an Associate Professor**

42. Adam Klivans, William Hoza. Preserving Randomness for Adaptive Algorithms. In *RANDOM*, pages 42:1–42:19, 2018.
41. Adam Klivans, Pravesh Kothari, Raghu Meka. Efficient Algorithms for Outlier-Robust Regression. In *COLT*, pages 1420–1430, 2018.
40. Surbhi Goel, Adam Klivans, Raghu Meka. Learning One Convolutional Layer with Overlapping Patches. In *ICML*, pages 1778–1786, 2018.
39. Elad Hazan, Adam Klivans, Yang Yuan. Hyperparameter Optimization: A Spectral Approach. In *ICLR*, 2018. *Selected Oral Presentation, NIPS Workshop on Deep Learning: Theory and Practice*.
38. Surbhi Goel, Adam Klivans. Eigenvalue Decay Implies Polynomial-Time Learnability for Neural Networks. In *NIPS*, pages 2189–2199, 2017.
37. Adam Klivans, Raghu Meka. Learning Graphical Models Using Multiplicative Weights. In *FOCS*, pages 343–354, 2017.
36. Surbhi Goel, Varun Kanade, Adam Klivans, Justin Thaler. Reliably Learning the ReLU in Polynomial Time. In *COLT*, pages 1004–1042, 2017.
35. Erik Lindgren, Alex Dimakis, Adam Klivans. Exact MAP Inference by Avoiding Fractional Vertices. In *ICML*, pages 2120–2129, 2017.
34. Murat Kocaoglu, Karthikeyan Shanmugan, Alex Dimakis, Adam Klivans. Sparse Polynomial Learning and Graph Sketching. In *NIPS*, pages 3122–3130, 2014.
33. Adam Klivans, Pravesh Kothari. Embedding Hard Learning Problems into Gaussian Space. In *RANDOM*, pages 793–908, 2014.
32. Adam Klivans, Pravesh Kothari, Igor Oliveira. Constructing Hard Functions Using Learning Algorithms. In *Conference on Computational Complexity*, pages 86–97, 2013.
31. Daniel Kane, Adam Klivans, Raghu Meka. Learning Halfspaces Under Log-Concave Densities: Polynomial Approximations and Moment Matching. In *COLT*, pages 522–545, 2013.

30. Eshan Chattopadhyay, Adam Klivans, Pravesh Kothari. An Explicit VC-Theorem for Low-Degree Polynomials. In *RANDOM*, pages 495–504, 2012.
29. Mahdi Cheraghchi, Adam Klivans, Pravesh Kothari, Homin Lee. Submodular Functions are Noise Stable. In *SODA*, pages 1586–1592, 2012.
28. Parikshit Gopalan, Adam Klivans, Raghu Meka. Learning Functions of Halfspaces Using Prefix Covers. In *COLT*, pages 15.1–15.10, 2012.
27. Parikshit Gopalan, Adam Klivans, Raghu Meka. An FPTAS for  $\#\text{Knapsack}$  and Related Counting Problems. (Merged with a similar result due to Stefankovic, Vempala, and Vigoda). In *FOCS*, pages 817–826, 2011.

### **Articles in Conference Proceedings as an Assistant Professor**

26. Adam Klivans, Homin Lee, Andrew Wan Masour's Conjecture is True for Random DNF Formulas. In *COLT*, pages 368–380, 2010.
25. Ilias Diakonikolas, Prahladh Harsha, Adam Klivans, Raghu Meka, Prasad Raghavendra, Rocco Servedio, Li-Yang Tan. Bounding the Average Sensitivity and Noise Sensitivity of Polynomial Threshold Functions. In *STOC*, pages 533–542, 2010.
24. Prahladh Harsha, Adam Klivans, Raghu Meka. An Invariance Principle for Polytopes. In *STOC*, pages 543–552, 2010.
23. Adam Klivans, Philip Long, Alex Tang. Baum's Algorithm Learns Intersections of Halfspaces with Respect to Log-Concave Distributions. In *RANDOM*, pages 588–600, 2009.
22. Adam Klivans, Philip Long, Rocco Servedio. Learning Halfspaces with Malicious Noise. In *ICALP*, pages 609–621, 2009.
21. Adam Klivans, Ryan O'Donnell, Rocco Servedio. Learning Geometric Concepts via Gaussian Surface Area. In *FOCS*, pages 541–550, 2008.
20. Parikshit Gopalan, Adam Klivans, David Zuckerman. List-decoding Reed-Muller Codes over Small Fields. In *STOC*, pages 265–274, 2008.
19. Parikshit Gopalan, Adam Kalai, Adam Klivans. Agnostically Learning Decision Trees. In *STOC*, pages 527–536, 2008.
18. Adam Klivans, Alexander Sherstov. A Lower Bound for Agnostically Learning Disjunctions. In *COLT*, pages 409–423, 2007.
17. Adam Klivans, Alexander Sherstov. Improved Lower Bounds for Learning Intersections of Halfspaces. In *COLT*, pages 335–349, 2006.
16. Lance Fortnow, Adam Klivans. Efficient Learning Algorithms Yield Circuit Lower Bounds. In *COLT*, pages 350–363, 2006.
15. Adam Klivans, Alexander Sherstov. Cryptographic Hardness for Learning Intersections of Halfspaces. In *FOCS*, pages 553–562, 2006.
14. Lance Fortnow, Adam Klivans. Linear Advice for Randomized Logarithmic Space. In *STACS*, pages 469–476, 2006.



13. Lance Fortnow, Adam Klivans. NP with Small Advice. In *Conference on Computational Complexity*, pages 228–234, 2005.
12. Adam Kalai, Adam Klivans, Yishay Mansour, Rocco Servedio. Agnostically Learning Halfspaces. In *FOCS*, pages 11–20, 2005.

**Articles in Conference Proceedings as a Postdoctoral Fellow**

11. Adam Klivans, Rocco Servedio. Toward Attribute Efficient Learning of Decision Lists and Parities. In *COLT*, pages 224–238, 2004.
10. Adam Klivans, Rocco Servedio. Learning Intersections of Halfspaces with a Margin. In *COLT*, pages 348–362, 2004.
9. Michael Alekhnovich, Mark Braverman, Vitaly Feldman, Adam Klivans, Toniann Pitassi. Learnability and Automatizability. In *FOCS*, pages 621–630, 2004.
8. Adam Klivans, Amir Shpilka. Learning Arithmetic Circuits via Partial Derivatives. In *COLT*, pages 463–476, 2003.

**Articles in Conference Proceedings as a Graduate Student**

7. Jeffrey Jackson, Adam Klivans, Rocco Servedio. Learnability Beyond AC0. In *FOCS*, pages 177–186, 2002.
6. Adam Klivans, Ryan O’Donnell, Rocco Servedio. Learning Intersections and Threshold of Halfspaces. In *FOCS*, pages 177–186, 2002.
5. Adam Klivans On the Derandomization of Constant-Depth Circuits. In *RANDOM*, pages 249–260, 2002.
4. Adam Klivans, Daniel Spielman. Randomness Efficient Identity Testing of Multivariate Polynomials. In *STOC*, pages 216–223, 2001.
3. Adam Klivans, Rocco Servedio. Learning DNF in Time  $2^{\tilde{O}(n^{1/3})}$ . In *STOC*, pages 258–265, 2001.
2. Adam Klivans, Rocco Servedio. Boosting and Hard-Core Sets. In *FOCS*, pages 624–633, 1999.
1. Adam Klivans, Dieter van Melkebeek. Graph Nonisomorphism has Subexponential Size Proofs Unless the Polynomial-Time Hierarchy Collapses. In *STOC*, pages 659–667, 1999.

**Research Service**

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**2020-present:** Director, IFML.

**2025:** Chair, TheoryFest Workshop Committee at STOC 2025.

**2021:** TCS Insularity Task Force.

[Conference chair positions](#).....

**2009:** Program chair for COLT (Conference on Learning Theory).

[Major conference/workshop program committees](#).....

**2022:** Conference on Learning Theory (COLT).

**2021:** Organizer for Simons Institute Long-Term Program on Computational Complexity of Statistical Inference.

**2020:** Conference on Learning Theory (COLT).

**2019:** Foundations of Computer Science (FOCS).

**2019:** Conference on Learning Theory (COLT).

**2016:** Randomization and Approximation (RANDOM).

**2013:** Conference on Learning Theory (COLT).

**2013:** Foundations of Computer Science (FOCS).

**2012:** Foundations of Computer Science (FOCS).

**2012:** Innovations in Theoretical Computer Science (ITCS).

**2011:** Conference on Learning Theory (COLT).

**2009:** Conference on Learning Theory (COLT).

**2009:** Symposium on Discrete Algorithms (SODA).

**2008:** Randomization and Approximation (RANDOM).

**2007:** Foundations of Computer Science (FOCS).

**2007:** International Conference on Machine Learning (ICML).

**2007:** Conference on Learning Theory (COLT).

**2007:** Conference on Computational Complexity (CCC).

**2007:** Algorithmic Learning Theory (ALT).

**2004:** Symposium on Theory of Computing (STOC).

**2004:** International Conference on Machine Learning (ICML).

## Administrative Service

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**2024–current:** Director, UT Online Masters in AI Program

**2020–current:** Director, Machine Learning Lab

**2020–current:** Director, IFML

**2020-2024:** Director, UT Online Masters in CS Program

**2017-:** GSC Chair

**2017-2018:** Undergraduate Studies Committee

**2016-2017:** Doctoral Admissions

**2016-2017:** GDC Advisory Board

**2013-2014:** Faculty Evaluation Committee

**2012-2013:** Doctoral Admissions (Chair)

**2012-2013:** Events (Chair)

**2011-2012:** Faculty Recruiting

**2011-2012:** Gates Building Design Committee

**2010-2011:** Undergraduate Studies

**2010-2011:** Gates Building Design Committee

**2009-2010:** Undergraduate Studies

**2009-2010:** Doctoral Admissions

**2008-2009:** Events

**2007-2008:** Faculty Evaluation

**2006-2007:** Faculty Evaluation

## Seminars and lectures

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### Distinguished Lectures/Invited Colloquia.....

**2024:** TCS+ Online Seminar

**2024:** Yale SDS Colloquium, New Haven, CT.

**2023:** University of Chicago Data Science Institute, Distinguished Lecture, Chicago, IL.

**2020:** Northwestern CS, Distinguished Lecture, Evanston, IL.

**2019:** MIT, SDS Colloquium (Statistics and Data Science Colloquium, Cambridge, MA).

**2017:** MIT, TOC (Theory of Computing) Colloquium, Cambridge, MA.

### Invited Workshop Speaker.....

**2024:** Simons Institute Modern Paradigms in Generalization

**2024:** ETH Workshop on Mathematics of Machine Learning

**2023:** Columbia University Workshop on Statistical Machine Learning

**2022:** EPFL Stochastics and Optimization Workshop

**2021:** Simons Institute Program on Computational Complexity of Statistical Inference, Berkeley CA.

**2019:** Simons Institute Program on Foundations of Deep Learning, Berkeley CA.

**2018:** Simons Institute Workshop on Robust Learning, Berkeley, CA.

**2018:** Georgia Tech Workshop on Foundations of Deep Learning, Atlanta, GA.

**2017:** Simons Institute Workshop on Pseudorandomness, Berkeley CA.

**2017:** Simons Institute Workshop on Machine Learning, Berkeley, CA.

**2016:** DIMACS Workshop on Learning and Cryptography, Piscataway, NJ.

**2013:** Simons Institute "Learning Theory Bootcamp," (Four Lectures), Berkeley, CA.

**2013:** Simons Institute Workshop on Real Analysis in Testing, Learning and Inapproximability, Berkeley, CA.

**2011:** MSRI Workshop on Quantitative Geometry in Computer Science, Berkeley, CA.

**2009:** Princeton Barriers in Computational Complexity, Princeton, NJ.

**2009:** ITA Workshop on Information Theory and Applications, San Diego, CA.

**2008:** NSF Workshop on Probability and Computing, Ithaca, NY.

**2008:** FoCM workshop on Learning Theory, Hong Kong.

**2008:** BIRS workshop on Analytic Methods in Complexity, Banff, Canada.

**2007:** Dagstuhl workshop Algebra and Complexity, Dagstuhl, Germany.

**2006:** BIRS workshop on Advances in Complexity, Banff, Canada.

**2003:** TTI Machine Learning Workshop on Reductions, Chicago, IL.

**2003:** DIMACS Workshop on Complexity and Inference, Piscataway, NJ.

**1999:** DIMACS Workshop on Pseudorandomness and Combinatorial Constructions, Piscataway, NJ.

## Conference Speaker Presentations.....

- 2024:** "Testable Learning with Distribution Shift," *COLT*, Edmonton, Canada.
- 2018:** "Efficient Algorithms for Outlier-Robust Regression," *COLT*, Stockholm, Sweden.
- 2017:** "Learning Undirected Graphical Models via Multiplicative Weights," *FOCS*, Berkeley, CA.
- 2008:** "Learning Geometric Concepts via Gaussian Surface Area," *FOCS*, Philadelphia, PA.
- 2006:** "Efficient Learning Algorithms Yield Circuit Lower Bounds," *COLT*, Pittsburgh, PA.
- 2005:** "NP with Small Advice," *Conference on Computational Complexity*, San Jose, CA.
- 2004:** "Learning Intersections of Halfspaces with a Margin," *COLT*, Banff, Canada.
- 2003:** "Learning Arithmetic Circuits," *COLT*, Washington D.C.
- 2001:** "On the Derandomization of Constant Depth Circuits," *RANDOM*, Berkeley, CA.
- 1999:** "Graph Nonisomorphism has Subexponential Size Proofs Unless the Polynomial-Time Hierarchy Collapses," *STOC*, Atlanta, GA.

## Invited Conference Speaker.....

- 2017:** Rice Data Science Conference, Houston, TX.

## Invited Talks Hosted by University Research Group.....

- 2018:** University of Texas at Austin Theory Seminar, Austin, TX.
- 2016:** Princeton University Theory Seminar, Princeton, NJ.
- 2012:** CMU Theory Seminar, Pittsburgh, PA.
- 2009:** University of Washington Theory Seminar, Seattle, WA.
- 2008:** Georgia Tech Theory Seminar, Atlanta, GA.
- 2008:** MIT Theory Seminar, Cambridge, MA.
- 2007:** Yale University Theory Seminar, New Haven, CT.
- 2006:** Carnegie-Mellon University Theory Seminar, Pittsburgh, PA.
- 2005:** University of Texas Theory Seminar, Austin, TX.
- 2004:** University of Wisconsin Theory Seminar, Madison, WI.
- 2004:** UIUC AI Seminar, Urbana, IL.
- 2004:** Cornell University Theory Seminar, Ithaca, NY.
- 2003:** Brown University Theory Seminar, Providence, RI.
- 2003:** Harvard-Radcliffe Theory of Computation Seminar, Cambridge, MA.

## Invited Talks Hosted by Industry/Government Labs or Professional Societies.....

- 2013:** Microsoft Research Seminar, Mountain View, CA.
- 2004:** Toyota Technological Institute, Chicago, IL.

## Journal, conference and book reviewing.....

- 2006–2020:** Associate Editor, Machine Learning Journal.
- 2004–2020:** Editor, Theory of Computing Journal.

The candidate reviews regularly for conferences and journals. Records of these are not kept.