Curriculum Vitae

Rocco A. Servedio
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Date of preparation: March 17, 2024

Education:

School	Degree	Date
Harvard University	Ph.D., Computer Science	2001
Harvard University	M.S., Computer Science	1997
Harvard University	A.B., Mathematics, *summa cum laude*	1993

Title of Ph.D. Thesis:

Efficient Algorithms in Computational Learning Theory
(Advisor: Leslie Valiant)

Principal Field of Specialization: Theoretical computer science: computational complexity theory, computational learning theory, sub-linear time algorithms and property testing, randomness in computing, algorithmic reconstruction

Career History:

- Columbia University, Professor of Computer Science — 2017 – present
- Columbia University, Chair, Department of Computer Science — July 2018 – June 2021
- Columbia University, Interim Chair, Department of Computer Science — July 2015 – Dec 2015
- Columbia University, Vice-Chair, Department of Computer Science — 2012 – 2018
- Columbia University, (tenured) Associate Professor of Computer Science — 2010 – 2016
- Princeton University, Visiting Fellow (sabbatical visit) — 2010 – 2011
- Columbia University, Associate Professor of Computer Science — 2007 – 2009
- Columbia University, Assistant Professor of Computer Science — 2003 – 2006
- Harvard University, Lecturer in Applied Mathematics — 2002
- National Science Foundation Mathematical Sciences Postdoctoral Fellow — 2001 – 2002
  Harvard University
  Postdoctoral Advisor: Leslie Valiant

Awards Received:

Internal:

- Society of Columbia Graduates Great Teacher Award, School of Engineering and Applied Science 2020
- 2013 Columbia University Presidential Teaching Award 2013
  (5 recipients out of 500+ nominations)
- Columbia Engineering Alumni Association Distinguished Faculty Teaching Award 2010
- Columbia Computer Science Department Distinguished Teaching Award 2010
- Charles and Jennifer Johnson Best Student Paper Prize, 2001
  Massachusetts Institute of Technology Department of Mathematics
  (with co-author Adam Klivans)
- Division of Engineering and Applied Sciences Teaching Fellow Award, 2000
  Harvard University
- Certificate of Distinction in Teaching, Harvard University 1997,1998,1999

External:

- Best Paper Award, 2017
  32nd Conference on Computational Complexity (**CCC**)
  (with coauthors X. Chen, L.-Y. Tan, E. Waingarten and J. Xie; one paper selected out of 98 submissions)
- Best Paper Award, 2015
  56th Annual IEEE Symposium on Foundations of Computer Science (**FOCS**)
  (with coauthors B. Rossman and L.-Y. Tan; one paper selected out of 314 submissions)
- IBM Research Pat Goldberg Math/CS/EE Best Paper Award 2014
  (with co-authors A. De, I. Diakonikolas and V. Feldman;
  one of three winners out of $\sim$ 100 eligible papers by IBM researchers)
- Google Research Awards 2008, 2010
- E. M. Gold Best Student Paper Award, 2006
  17th International Conference on Algorithmic Learning Theory (**ALT**)
  (with Ph.D. student Alp Atici)
- Mark Fulk Best Student Paper Award, 2006
  19th Annual Conference on Learning Theory (**COLT**)
  (with Ph.D. students Homin Lee and Andrew Wan)
- Alfred P. Sloan Foundation Fellowship 2005
- NSF Faculty CAREER Award 2004
- Best Paper Award, 2003
  18th Annual IEEE Conference on Computational Complexity (**CCC**)
  (with coauthor R. O'Donnell; one paper selected out of 65 submissions)
- Best Student Paper Award, 2001
  33rd ACM Symposium on Theory of Computing (**STOC**)
- Best Student Paper Award, 2000
  13th ACM Conference on Computational Learning Theory (**COLT**)
- NSF Graduate Research Fellowship 1996
- Phi Beta Kappa, Harvard University 1993

Paper invitations to journal special issues:

- "Fourier growth of structured F_2-polynomials and applications" invited to special issue of *Theory of Computing (ToC)* for **RANDOM** 2021 — 2021
- "Polynomial-time trace reconstruction in the smoothed complexity model" invited to special issue of *ACM Transactions on Algorithms (TALG)* for **SODA** 2021 — 2021
- "A Lower Bound on Cycle-Finding in Sparse Digraphs" invited to special issue of *ACM Transactions on Algorithms (TALG)* for **SODA** 2020 — 2020
- "Fooling Polytopes" invited to special issue of *SIAM J. Computing* for **STOC** 2019 — 2019
- "Improved pseudorandom generators from pseudorandom multi-switching lemmas" invited to special issue of *Theory of Computing (ToC)* for **RANDOM** 2019 — 2019
- "Settling the query complexity of non-adaptive junta testing" invited to *Journal of the ACM* (**CCC** 2017 best paper invitation) — 2017
- "Poly-logarithmic Frege depth lower bounds via an expander switching lemma" invited to *SIAM J. Computing* special issue for **STOC** 2016 — 2016
- "An average-case depth hierarchy for Boolean circuits" invited to *Journal of the ACM* (**FOCS** 2015 Best Paper invitation) — 2015
- "An average-case depth hierarchy for Boolean circuits" invited to *SIAM J. Computing* special issue of selected papers from **FOCS** 2015 — 2015
- "Learning Poisson Binomial Distributions" invited to *Algorithmica* special issue on Machine Learning — 2013
- "Nearly optimal solutions for the Chow parameters problem and low weight approximation of halfspaces" invited to *Theory of Computing* special issue on Analysis of Boolean Functions — 2012
- "Testing Fourier dimensionality and sparsity" invited to *Theoretical Computer Science* special issue of selected papers from **ICALP** 2009 — 2009
- "Every linear threshold function has a low-weight approximator" invited to *Computational Complexity* special issue of selected papers from **CCC** 2006 — 2006
- "Learning Monotone Decision Trees in Polynomial Time" invited to *Computational Complexity* special issue of selected papers from **CCC** 2006 — 2006
- "Learning Unions of $\omega(1)$-Dimensional Rectangles" invited to *Theoretical Computer Science* special issue of selected papers from **ALT** 2006 — 2006
- "DNF are Teachable in the Average Case" invited to *Machine Learning Journal* special issue of selected papers from **COLT** 2006 — 2006
- "Every Decision Tree has an Influential Variable" invited to *Journal of Computer & System Sciences* special issue on Learning Theory — 2006
- Invited paper ("On PAC Learning Algorithms for Rich Boolean Function Classes") at *3rd Annual Conference on Theory and Applications of Models of Computation*, (**TAMC**), Beijing, China. — 2006
- "On PAC Learning Algorithms for Rich Boolean Function Classes" invited to *Theoretical Computer Science* special issue of selected papers from **TAMC** 2006 — 2006
- "Separating Models of Learning from Correlated and Uncorrelated Data" invited to *Journal of Machine Learning Research* special issue of selected papers from **COLT** 2005 — 2005

- "Agnostically Learning Halfspaces" invited to *SIAM Journal on Computing* special issue of selected papers from **FOCS** 2005 — 2005
- "Learning Intersections of Halfspaces with a Margin" invited to *Journal of Computer & System Sciences* special issue of selected papers from **STOC**, **FOCS**, **COLT** and **UAI** 2004 — 2004
- "Learning Juntas" invited to *Journal of Computer & System Sciences* special issue of selected papers from **STOC** 2003 — 2003
- "Learning DNF from Random Walks" invited to *Journal of Computer & System Sciences* special issue of selected papers from **STOC**, **FOCS** and **COLT** 2003 — 2003
- "Boosting in the Presence of Noise" invited to *Journal of Computer & System Sciences* special issue of selected papers from **STOC**, **FOCS** and **COLT** 2003 — 2003
- "Extremal Properties of Polynomial Threshold Functions" invited to *Journal of Computer & System Sciences* special issue of selected papers from **CCC** 2003 — 2003
- "Learning Intersections and Thresholds of Halfspaces" invited to *Journal of Computer& System Sciences* special issue of selected papers from **FOCS** 2002 — 2002
- "On Learning Embedded Midbit Functions" invited to *Theoretical Computer Science* special issue of selected papers from **ALT** 2002 — 2002
- "Learning DNF in Time $2^{\tilde{O}(n^{1/3})}$" invited to *Journal of Computer & System Sciences* special issue of selected papers from **STOC** 2001 — 2001
- "Boosting and Hard-Core Set Construction" invited to *Machine Learning* special issue on Computational Learning Theory — 2000
- "PAC Analogues of Perceptron and Winnow via Boosting the Margin" invited to *Machine Learning* special issue of selected papers from **COLT** 2000 — 2000

Columbia University Service:

- SEAS Representative, joint Quantum Initiative Task Force between SEAS and A&S, 2019 - present.
- Committee member for SEAS Quantum Initiative, 2018 - present.
- Member, Provost's Faculty Advisory Committee, 2020-2024.
- Chair, Provost's Academic Review Committee for Data Science Institute, Fall 2021 - Spring 2022.
- Chair of Computer Science Department, 2018 - 2021.
- Co-chair of SEAS Quantum Initiative Faculty Search Committee, 2019-2020.
- Search committee for Barnard Assistant Professor of Computer Science, 2019 - 2020.
- Provost Leadership Fellow, Columbia University, 2017 - 2019.
- Columbia University, Interim Department Chair, Department of Computer Science, 7/2015 - 12/2015
- Vice-Chair of Computer Science Department, 2012 - 2018.
- Member-at-Large, SEAS Executive Committee, 2014 - 2016.
- Assignment and Scheduling Committee (chair), Computer Science Department, 2012 - 2016.
- Member of Oversight Council, The School at Columbia, 2008 - 2015.

- Member of Search Committee for Head of School, The School at Columbia, 2011 - 2012.
- Committee member, Foundations of Data Sciences Center, Columbia University Data Science Institute, 2013 - present.
- Editor of Columbia University Computer Science department newsletter. Spring '05, Fall '05, Spring '06, Fall '06, Spring '07, Spring '08, Fall '08, Spring '09, Fall '09, Spring '10, Spring '12 issues.
- Co-organized Columbia/NYU/IBM Research New York Area Theory Day (a 1-day seminar of invited talks on theoretical computer science from distinguished speakers, typically 80–100 attendees) Spring '04, Fall '04, Fall '06, Fall '08, Spring '09, Fall '11, Spring '12.
- Organized Columbia Computer Science Theory Seminar 2004–5, 2006–7, 2008-9, Spring 2010.
- Other Computer Science department committee memberships: MS admissions committee, Visibility committee, Nominations committee, MS committee, Ph.D. committee, Faculty Recruiting committee, Lecturer Recruiting committee.
- Served as Computer Science Department's "Foundations" Masters Track advisor and "Machine Learning" Masters Track advisor.
- Served on and chaired various SEAS Ad Hoc Committees to review candidates for promotion.
- Served on Columbia University committee to select Packard Fellowship nominees.
- Served on Data Science Institute committee to select Collaboratory proposal recipients.
- Columbia University Commencement Mace Bearer, 2014.
- External Member, Reading Subpanel of Review Panel for a meeting of the Columbia University Promotion and Tenure Committee (x2).
- Presenter at Computer Science Department Emerging Scholars Program research seminar (x4).

Professional Service:

Technical Program Committee Chairmanships:

- Program Committee chair, ACM Symposium on Theory of Computing (**STOC** 2023) 2023
- Program Committee chair, Conference on Computational Complexity (**CCC** 2018) 2018
- Program Committee chair, 16th International Workshop on Randomization and Computation (**RANDOM** 2012) 2012
- Program Committee co-chair, 21st Annual Conference on Learning Theory (**COLT** 2008) 2008
- Program Committee co-chair, Eighteenth International Conference on Algorithmic Learning Theory (**ALT** 2007) 2007

Editorial Service:

- Editor, TheoretiCS (Diamond Open Access electronic journal covering all areas of theoretical computer science) 2024 – present
- Member of the Scientific Board, ECCC (Electronic Colloquium on Computational Complexity) 2009 – present
- Associate Editor, *SIAM Journal on Computing* 2016 – 2022
- Associate Editor, *ACM Transactions on Algorithms* 2014 – 2016
- Area co-editor for Computational Learning Theory, *Encyclopedia of Algorithms*, 2nd ed. 2014
- Co-edited *SIAM J. Computing* Special Section on **STOC** 2009 2012

- Inaugural editorial board member, *ACM Transactions on Computation Theory* 2008 – 2018
- Co-editor for *Theoretical Computer Science* special issue of selected **ALT** 2007 papers 2008
- Area editor for Computational Learning Theory, *Encyclopedia of Algorithms* 2008
- Editorial board member, *Algorithmica* 2007-2011
- Editorial board member, *Machine Learning Journal* 2006-2008
- Action editor, *Journal of Machine Learning Research* 2005-2011

Program Committee Memberships:

ALT 2024, **ITCS** 2024, **STOC** 2022, **COLT** 2022, **COLT** 2017, **FOCS** 2016, **ITCS** 2016, **ICALP** 2015, **COLT** 2014, **ISAIM** 2014, **STOC** 2013, **ALT** 2012, **CCC** 2012, **FOCS** 2011, **ICS** 2011, **COLT** 2010, **RANDOM** 2010, **STOC** 2009, **CCC** 2008, **SODA** 2008, **TAMC** 2007, **COLT** 2007, **STOC** 2006, **ICML** 2006, **ICML** 2005, **COLT** 2005, **FOCS** 2004, **RANDOM** 2004, **ICML** 2004, **ALT** 2004, **ALT** 2003, **COLT** 2002, **ICML** 2002

Other Professional Service:

- Vice-Chair, IEEE Technical Committee on Mathematical Foundations of Computing, 2024 - 2025.
- Scientific Advisory Board, Simons Institute for the Theory of Computing, UC Berkeley, 2023 - 2025.
- Faculty Promotion and Mentoring panelist, SEAS New Faculty Orientation, Fall 2022.
- Member of **STOC** 2022 "Theoryfest" organizing committee (Workshop sub-committee), 2021-2022.
- Co-organized five-day workshop on "Average-Case Complexity: From Cryptography to Statistical Learning" held at the Simons Institute, UC Berkeley, November 2021.
- Mentor, Learning Theory Alliance Graduate Mentoring Program, 2021
- "How to write a research statement for academic jobs" — hourlong online presentation at COLT 2021 ($\approx$ 100 attendees), 2021.
- Professional Leadership and Development (PDL) panel for incoming students, 2021
- Organizing Committee, WoLA 2020 (Workshop on Local Algorithms), 2020
- External Review Committee for Computer Science Department, University of Pennsylvania, 2019
- Board member and Awards Chair of the Computational Complexity Foundation, 2016–2019
- Committee to select Editor-in-Chief of *ACM Transactions on Computation Theory* (TOCT), 2016
- **STOC** 2015 General Chair, 2015
- DIMACS (Center for Discrete Mathematics and Theoretical Computer Science, Rutgers University) Executive Committee, 2014–2018
- ACM SIGACT Executive Committee Member-at-Large, 2012 – 2015
- Co-organized five-day workshop on "Real Analysis in Testing, Learning and Inapproximability" held at the Simons Institute, UC Berkeley, August 2013.
- Panelist for Simons Foundation symposium planning meeting (x2), 2012.
- One of four reviewers of Simons Graduate Fellowship Applications in theoretical computer science, 2012.
- Co-organized two-day workshop on "Analysis and Geometry of Boolean Threshold Functions" held in Princeton in October 2010.
- Co-organized daylong workshop in celebration of Leslie Valiant's 60th birthday, May 2009 (co-located with STOC).

- Program committee member for Princeton Center for Computational Intractability workshop on "Barriers in Computational Complexity," 2009.
- Member, Association for Computational Learning (**COLT** conference steering committee), 2005–2008.
- Steering Committee Member, Conference on Algorithmic Learning Theory (**ALT**), 2007–2008.
- Participated in NSF-sponsored workshop on "The Computational Worldview and the Sciences," 2007.
- NSF theoretical computer science grant panelist (10+ occasions).
- External grant reviewer for Israel Science Foundation (five occasions).
- External referee for many journals and conferences in theoretical computer science and machine learning, including *Journal of the ACM*, *SIAM Journal on Computing*, *SIAM Journal on Discrete Mathematics*, *Journal of Computer and System Sciences*, *Journal of Machine Learning Research*, *Computational Complexity*, *Annals of Operations Research*, *Machine Learning Journal*, *Theoretical Computer Science*, *Theory of Computing Systems*, *Journal of Interconnection Networks*, *European Journal of Operational Research*, *Neural Computation*, *Neural Networks*, *Information Processing Letters*, *Symposium on Theory of Computing (***STOC***)*, *Symposium on Foundations of Computer Science (***FOCS***)*, *Symposium on Discrete Algorithms (***SODA***)*, *Conference on Computational Learning Theory (***COLT***)*, *Conference on Computational Complexity (***CCC***)*, *Advances in Neural Information Processing Systems (***NIPS***)*, *International Conference on Machine Learning (***ICML***)*, *Symposium on Theoretical Aspects of Computer Science (***STACS***)*, *International Conference on Computational Molecular Biology (***RECOMB***)*, *International Conference on Algorithmic Learning Theory (***ALT***)*

Consulting Record:

- Consultant, Microsoft Research Silicon Valley (intermittent) 2009-2015
  Research in theoretical computer science (computational learning & complexity, derandomization)
- Encryption Researcher, Widevine Technologies 2000-2001
  Performed theoretical and experimental security analysis of a cryptosystem.
- Consultant, Harvard University Library 1997-1998
  Designed and implemented a machine learning based software system to select books with low predicted frequency of future use for storage in an offsite facility.

Patents:

1. "Systems and methods for martingale boosting in machine learning," with P. Long, R. Anderson and A. Boulanger, patent number 8,036,996, granted October 11, 2011.
2. "Method and apparatus for machine learning using a random projection," with P. Long, patent number 8,744,981, granted June 3, 2014.
3. "Method and apparatus for machine learning," with P. Long, patent number 8,972,307, granted March 3, 2015.

Teaching Experience and Evaluations at Columbia:

- Fall 2023: taught COMS 4252 ("Introduction to Computational Learning Theory") to 62 students. Received instructor rating of 4.53 out of 5.0.
- Spring 2023: taught COMS 4236 ("Introduction to Computational Complexity") to 43 students. Received instructor rating of 4.47 out of 5.0.

• Fall 2022: taught COMS 4252 ("Introduction to Computational Learning Theory") to 105 students. Received instructor rating of 4.47 out of 5.0.

• Spring 2022: taught COMS 4236 ("Introduction to Computational Complexity") to 57 students. Received instructor rating of 4.67 out of 5.0.

• Fall 2021: taught COMS 4252 ("Introduction to Computational Learning Theory") to 107 students. Received instructor rating of 4.55 out of 5.0.

• Spring 2021: taught COMS 4252 ("Introduction to Computational Learning Theory") to 98 students. Received instructor rating of 4.55 out of 5.0.

• Fall 2018: taught COMS 4252 ("Introduction to Computational Learning Theory") to 89 students. Received instructor rating of 4.54 out of 5.0.

• Spring 2017: taught COMS 6998 ("Advanced Topics in Computational Complexity") to 17 students. Received instructor rating of 4.80 out of 5.0.

• Fall 2015: taught COMS 4252 ("Introduction to Computational Learning Theory") to 62 students. Received instructor rating of 4.91 out of 5.0.

• Fall 2014: taught COMS 4252 ("Introduction to Computational Learning Theory") to 69 students. Received instructor rating of 4.63 out of 5.0.

• Spring 2014: taught COMS 6998 ("Sublinear Time Algorithms in Learning and Property Testing") to 17 students. Received instructor rating of 4.83 out of 5.0.

• Fall 2013: taught COMS 4252 ("Introduction to Computational Learning Theory") to 59 students. Received instructor rating of 4.63 out of 5.0.

• Fall 2012: taught COMS 4252 ("Introduction to Computational Learning Theory") to 61 students. Received instructor rating of 4.29 out of 5.0.

• Spring 2012: taught COMS 6253 ("Advanced Topics in Computational Learning Theory") to 14 students. Received instructor rating of 4.89 out of 5.0.

• Fall 2011: taught COMS 4252 ("Introduction to Computational Learning Theory") to 92 students. Received instructor rating of 4.45 out of 5.0.

• Spring 2010: taught COMS 4236 ("Introduction to Computational Complexity") to 15 students. Received instructor rating of 5.0 out of 5.0.

• Fall 2009: taught COMS 4252 ("Introduction to Computational Learning Theory") to 32 students. Received instructor rating of 4.62 out of 5.0.

• Spring 2009: taught COMS 6998 ("Advanced Topics in Computational Complexity") to 13 students. Received instructor rating of 4.78 out of 5.0.

• Fall 2008: taught COMS 4252 ("Introduction to Computational Learning Theory") to 37 students. Received instructor rating of 4.48 out of 5.0.

• Spring 2008: taught COMS 4236 ("Introduction to Computational Complexity") to 26 students. Received instructor rating of 4.88 out of 5.0.

• Spring 2007: taught COMS 6253 ("Introduction to Computational Learning Theory") to 10 students. Received instructor rating of 4.90 out of 5.0.

• Fall 2006: taught COMS 4252 ("Introduction to Computational Learning Theory") to 33 students. Received instructor rating of 4.45 out of 5.0.

• Spring 2006: taught COMS 4236 ("Introduction to Computational Complexity") to 26 students. Received instructor rating of 4.06 out of 5.0.

• Fall 2005: taught COMS 4252 ("Introduction to Computational Learning Theory") to 23 students. Received instructor rating of 4.72 out of 5.0.

• Spring 2005: taught COMS 6998 ("Advanced Topics in Computational Learning Theory") at Columbia University to 18 students. Received instructor rating of 4.86 out of 5.0.

• Fall 2004: taught COMS 4252 ("Introduction to Computational Learning Theory") to 24 students. Received an instructor rating of 4.7 out of 5.0.

• Spring 2004: taught COMS 4236 ("Introduction to Computational Complexity") to 23 students. Received an instructor rating of 4.5 out of 5.0.

• Fall 2003: taught COMS 4995 ("Introduction to Computational Learning Theory") to 21 students. (x995 courses not rated that term.)

• Spring 2003: taught COMS 4236 ("Introduction to Computational Complexity") to 23 students. Received instructor rating of 4.7 out of 5.0.

• Spring 2002: taught Applied Mathematics 107 (undergraduate course in Graph Theory and Combinatorics) at Harvard University to 33 students. Received instructor rating of 4.8 out of 5.0.

Publications

Please note that in theoretical computer science the convention is for all authors to be listed alphabetically. Co-authors who were students when the work was done are underlined below.

Papers in Refereed Conferences

(Many of these papers were subsequently published as journal articles.)

[C1] "Detecting low-degree truncation," A. De and H. Li and S. Nadimpalli and R.A. Servedio, *56nd ACM Symposium on Theory of Computing* (**STOC**), to appear, 2024. 188/592 papers (32%) accepted.

[C2] "Testing Intersecting and Union-Closed Families," A. De and S. Nadimpalli and R.A. Servedio, *15th Innovations in Theoretical Computer Science Conference* (**ITCS**), pp. 33:1-33:23, 2024. 120/246 papers (49%) accepted.

[C3] "Mildly Exponential Lower Bounds on Tolerant Testers for Monotonicity, Unateness, and Juntas," X. Chen and A. De and Y. Li and S. Nadimpalli and R. Servedio, *ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), 2024. 190/652 papers (29%) accepted.

[C4] "Explicit orthogonal and unitary designs," R. O'Donnell and R. Servedio and P. Paredes (author ordering randomized), *64th IEEE Symposium on Foundations of Computer Science* (**FOCS**), pp. 1240-1260, 2023. 143/422 papers (34%) accepted.

[C5] "Subset Sum in Time $2^{n/2}/\mathrm{poly}(n)$," X. Chen and Y. Jin and T. Randolph and R. A. Servedio, *International Conference on Randomization and Computation* (**RANDOM**), Article No. 39; pp. 39:1–39:18, 2023. 38/67 papers (56%) accepted.

[C6] "Approximate Trace Reconstruction from a Single Trace," X. Chen and A. De and C.-H. Lee and R. A. Servedio and S. Sinha, *ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), 2023. 190/652 papers (29%) accepted.

[C7] "Testing Convex Truncation," A. De and S. Nadimpalli and R. A. Servedio, *ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), 2023. 190/652 papers (29%) accepted.

[C8] "Near-Optimal Statistical Query Lower Bounds for Agnostically Learning Intersections of Halfspaces with Gaussian Marginals," D. Hsu, C. Sanford, R. A. Servedio and E.-V. Vlatakis-Gkaragkounis, *35th Annual Conference on Learning Theory* (**COLT**), 2022. 155/470 papers (33%) accepted.

[C9] "Convex Influences," A. De and S. Nadimpalli and R.A. Servedio, *13th Innovations in Theoretical Computer Science Conference* (**ITCS**), pp. 53:1-53:21, 2022. 120/246 papers (49%) accepted.

[C10] "Approximating sumset size," A. De and S. Nadimpalli and R.A. Servedio, *ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), 2022. 150/491 papers (31%) accepted.

[C11] "Near-optimal average-case approximate trace reconstruction from few traces," X. Chen and A. De and C.-H. Lee and R. A. Servedio and S. Sinha, *ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), 2022. 150/491 papers (31%) accepted.

[C12] "Average-case subset balancing problems," X. Chen and Y. Jin and T. Randolph and R. A. Servedio, *ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), 2022. 150/491 papers (31%) accepted.

[C13] "Fourier growth of structured F_2-polynomials and applications," J. Błasiok and P. Ivanov and Y. Jin and C.-H. Lee and R. Servedio and E. Viola, *25th International Workshop on Randomization and Computation* (**RANDOM**), 2021. 35/84 papers (42%) accepted.

[C14] "Deterministic approximate counting of polynomial threshold functions via a derandomized regularity lemma," R. A. Servedio and L.-Y. Tan, *25th International Workshop on Randomization and Computation* (**RANDOM**), 2021. 35/84 papers (42%) accepted.

[C15] "Weak learning convex sets under normal distributions," A. De and R. A. Servedio, *34th Annual Conference on Learning Theory* (**COLT**), 2021. 136/387 papers (35%) accepted.

[C16] "On the Approximation Power of Two-Layer Networks of Random ReLUs," D. Hsu, C. Sanford, R. A. Servedio and E.-V. Vlatakis-Gkaragkounis, *34th Annual Conference on Learning Theory* (**COLT**), 2021. 136/387 papers (35%) accepted.

[C17] "Learning sparse mixtures of permutations from noisy information," A. De, R. O'Donnell and R. A. Servedio, *34th Annual Conference on Learning Theory* (**COLT**), 2021. 136/387 papers (35%) accepted.

[C18] "Reconstructing weighted voting schemes from partial information about their power indices," H. Bennett, A. De, R. A. Servedio and E.-V. Vlatakis-Gkaragkounis, *34th Annual Conference on Learning Theory* (**COLT**), 2021. 136/387 papers (35%) accepted.

[C19] "Polynomial-time trace reconstruction in the smoothed complexity model," X. Chen and A. De and C.-H. Lee and R. A. Servedio and S. Sinha, *ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), pp. 54-73, 2021. 180/637 papers (28%) accepted.

[C20] "Polynomial-time trace reconstruction in the low-deletion rate regime," X. Chen and A. De and C.-H. Lee and R. A. Servedio and S. Sinha, *12th Innovations in Theoretical Computer Science Conference* (**ITCS**), pp. 20:1-20:20, 2021. 89/214 papers (42%) accepted.

[C21] "Quantitative correlation inequalities via semigroup interpolation," A. De and S. Nadimpalli and R.A. Servedio, *12th Innovations in Theoretical Computer Science Conference* (**ITCS**), pp. 69:1-69:20, 2021. 89/214 papers (42%) accepted.

[C22] "Fooling Gaussian PTFs via Local Hyperconcentration," R. O'Donnell and R.A. Servedio and L.-Y. Tan, *52nd ACM Symposium on Theory of Computing* (**STOC**), pp. 1170-1183, 2020. 113/440 papers (26%) accepted.

[C23] "Testing noisy linear functions for sparsity," X. Chen and A. De and R.A. Servedio, *52nd ACM Symposium on Theory of Computing* (**STOC**), pp. 610-623, 2020. 113/440 papers (26%) accepted.

[C24] "A Lower Bound on Cycle-Finding in Sparse Digraphs," X. Chen and T. Randolph and R.A. Servedio and T. Sun, *ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), pp. 2936-2952, 2020. 180/589 papers (31%) accepted.

[C25] "Learning from satisfying assignments under continuous distributions," C. Canonne and A. De and R.A. Servedio, *ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), pp. 82-101, 2020. 180/589 papers (31%) accepted.

[C26] "Beyond trace reconstruction: Population recovery from the deletion channel," F. Ban and X. Chen and A. Freilich and R.A. Servedio and S. Sinha, *60th IEEE Symposium on Foundations of Computer Science* (**FOCS**), pp. 745-768, 2019. 92/318 papers (29%) accepted.

[C27] "Improved pseudorandom generators from pseudorandom multi-switching lemmas," R.A. Servedio and L.-Y. Tan, *23rd International Workshop on Randomization and Computation* (**RANDOM**), 45:1-45:23, 2019. 39/66 papers (59%) accepted.

[C28] "Efficient average-case population recovery in the presence of insertions and deletions," F. Ban and X. Chen and R.A. Servedio and S. Sinha, *23rd International Workshop on Randomization and Computation* (**RANDOM**), 44:1-44:18, 2019. 39/66 papers (59%) accepted.

[C29] "Simple and efficient pseudorandom generators from Gaussian processes," E. Chattopadhyay and A. De and R.A. Servedio, *34th Computational Complexity Conference* (**CCC**), 4:1-4:33, 2019. 32/99 papers (32%) accepted.

[C30] "Fooling polytopes," R. O'Donnell and R.A. Servedio and L.-Y. Tan, *51st ACM Symposium on Theory of Computing* (**STOC**), pp. 614-625, 2019. 114/424 papers (27%) accepted.

[C31] "Density estimation for shift-invariant multidimensional distributions," A. De and P. Long and R.A. Servedio, *10th Innovations in Theoretical Computer Science Conference* (**ITCS**), 28:1-28:20, 2019. 66/202 papers (33%) accepted.

[C32] "Pseudorandomness for read-k DNF formulas," R.A. Servedio and L.-Y. Tan, *30th ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), 621-638, 2019. 180/586 papers (31%) accepted.

[C33] "Learning Sums of Independent Random Variables with Sparse Collective Support,"' A. De and P. Long and R.A. Servedio, *59th IEEE Symposium on Foundations of Computer Science* (**FOCS**), 297-308, 2018. 86/320 papers (27%) accepted.

[C34] "Luby–Veličković–Wigderson revisited: Improved correlation bounds and pseudorandom generators for depth-two circuits," R.A. Servedio and L.-Y. Tan, *22nd International Conference on Randomization and Computation* (**RANDOM**), 56:1-56:20, 2018. 30/73 papers (41%) accepted.

[C35] "Distribution-Free Junta Testing," X. Chen and Z. Liu and R.A. Servedio and Y. Sheng and J. Xie, *50th ACM Symposium on Theory of Computing* (**STOC**), pp. 749-759, 2018. 111/416 papers (27%) accepted.

[C36] "Deterministic Search for CNF Satisfying Assignments in Almost Polynomial Time," R.A. Servedio and L.-Y. Tan, *58th IEEE Symposium on Foundations of Computer Science* (**FOCS**), pp. 813-823, 2017. 90/323 papers (28%) accepted.

[C37] "Fooling Intersections of Low-Weight Halfspaces," R.A. Servedio and L.-Y. Tan, *58th IEEE Symposium on Foundations of Computer Science* (**FOCS**), pp. 824-835, 2017. 90/323 papers (28%) accepted.

[C38] "Adaptivity is Exponentially Powerful for Testing Monotonicity of Halfspaces," X. Chen and R.A. Servedio and L.-Y. Tan and E. Waingarten, *21st International Workshop on Randomization and Computation* (**RANDOM**), 38:1-38:21, 2017. 27/72 papers (38%) accepted.

[C39] "Sample-Based High-Dimensional Convexity Testing," X. Chen and A. Freilich and R.A. Servedio and T. Sun, *21st International Workshop on Randomization and Computation* (**RANDOM**), 37:1-37:20, 2017. 27/72 papers (38%) accepted.

[C40] "Settling the query complexity of non-adaptive junta testing," X. Chen and R.A. Servedio and L.-Y. Tan and E. Waingarten and J. Xie, *32nd Conference on Computational Complexity* (**CCC**), 26:1-26, 2017. **Best Paper award.** 33/98 papers (34%) accepted.

[C41] "Optimal Mean-Based Algorithms for Trace Reconstruction," A. De and R. O'Donnell and R.A. Servedio, *49th ACM Symposium on Theory of Computing* (**STOC**), pp. 1047-1056, 2017. 103/422 papers (24%) accepted.

[C42] "Addition is Exponentially Harder than Counting for Shallow Monotone Circuits," X. Chen and I. Oliveira and R.A. Servedio, *49th ACM Symposium on Theory of Computing* (**STOC**), pp. 1232-1245, 2017. 103/422 papers (24%) accepted.

[C43] "What circuit classes can be learned with non-trivial savings?," R.A. Servedio and L.-Y. Tan, *8th Innovations in Theoretical Computer Science Conference* (**ITCS**), 2017. 61/171 papers (36%) accepted.

[C44] "Degree and Sensitivity: tails of two distributions," P. Gopalan, R.A. Servedio, and A. Wigderson, *31st Conference on Computational Complexity* (**CCC**), pp. 13.1-13.23, 2016. 34/91 papers (37%) accepted.

[C45] "Poly-logarithmic Frege depth lower bounds via an expander switching lemma," T. Pitassi, B. Rossman, R.A. Servedio, and L.-Y. Tan, *48th ACM Symposium on Theory of Computing* (**STOC**), pp. 644-657, 2016. 92/370 papers (25%) accepted.

[C46] "Near-optimal small-depth lower bounds for small distance connectivity" X. Chen, I. Oliveira, R.A. Servedio, and L.-Y. Tan, *48th ACM Symposium on Theory of Computing* (**STOC**), pp. 612-625, 2016. 92/370 papers (25%) accepted.

[C47] "Smooth Boolean functions are easy: efficient algorithms for low-sensitivity functions," P. Gopalan, N. Nisan, R.A. Servedio, K. Talwar and A. Wigderson, *Innovations in Theoretical Computer Science* (**ITCS**), pp. 59-70, 2016. 40/141 papers (28%) accepted.

[C48] "An average-case depth hierarchy theorem for Boolean circuits," B. Rossman, R.A. Servedio, and L.-Y. Tan, *56th IEEE Symposium on Foundations of Computer Science* (**FOCS**), pp. 1030–1048, 2015. **Best Paper award.** 86/314 papers (27%) accepted.

[C49] "Learning circuits with few negations," E. Blais, C. Canonne, I. Oliveira, R.A. Servedio, and L.-Y. Tan, *19th International Workshop on Approximation, Randomization, and Combinatorial Optimization* (**RANDOM**), pp. 512–527, 2015. 30/79 papers (38%) accepted.

[C50] "Boolean function monotonicity testing requires (almost) $n^{1/2}$ non-adaptive queries," X. Chen, A. De, R.A. Servedio, and L.-Y. Tan, *47th ACM Symposium on Theory of Computing* (**STOC**), pp. 519–528, 2015. 93/347 papers (27%) accepted.

[C51] "Adaptivity helps for testing juntas," R.A. Servedio, L.-Y. Tan and J. Wright, *30th Conference on Computational Complexity* (**CCC**), pp. 264–279, 2015.

[C52] "Learning from satisfying assignments," A. De, I. Diakonikolas, and R.A. Servedio, *26th ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), pp. 478–497, 2015.

[C53] "Near-Optimal Density Estimation in Near-Linear Time Using Variable-Width Histograms," S.-O. Chan, I. Diakonikolas, R.A. Servedio and X. Sun, *28th Annual Conference on Neural Information Processing Systems (***NIPS***)*, pp. 1844–1852, 2014. (poster presentation). 414/1678 papers (25%) accepted for poster presentation.

[C54] "New algorithms and lower bounds for monotonicity testing," X. Chen, R.A. Servedio, and L.-Y. Tan, *55th IEEE Symposium on Foundations of Computer Science* (**FOCS**), pp. 286–295, 2014. 68/273 papers (25%) accepted.

[C55] "On DNF Approximators for Monotone Boolean Functions," E. Blais, J. Håstad, R.A. Servedio, and L.-Y. Tan, *41st International Colloquium on Automata, Languages and Programming (***ICALP***)*, pp. 235–246, 2014.

[C56] "Efficient deterministic approximate counting for low-degree polynomial threshold functions," A. De and R.A. Servedio, *46th ACM Symposium on Theory of Computing* (**STOC**), pp. 832–841, 2014.

[C57] "Efficient Density Estimation via Polynomial Approximation," S.O. Chan, I. Diakonikolas, R.A. Servedio, and X. Sun, *46th ACM Symposium on Theory of Computing* (**STOC**), pp. 604–613, 2014.

[C58] "Deterministic Approximate Counting for Juntas of Degree-2 Polynomial Threshold Functions," A. De, I. Diakonikolas, and R.A. Servedio, *29th Conference on Computational Complexity* (**CCC**), pp. 229–240, 2014.

[C59] "A Polynomial-time Approximation Scheme for Fault-tolerant Distributed Storage," C. Daskalakis, A. De, I. Diakonikolas, A. Moitra, and R.A. Servedio, *25th ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), pp. 628–644, 2014.

[C60] "Testing equivalence between distributions using conditional samples," C. Canonne, D. Ron, and R.A. Servedio, *25th ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), pp. 1174–1192, 2014.

[C61] "Learning Sums of Independent Integer Random Variables," C. Daskalakis, I. Diakonikolas, R. O'Donnell, R.A. Servedio, and L.-Y. Tan, *54th Symposium on Foundations of Computer Science (***FOCS***)*, pp. 217–226, 2013.

[C62] "A robust Khintchine inequality, and algorithms for computing optimal constants in Fourier analysis and high-dimensional geometry," A. De, I. Diakonikolas, and R.A. Servedio, *40th International Colloquium on Automata, Languages and Programming (***ICALP***)*, pp. 376-387, 2013.

[C63] "Consistency versus Realizable H-Consistency for Multiclass Classification," P. Long and R.A. Servedio, *International Conference on Machine Learning (***ICML***)*, pp. 801-809, 2013.

[C64] "Low-weight Halfspaces for Sparse Boolean Vectors," P. Long and R.A. Servedio, *Innovations in Theoretical Computer Science (***ITCS***)*, pp. 21-36, 2013.

[C65] "Learning mixtures of structured distributions over discrete domains," S. Chan, I. Diakonikolas, R.A. Servedio, and X. Sun, *24th ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), pp. 1380-1394, 2013.

[C66] "Testing k-Modal Distributions: Optimal Algorithms via Reductions," C. Daskalakis, I. Diakonikolas, R.A. Servedio, G. Valiant, and P. Valiant, *24th ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), pp. 1833-1852, 2013.

[C67] "Exponentially improved algorithms and lower bound for testing signed majorities," D. Ron and R.A. Servedio, *24th ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), pp. 1319-1336, 2013.

[C68] "Tight Bounds on Proper Equivalence Query Learning of DNF," L. Hellerstein, D. Kletenik, L. Sellie, and R.A. Servedio, *Twenty-Fifth Annual Conference on Learning Theory* (**COLT**), pp. 31.1-31.18, 2012.

[C69] "Attribute-Efficient Learning and Weight-Degree Tradeoffs for Polynomial Threshold Functions," R.A. Servedio, L.-Y. Tan and J. Thaler, *Twenty-Fifth Annual Conference on Learning Theory* (**COLT**), pp. 14.1-14.19, 2012.

[C70] "The Inverse Shapley Value Problem," A. De, I. Diakonikolas, and R.A. Servedio, *39th International Colloquium on Automata, Languages and Programming (***ICALP***),* pp. 266-277, 2012.

[C71] "Learning Poisson Binomial Distributions," C. Daskalakis, I. Diakonikolas, and R.A. Servedio, *44th Annual Symposium on Theory of Computing (***STOC***),* pp. 709–728, 2012.

[C72] "Nearly optimal solutions for the Chow Parameters Problem and low-weight approximation of halfspaces," A. De, I. Diakonikolas, V. Feldman, and R.A. Servedio, *44th Annual Symposium on Theory of Computing (***STOC***),* pp. 729–746, 2012.

[C73] "Learning k-modal Distributions via Testing," C. Daskalakis, I. Diakonikolas, and R.A. Servedio, *23rd ACM-SIAM Symposium on Discrete Algorithms (***SODA***),* pp. 1371–1385, 2012.

[C74] "Private Data Release via Learning Thresholds ," M. Hardt, G. Rothblum, and R.A. Servedio, *23rd ACM-SIAM Symposium on Discrete Algorithms (***SODA***),* pp. 168–187, 2012.

[C75] "Algorithms and hardness results for parallel large margin learning," P. Long and R.A. Servedio, *25th Annual Conference on Neural Information Processing Systems (***NIPS***),* 2011 (poster + spotlight oral presentation).

[C76] "Learning large-margin halfspaces with more malicious noise," P. Long and R.A. Servedio, *25th Annual Conference on Neural Information Processing Systems (***NIPS***),* 2011 (poster presentation).

[C77] "A canonical form for testing Boolean function properties," D. Dachman-Soled and R.A. Servedio, *15th International Workshop on Randomization and Computation* (**RANDOM**), 2011, pp. 460-471.

[C78] "Lower Bounds and Hardness Amplification for Learning Shallow Monotone Formulas," V. Feldman, H. Lee, and R.A. Servedio, *Twenty-Fourth Annual Conference on Learning Theory* (**COLT**), 2011.

[C79] "Hardness Results for Agnostically Learning Low-Degree Polynomial Threshold Functions," I. Diakonikolas, R. O'Donnell, R.A. Servedio, and Y. Wu, *22nd ACM-SIAM Symposium on Discrete Algorithms* (**SODA**), 2011, pp. 1590-1606.

[C80] "Bounding the Average Sensitivity and Noise Sensitivity of Polynomial Threshold Functions," I. Diakonikolas, P. Harsha, A. Klivans, R. Meka, P. Raghavendra, R.A. Servedio, and L.-Y. Tan, *42nd Annual ACM Symposium on Theory of Computing* (**STOC**), pp. 533-542, 2010.

[C81] "Learning and Lower Bounds for AC^0 with Threshold Gates," P. Gopalan and R.A. Servedio, *14th Intl. Workshop on Randomization and Computation (***RANDOM***)*, pp. 588-601, 2010.

[C82] "A regularity lemma, and low-weight approximators, for low-degree polynomial threshold functions," I. Diakonikolas, R.A. Servedio, L.-Y. Tan and A. Wan, *25th Conference on Computational Complexity* (**CCC**), pp. 211-222, 2010.

[C83] "Restricted Boltzmann Machines are Hard to Approximately Evaluate or Simulate," P. Long and R.A. Servedio, *27th International Conference on Machine Learning* (**ICML**), pp. 703-710, 2010. 152/594 papers (26%) accepted.

[C84] "Bounded Independence Fools Halfspaces," I. Diakonikolas, P. Gopalan, R. Jaiswal, R.A. Servedio, and E. Viola, *50th Annual Symposium on Foundations of Computer Science (***FOCS***)*, 2009, pp. 171–180.

[C85] "Testing ± 1-Weight Halfspaces," K. Matulef, R. O'Donnell, R. Rubinfeld, and R.A. Servedio, *13th International Workshop on Randomization and Computation*, (**RANDOM**), 2009, pp. 646–657.

[C86] "Testing Fourier dimensionality and sparsity," P. Gopalan, R. O'Donnell, R.A. Servedio, A. Shpilka, and K. Wimmer, *36th International Colloquium on Automata, Languages and Programming* (**ICALP**), 2009, pp. 500-512.

[C87] "Learning halfspaces with malicious noise," A. Klivans, P. Long, and R.A. Servedio, *36th International Colloquium on Automata, Languages and Programming* (**ICALP**), 2009, pp. 609-621.

[C88] "Improved approximation of linear threshold functions," I. Diakonikolas and R.A. Servedio, *Proceedings of the 24st Annual Conference on Computational Complexity (***CCC***)*, 2009, pp. 161-172.

[C89] "Testing Halfspaces," K. Matulef, R. O'Donnell, R. Rubinfeld, and R.A. Servedio, *20th ACM-SIAM Symposium on Discrete Algorithms (***SODA***)*, 2009, pp. 256-264.

[C90] "Adaptive martingale boosting," P. Long and R.A. Servedio, *21st Annual Conference on Neural Information Processing Systems* (**NIPS**), 2008, pp. 977-984 (poster + spotlight oral presentation).

[C91] "Learning Geometric Concepts via Gaussian Surface Area," A. Klivans, R. O'Donnell, and R.A. Servedio, *49th Annual Symposium on Foundations of Computer Science (***FOCS***)*, 2008, pp. 541–550.

[C92] "Learning random monotone DNF," J. Jackson, H. Lee, R.A. Servedio, and A. Wan, *Proceedings of the 12th International Workshop on Randomness and Computation* (**RANDOM**), 2008, pp. 483–497.

[C93] "Efficiently testing sparse $GF(2)$ polynomials," I. Diakonikolas, H. Lee, K. Matulef, R.A. Servedio, and A. Wan, *35th International Colloquium on Automata, Languages and Programming* (**ICALP**), 2008, pp. 502–514.

[C94] "Optimal cryptographic hardness of learning monotone functions," D. Dachman-Soled, H. Lee, T. Malkin, R.A. Servedio, A. Wan, and H. Wee, *35th International Colloquium on Automata, Languages and Programming* (**ICALP**), 2008, pp. 36–47.

[C95] "Random classification noise defeats all convex potential boosters," P. Long and R.A. Servedio, *25th International Conference on Machine Learning* (**ICML**), 2008, pp. 608–615.

[C96] "The Chow Parameters Problem," R. O'Donnell and R.A. Servedio, *40th Annual ACM Symposium on Theory of Computing* (**STOC**), 2008, pp. 517–526.

[C97] "One-Pass Boosting," Z. Barutcuoglu, P. Long, and R.A. Servedio, *21st Annual Conference on Neural Information Processing Systems* (**NIPS**), 2007 (poster + spotlight oral presentation).

[C98] "Boosting the Area under the ROC Curve," P. Long and R.A. Servedio, *21st Annual Conference on Neural Information Processing Systems* (**NIPS**), 2007 (poster + spotlight oral presentation).

[C99] "Testing for Concise Representations," I. Diakonikolas, H. Lee, K. Matulef, K. Onak, R. Rubinfeld, R.A. Servedio, and A. Wan, *48th Annual Symposium on Foundations of Computer Science (***FOCS***)*, 2007, pp. 549–558.

[C100] "Distribution-Free Testing Lower Bounds for Basic Boolean Functions," D. Glasner and R.A. Servedio, *Proceedings of the 11th International Workshop on Randomness and Computation* (**RANDOM**), 2007, pp. 494–508.

[C101] "Highly Efficient Secrecy-Preserving Proofs of Correctness of Computations and Applications," M. Rabin, R.A. Servedio, and C. Thorpe, *22nd IEEE Symposium on Logic in Computer Science(***LICS***)*, 2007, pp. 63–76.

[C102] "Attribute-efficient learning of decision lists and linear threshold functions under unconcentrated distributions," P. Long and R.A. Servedio, *20th Annual Conference on Neural Information Processing Systems* (**NIPS**), 2006 (poster presentation).

[C103] "Learning Unions of $\omega(1)$-Dimensional Rectangles," A. Atici and R.A. Servedio, *Proceedings of the Seventeenth International Conference on Algorithmic Learning Theory (***ALT***)*, 2006, pp. 32–47. **Best Student Paper award.**

[C104] "Every linear threshold function has a low-weight approximator," R.A. Servedio, *Proceedings of the 21st Annual Conference on Computational Complexity (***CCC***)*, 2006, pp. 18–32.

[C105] "Learning monotone decision trees in polynomial time," R. O'Donnell and R.A. Servedio, *Proceedings of the 21st Annual Conference on Computational Complexity (***CCC***)*, 2006, pp. 213–225.

[C106] "PAC Learning Mixtures of Axis-Aligned Gaussians with No Separation Assumption," J. Feldman, R. O'Donnell, and R.A. Servedio, *Proceedings of the 19th Annual Conference on Learning Theory (***COLT***)*, 2006, pp. 20–34.

[C107] "DNF are Efficiently Teachable in the Average Case," H. Lee, R.A. Servedio, and A. Wan. *Proceedings of the 19th Annual Conference on Learning Theory (***COLT***)*, 2006, pp. 214–228. **Mark Fulk Award for Best Student Paper.**

[C108] "On PAC learning algorithms for rich Boolean function classes," R.A. Servedio, *Proceedings of the 3rd Annual Conference on Theory and Applications of Models of Computation* (**TAMC**), 2006, pp. 442–451. (This paper accompanies an invited talk.)

[C109] "Agnostically learning halfspaces," A. Kalai, A. Klivans, Y. Mansour, and R.A. Servedio, *Proceedings of the 46th IEEE Symposium on Foundations of Computer Science* (**FOCS**), 2005, pp. 11-20.

[C110] "Every decision tree has an influential variable," R. O'Donnell, M. Saks, O. Schramm, and R.A. Servedio, *Proceedings of the 46th IEEE Symposium on Foundations of Computer Science* (**FOCS**), 2005, pp. 31–39.

[C111] "Learning Mixtures of Product Distributions over Discrete Domains," J. Feldman, R. O'Donnell, and R.A. Servedio, *Proceedings of the 46th IEEE Symposium on Foundations of Computer Science* (**FOCS**), 2005, pp. 501–510.

[C112] "On Learning Random DNF Formulas under the Uniform Distribution," J. Jackson and R.A. Servedio, *Proceedings of the 9th International Workshop on Randomness and Computation* (**RANDOM**), 2005, pp. 342–353.

[C113] "Unsupervised Evidence Integration," P. Long, M. Treshock, S. Gilman, R.A. Servedio, and V. Varadan, *Proceedings of the 22nd International Conference on Machine Learning* (**ICML**), 2005, pp. 521–528.

[C114] "Martingale Boosting," P. Long and R.A. Servedio, *Proceedings of the 18th Annual Conference on Learning Theory (***COLT***)*, 2005, pp. 79–94.

[C115] "Separating Models of Learning from Correlated and Uncorrelated Data," A. Elbaz, H. Lee, R.A. Servedio, and A. Wan, *Proceedings of the 18th Annual Conference on Learning Theory (***COLT***)*, 2005, pp. 637–651.

[C116] "Testing Monotone High-Dimensional Distributions," R. Rubinfeld and R.A. Servedio, *Proceedings of the 37th ACM Symposium on Theory of Computing (***STOC***)*, 2005, pp. 147–156.

[C117] "On the Capacity of Secure Network Coding," J. Feldman, T. Malkin, R.A. Servedio, and C. Stein, in *Proceedings of the Forty-Second Annual Allerton Conference on Communication, Control, and Computing (***ALLERTON***)*, 2004.

[C118] "Toward Attribute-Efficient Learning of Decision Lists and Parities," A. Klivans and R.A. Servedio, *Proceedings of the 17th Annual Conference on Learning Theory (***COLT***)*, 2004, pp. 234–248.

[C119] "Learning Intersections of Halfspaces with a Margin," A. Klivans and R.A. Servedio, *Proceedings of the 17th Annual Conference on Learning Theory (***COLT***)*, 2004, pp. 348–362.

[C120] "Perceptron-Like Performance for Intersections of Halfspaces (open problem)," A. Klivans and R.A. Servedio, *Proceedings of the 17th Annual Conference on Learning Theory (***COLT***)*, 2004, pp. 639–640.

[C121] "LP Decoding Corrects a Constant Fraction of Error," J. Feldman, T. Malkin, R.A. Servedio, C. Stein, and M. Wainwright, in *Proceedings of the IEEE International Symposium on Information Theory (***ISIT***)*, 2004.

[C122] "Learning DNF from Random Walks," N. Bshouty, E. Mossel, R. O'Donnell, and R.A. Servedio, *Proceedings of the 44th IEEE Symposium on Foundations of Computer Science (***FOCS***)*, 2003, pp. 189–198.

[C123] "Learning Random Log-Depth Decision Trees under the Uniform Distribution," J. Jackson and R.A. Servedio, *Proceedings of the Sixteenth Annual Conference on Computational Learning Theory (***COLT***)*, 2003, pp. 610–624.

[C124] "Maximum Margin Algorithms with Boolean Kernels," R. Khardon and R.A. Servedio, *Proceedings of the Sixteenth Annual Conference on Computational Learning Theory (***COLT***)*, 2003, pp. 87–101.

[C125] "Polynomial Certificates for Propositional Classes," M. Arias, R. Khardon, and R.A. Servedio, *Proceedings of the Sixteenth Annual Conference on Computational Learning Theory (***COLT***)*, 2003, pp. 537–551.

[C126] "Learning Juntas," E. Mossel, R. O'Donnell, and R.A. Servedio, *Proceedings of the 35th ACM Symposium on Theory of Computing (***STOC***)*, 2003, pp. 206–212.

[C127] "New Degree Bounds for Polynomial Threshold Functions," R. O'Donnell and R.A. Servedio, *Proceedings of the 35th ACM Symposium on Theory of Computing (***STOC***)*, 2003, pp. 325–334.

[C128] "Boosting in the Presence of Noise," A. Kalai and R.A. Servedio, *Proceedings of the 35th ACM Symposium on Theory of Computing (***STOC***)*, 2003, pp. 196–205.

[C129] "Extremal properties of polynomial threshold functions," R. O'Donnell and R.A. Servedio, *Proceedings of the Eighteenth Annual Conference on Computational Complexity (***CCC***)*, pp. 3-12, 2003. **Best Paper award.**

[C130] "Learning Intersections and Thresholds of Halfspaces,", A. Klivans, R. O'Donnell, and R.A. Servedio, *Proceedings of the 43rd IEEE Symposium on Foundations of Computer Science (***FOCS***)*, pp. 177-186, 2002.

[C131] "On Learning Embedded Midbit Functions," R.A. Servedio, *Proceedings of the Thirteenth International Conference on Algorithmic Learning Theory (***ALT***)*, pp. 69-82, 2002.

[C132] "Learnability Beyond AC^0," J. Jackson, A. Klivans, and R.A. Servedio, *Proceedings of the 34rd ACM Symposium on Theory of Computing (***STOC***),* 2002. One-page abstract also appeared in *Proceedings of the Seventeenth Annual Conference on Computational Complexity (***CCC***)*, 2002.

[C133] "Learning DNF in Time $2^{\tilde{O}(n^{1/3})}$," A. Klivans and R.A. Servedio, *Proceedings of the 33rd ACM Symposium on Theory of Computing (***STOC***),* pp. 258-265, 2001. **Best Student Paper award**.

[C134] "Efficiency versus Convergence of Boolean Kernels for Online Learning Algorithms," R. Khardon, D. Roth, and R.A. Servedio, *Advances in Neural Information Processing Systems (***NIPS***)*, 2001, pp. 423–430.

[**C135**] "Quantum versus Classical Learnability," R.A. Servedio and S. Gortler, *Proceedings of the Sixteenth IEEE Conference on Computational Complexity (***CCC***)*, pp. 138-148, 2001.

[**C136**] "Separating Quantum and Classical Learning," R.A. Servedio, *Proceedings of the 28th EATCS International Conference on Automata, Languages and Programming (***ICALP***)*, pp. 1065-1080, 2001.

[**C137**] "Smooth Boosting and Linear Threshold Learning with Malicious Noise," R.A. Servedio, *Proceedings of the Fourteenth ACM Conference on Computational Learning Theory (***COLT***)*, pp. 473-489, 2001.

[**C138**] "On Learning Monotone DNF under Product Distributions," R.A. Servedio, *Proceedings of the Fourteenth ACM Conference on Computational Learning Theory (***COLT***)*, pp. 558-573, 2001.

[**C139**] "PAC Analogues of Perceptron and Winnow via Boosting the Margin," R.A. Servedio, *Proceedings of the Thirteenth ACM Conference on Computational Learning Theory (***COLT***),* pp. 148-157, 2000. **Mark Fulk Award for Best Student Paper.**

[**C140**] "Boosting and Hard-Core Sets," A. Klivans and R.A. Servedio, *Proceedings of the 40th IEEE Symposium on Foundations of Computer Science (***FOCS***),* pp. 624-633, 1999.

[**C141**] "On PAC Learning using Perceptron, Winnow and a Perceptron-Like Algorithm," R.A. Servedio, *Proceedings of the 12th ACM Conference on Computational Learning Theory (***COLT***),* pp. 296-307, 1999.

[**C142**] "Computational Sample Complexity and Attribute-Efficient Learning," R.A. Servedio, *Proceedings of the 31st ACM Symposium on Theory of Computing (***STOC***),* pp. 701-710, 1999.

Journal Papers

[**J1**] "Fooling Gaussian PTFs via Local Hyperconcentration," R. O'Donnell and R. Servedio and L.-Y. Tan, with an appendix by D. Kane. Accepted to *Journal of the ACM* subject to minor revisions.

[**J2**] "Polynomial-time trace reconstruction in the smoothed complexity model," X. Chen and A. De and C.-H. Lee and R. A. Servedio and S. Sinha, *ACM Transasctions on Algorithms*, published 31 August 2022. (Preliminary version in **SODA** 2021.) Available at https://dl.acm.org/doi/10.1145/3560819. Special issue for **SODA** 2021.

[**J3**] "The perils of being unhinged: On the accuracy of classifiers minimizing a noise-robust convex loss," P. Long and R.A. Servedio, *Neural Computation*, **34**(6), pp. 1488-1499, 2022.

[**J4**] "Fooling polytopes," R. O'Donnell and R.A. Servedio and L.-Y. Tan, *Journal of the ACM*, **69**(2), 9:1-9:37, 2022. (Preliminary version in **STOC** 2019.)

[**J5**] "Quantitative Correlation Inequalities via Extremal Power Series," A. De and S. Nadimpalli and R.A. Servedio, *Probability Theory and Related Fields*, 2022, https://doi.org/10.1007/s00440-022-01120-5 (Preliminary version in **ITCS** 2021.)

[**J6**] "A Lower Bound on Cycle-Finding in Sparse Digraphs," X. Chen and T. Randolph and R.A. Servedio and T. Sun, *ACM Transactions on Algorithms*, published online February 8 2022, available at https://doi.org/10.1145/3417979. (Preliminary version in **SODA** 2020.) Special issue for **SODA** 2020.

[**J7**] "Improved pseudorandom generators from pseudorandom multi-switching lemmas," R.A. Servedio and L.-Y. Tan, *Theory of Computing*, **18**(4), pp. 1-46, 2022. (Preliminary version in **RANDOM** 2019.) Special issue for **RANDOM** 2019.

[**J8**] "Learning Sums of Independent Random Variables with Sparse Collective Support,"' A. De and P. Long and R.A. Servedio, *Journal of Machine Learning Research*, **21**(221):1-79, 2020. (Preliminary version in **FOCS** 2018.)

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[J30] "Learning random monotone DNF," J. Jackson, H. Lee, R.A. Servedio, and A. Wan, *Discrete Applied Mathematics*, **159**(5), 2011, pp. 259-271. (Preliminary version in **RANDOM** 2008.)

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[**J68**] "Learning Intersections and Thresholds of Halfspaces," A. Klivans, R. O'Donnell, and R.A. Servedio, *Journal of Computer and System Sciences*, **68**(4), 2004, pp. 808–840 (Preliminary version in **FOCS** 2002). Special issue for **FOCS** 2002.

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Miscellaneous Other Publications

[**M1**] "The Polynomial Hierarchy, Random Oracles, and Boolean Circuits," B. Rossman, R.A. Servedio and L.-Y. Tan, Complexity Theory Column 89, *SIGACT News*, **46**(4), December 2015, pp. 50–68.

[**M2**] "On a special case of rigidity," R.A. Servedio and E. Viola, ECCC Technical Report (ECCC 144), 2013.

[**M3**] "A High-Dimensional Surprise," R.A. Servedio, Technical Perspective, *CACM* **55**(10), p. 89, October 2012.

[**M4**] "Testing by Implicit Learning: A Brief Survey," R.A. Servedio, in O. Goldreich (Ed.), *Property Testing*, LNCS 6390, pp. 197–210, Springer, Heidelberg, 2010.

[**M5**] "Testing (Subclasses of) Halfspaces," K. Matulef, R. O'Donnell, R. Rubinfeld, and R.A. Servedio, in O. Goldreich (Ed.), *Property Testing*, LNCS 6390, pp. 334–340, Springer, Heidelberg, 2010.

[**M6**] "Learning Constant-Depth Circuits," R.A. Servedio, in "Encyclopedia of Algorithms," Springer, pp. 455–457, 2008.

[**M7**] "Editor's Introduction," M. Hutter and R.A. Servedio, *Proceedings of the Eighteenth International Conference on Algorithmic Learning Theory (***ALT***)*, 2007, pp. 1–9.

Selected Invited Lectures:

- *Testing Convex Truncation* 2023
  Princeton University Computer Science Theory Seminar
  Princeton, NJ
- *Testing Convex Truncation* 2023
  University of Pennsylvania Computer Science Theory Seminar
  Philadelphia, PA
- *Convex influences and a quantitative Gaussian Correlation Inequality* 2022
  Probability and Analysis Webinar
  (virtual seminar)
- *Convex influences and a quantitative Gaussian Correlation Inequality* 2022
  Dagstuhl Seminar on Algebraic and Analytic Methods in Computational Complexity
  Wadern, Germany
- *The trace reconstruction problem* 2021
  University of Texas at Austin Theory Seminar
  Austin, TX (virtual seminar)
- *Testing noisy linear functions for sparsity* 2020
  Simons Institute Workshop on Learning and Testing in High Dimensions
  Berkeley, CA (virtual seminar)
- *Testing noisy linear functions for sparsity* 2020
  University of Warwick Computer Science Colloquium
  Warwick, UK (virtual seminar)
- *Testing noisy linear functions for sparsity* 2020
  Harvard University Theory of Computing Seminar
  Cambridge, MA
- *Distribution learning: some current frontiers* 2019
  Yahoo! Research
  New York, New York
- *Fooling polytopes* 2019
  Cornell University Theory Seminar
  Ithaca, New York
- *Distribution learning: some current frontiers* 2019
  Computer Science Department Colloquium, U Mass Lowell
  Lowell, Massachusetts
- *Learning sums of independent integer random variables* 2019
  Workshop on Algorithms, Learning and Economics (WALE)
  Rhodes, Greece
- *Fooling polytopes* 2019
  Simons Algorithms and Geometry Collaboration Monthly Meeting
  New York, New York
- *Fooling polytopes* 2018
  Workshop on Analytic Techniques in Theoretical Computer Science
  CMO, Oaxaca, Mexico
- *Fooling polytopes* 2018
  Northwestern University Theory Seminar
  Evanstown, Illinois
- *Learning sums of independent commonly supported integer random variables* 2018
  Google Research Seminar
  New York, NY

- *Fooling intersections of low-weight halfspaces* 2017
  University of Chicago Theory of Computing Seminar
  Chicago, IL
- *Fooling intersections of low-weight halfspaces* 2017
  Theoretical Computer Science / Discrete Math Seminar
  Institute for Advanced Study, Princeton, NJ
- *Learning sums of independent commonly supported integer random variables* 2017
  Harvard University Theory of Computing Seminar
  Cambridge, MA
- *Learning sums of independent commonly supported integer random variables* 2017
  University of Chicago Theory of Computing Seminar
  Chicago, IL
- *Pseudorandom generators from pseudorandom multi-switching lemmas* 2017
  Simons Institute Workshop on Proving and Using Pseudorandomness
  Berkeley, CA
- *Learning sums of independent commonly supported integer random variables* 2016
  Duke Machine Learning Seminar
  Durham, NC
- *Learning sums of independent commonly supported integer random variables* 2016
  New York University Machine Learning Seminar
  New York, NY
- *Learning sums of independent commonly supported integer random variables* 2016
  New York Colloquium on Algorithms and Complexity
  New York, NY
- *Predicting from noisy and incomplete data: some perspectives from computational learning theory* 2016
  Simons Institute Workshop on Real-Time Decision Making
  Berkeley, CA
- *Two circuit lower bounds* 2016
  Low-Depth Complexity Workshop
  St. Petersburg, Russia
- *Addition is exponentially harder than counting for shallow monotone circuits* 2016
  Simons Workshop on Analysis of Boolean Functions
  Schloss Elmau, Germany
- *Circuit lower bounds via random projections* 2016
  Rutgers-DIMACS Theoretical Computer Science Seminar
  Piscataway, NJ
- *Two circuit lower bounds* 2016
  MIT Theory of Computing Seminar
  Cambridge, MA
- *Circuit lower bounds via random projections* 2016
  Invited talk, Georgia Tech ARC Theory Day
  Atlanta, Georgia
- *Testing Probability Distributions Using Conditional Samples* 2015
  Simons Institute Workshop on Information Theory, Learning and Big Data, UC Berkeley
  Berkeley, CA
- *Learning from Satisfying Assignments* 2015
  Microsoft Research India Theory Day
  Bengaluru, India
- *A Probably Approximately Correct Lower Bound for Boolean Function Monotonicity Testing* 2014
  University of Pennsylvania Computer Science Theory Seminar

Philadelphia, PA

- *A Probably Approximately Correct Lower Bound for Boolean Function Monotonicity Testing* 2014
  Simons Institute Reunion Workshop on Real Analysis in Computer Science, UC Berkeley
  Berkeley, CA
- *A Probably Approximately Correct Lower Bound for Boolean Function Monotonicity Testing* 2014
  New York Colloquium on Algorithms and Complexity
  New York, NY
- *A Complexity-Theoretic View on Unsupervised Learning* 2014
  Keynote Lecture, 20th International Computing and Combinatorics Conference (COCOON'14)
  Atlanta, GA
- *A Complexity-Theoretic View on Unsupervised Learning* 2014
  Microsoft Research Silicon Valley Theory Seminar
  Mountain View, CA
- *A Complexity-Theoretic View on Unsupervised Learning* 2014
  STOC 2014 Workshop on Efficient Density Estimation
  New York, NY
- *A Polynomial Lower Bound for Monotonicity Testing of Boolean Functions* 2014
  Theoretical Computer Science / Discrete Math Seminar
  Institute for Advanced Study, Princeton, NJ
- *Learning from Satisfying Assignments* 2013
  Brown University Computer Science Theory Seminar,
  Providence, RI
- *Deterministic Approximate Counting for Degree-2 Polynomial Threshold Functions* 2013
  Simons Institute Workshop on Real Analysis in Testing, Learning and Inapproximability
  Berkeley, California
- *Learning from Satisfying Assignments* 2013
  Rutgers/DIMACS Theoretical Computer Science Seminar
  New Brunswick, NJ
- *Deterministic Approximate Counting for Degree-2 Polynomial Threshold Functions* 2013
  Banff International Research Station (BIRS) Workshop on Computational Complexity
  Banff, Canada
- *A Complexity-Theoretic View on Unsupervised Learning* 2013
  ELC (Exploring the Limits of Computation) Tokyo Complexity Workshop Kick-Off Event
  Tokyo, Japan
- *Inverse Problems for Power Indices in Weighted Voting Games* 2012
  Microsoft Research Silicon Valley Theory Seminar
  Mountain View, CA
- *Nearly Optimal Solutions for the Chow Parameters Problem* 2012
  Simons Foundation Symposium on Analysis of Boolean Functions
  St. John, U.S. Virgin Islands
- *Learning and Testing k-Modal Distributions* 2011
  University of Pennsylvania Computer Science Theory Seminar
  Philadelphia, PA
- *Learning and Testing k-Modal Distributions* 2011
  Microsoft Research Silicon Valley Theory Seminar
  Mountain View, CA
- *Learning and Testing k-Modal Distributions* 2011
  Bertinoro Workshop on Sublinear Algorithms
  Bertinoro, Italy
- *Influences and Boolean Function Representations* 2011

Workshop on Discrete Harmonic Analysis, Isaac Newton Institute for Mathematical Sciences
Cambridge, UK

- *Learning and Testing k-Modal Distributions* 2011
  Theoretical Computer Science / Discrete Math Seminar
  Institute for Advanced Study, Princeton, NJ
- *Learning and Testing k-Modal Distributions* 2011
  Rutgers/DIMACS Theoretical Computer Science Seminar
  New Brunswick, NJ
- *A Regularity Lemma for Linear Threshold Functions* 2010
  Workshop on Analysis and Geometry of Boolean Threshold Functions
  Princeton University Princeton, NJ
- *Boolean Threshold Functions: the Untold Story* 2010
  Center for Computational Intractability Seminar
  Princeton University, Princeton, NJ
- *Average Sensitivity of Polynomial Threshold Functions* 2010
  Theoretical Computer Science / Discrete Math Seminar
  Institute for Advanced Study, Princeton, NJ
- *Testing by Implicit Learning* 2010
  Tsinghua University Institute for Theoretical Computer Science Workshop on Property Testing
  Beijing, China
- *Learning Halfspaces with Malicious Noise* 2010
  University of Rochester Computer Science Colloquium
  Rochester, NY
- *Learning Halfspaces with Malicious Noise* 2009
  Dartmouth Computer Science Colloquium
  Hanover, NH
- *Learning Halfspaces with Malicious Noise* 2009
  U. Mass. Machine Learning and Friends talk
  Amherst, MA
- *Average Sensitivity of Polynomial Threshold Functions* 2009
  MIT Theory of Computation Colloquium
  Cambridge, MA
- *Learning Halfspaces with Malicious Noise* 2009
  Microsoft Research Silicon Valley Theory Seminar
  Mountain View, CA
- *A Quarter-Century of Effficient Learnability* 2009
  Pre-STOC Workshop to celebrate Leslie Valiant's 60th Birthday
  Bethesda, MD
- *Learning, Testing, and Approximating Halfspaces* 2009
  DIMACS Workshop on Boolean and Pseudo-Boolean Functions
  New Brunswick, NJ
- *Testing Fourier Sparsity and Dimensionality* 2008
  Banff International Research Station (BIRS) Workshop on Computational Complexity
  Banff, Canada
- *The Chow Parameters Problem* 2008
  University of Toronto Computer Science Theory Seminar
  Toronto, Canada
- *The Chow Parameters Problem* 2008
  Cornell Workshop on Discrete Harmonic Analysis & its Applications
  Ithaca, NY

- *Learning, Testing, and Approximating Halfspaces* 2008
  New York University CS Theory Seminar
  New York, NY
- *Learning, Testing, and Approximation* 2008
  Google Technical Talk
  New York, NY
- *Learning, Testing, and Approximation* 2007
  Penn State Computer Science Colloquium
  State College, PA
- *Learning, Testing, and Approximating Halfspaces* 2007
  Dagstuhl Seminar on Algebraic Methods in Computational Complexity
  Wadern, Germany
- *Learning, Testing, and Approximation* 2007
  Invited talk at 11th Internat. Workshop on Randomization and Computation (**RANDOM**)
  Princeton, NJ
- *Every Linear Threshold Function has a Low-Weight Approximator* 2007
  Rutgers/DIMACS Theoretical Computer Science Seminar
  New Brunswick, NJ
- *Every Linear Threshold Function has a Low-Weight Approximator* 2007
  Carnegie Mellon University Aladdin/Theory/OR Seminar,
  Pittsburgh, PA
- *Learning Monotone Decision Trees in Polynomial Time* 2006
  IBM T.J. Watson Research Center, Data Mining seminar
  Hawthorne, NY
- *On PAC Learning Algorithms for Rich Boolean Function Classes* 2006
  Special Session on Learning Theory,
  3rd Conference on Theory & Applications of Models of Computation (**TAMC**)
  Beijing, China
- *Learning Monotone Functions from Random Examples in Polynomial Time* 2006
  UT Austin Algorithms and Computational Theory Seminar
  Austin, Texas
- *Quantum Versus Classical Learning* 2006
  Iona College Computer Science Seminar
  New Rochelle, New York
- *Learning Monotone Functions from Random Examples in Polynomial Time* 2005
  Yale Theoretical Computer Science Seminar
  New Haven, Connecticut
- *Learning Monotone Functions from Random Examples in Polynomial Time* 2005
  MIT Theoretical Computer Science Colloquium
  Cambridge, Massachusetts
- *Testing Monotone High-Dimensional Distributions* 2005
  Dagstuhl Seminar on Sublinear Algorithms
  Wadern, Germany
- *Learning Monotone Functions from Random Examples in Polynomial Time* 2005
  Third Workshop on Random Graphs & Algorithms (**RGRAALS**)
  Bertinoro, Italy
- *Learning Decision Trees and DNF Formulas in the Average Case* 2005
  Rutgers/DIMACS Theoretical Computer Science Seminar
  New Brunswick, NJ
- *On Learning Random Decision Trees and DNF Formulas* 2004

Theoretical Computer Science / Discrete Math Seminar
Institute for Advanced Study, Princeton, NJ

- *On Learning Random Decision Trees and DNF Formulas* 2004
  Toyota Technological Institute at University of Chicago
  Chicago, Illinois
- *On Learning Random Decision Trees and DNF Formulas* 2003
  IBM T.J. Watson Research Center
  Hawthorne, New York
- *Learning Juntas* 2003
  Theoretical Computer Science / Discrete Math Seminar
  Institute for Advanced Study, Princeton, NJ
- *Learning Juntas* 2003
  Polytechnic University Theory of Computation Seminar
  Brooklyn, NY
- *Frontiers of Efficient Learnability* 2002
  Columbia University Computer Science Colloquium
  New York, NY
- *Frontiers of Efficient Learnability* 2002
  Brown University Computer Science Colloquium
  New York, NY
- *Learning DNF in Time* $2^{\tilde{O}(n^{1/3})}$ 2001
  MIT Theoretical Computer Science Colloquium
  Cambridge, MA
- *Quantum Versus Classical Learnability* 2001
  MIT Quantum Information Processing Seminar
  Cambridge, MA
- *Quantum Versus Classical Learnability* 2001
  CMU Theory of Computation Seminar
  Pittsburgh, PA
- *Linear Methods in Machine Learning Theory: New Insights from an Old Paradigm* 2001
  UIUC Computer Science Colloquium
  Urbana, IL
- *Learning DNF in Time* $2^{\tilde{O}(n^{1/3})}$ 2000
  NEC Research Institute
  Princeton, NJ

Also many paper presentations at conferences including **STOC**, **FOCS**, **SODA**, **COLT**, **CCC**, **NIPS**, **ICALP**, **ITCS**, **ALT**, **RANDOM**

Theses Supervised:

Doctoral	Total	Completed	In Progress
As Supervisor:	19	11	8
As Reader:	31	31	0

Doctoral Theses, Supervisor

1. Alp Atici, (Ph.D. in mathematics), *Advances in Quantum Computational Learning Theory*, 2006.
2. Homin Lee, *On the Learnability of Monotone Functions*, 2009, co-supervised with Tal Malkin.
3. Andrew Wan, *Learning, Cryptography, and the Average Case*, 2010, co-supervised with Tal Malkin.
4. Li-Yang Tan, *Analytic Methods in Concrete Complexity*, 2014.
5. Igor Carboni Oliveira, *Unconditional Lower Bounds in Complexity Theory*, 2015, co-supervised with Tal Malkin.
6. Clement Canonne, *Property Testing and Probability Distributions: New Techniques, New Models, and New Goals*, 2017.
7. Tim Sun, *Testing Convexity and Acyclicity, and New Constructions for Dense Graph Embedding*, 2019, co-supervised with Xi Chen.
8. Erik Waingarten, *New Methods in Sublinear Computation for High Dimensional Problems*, 2020, co-supervised with Xi Chen.
9. Sandip Sinha, 2022, *Efficient Recovery Algorithms with Restricted Access to Strings*, 2022, co-supervised with Alexandr Andoni, Cliff Stein.
10. Emmanouil Vasileios Vlatakis Gkaragkounis, 2022, *Beyond Worst-Case Analysis of Optimization in the Era of Machine Learning*, co-supervised with Mihalis Yannakakis.
11. Yaonan Jin, 2023, *Bayesian Mechanism Design and Approximation*, co-supervised with Xi Chen.
12. Timothy Randolph, 2024 (anticipated), co-supervised with Xi Chen.
13. Clayton Sanford, 2024 (anticipated), co-supervised with Daniel Hsu.
14. Shivam Nadimpalli, 2024 (anticipated), co-supervised with Mihalis Yannakakis.
15. Yuhao Li, 2026 (anticipated), co-supervised with Xi Chen.
16. William Pires, 2027 (anticipated), co-supervised with Xi Chen, Toniann Pitassi.
17. Yizhi Huang, 2028 (anticipated), co-supervised with Josh Alman, Tal Malkin.
18. Tianqi Yang, 2028 (anticipated), co-supervised with Xi Chen, Toniann Pitassi, Josh Alman, Henry Yuen, Tal Malkin.
19. Yunfeng Guan, 2028 (anticipated), co-supervised with Xi Chen, Toniann Pitassi, Josh Alman, Henry Yuen.

Doctoral Theses, As Reader (On Thesis Committee)

Darrin Lewis, 2006; Rui Kuang, 2006; David Phillips, 2006; Eyjolfur Asgeirsson, 2007; Fei Li, 2008; Imre Risi Kondor, 2008; Andrew Howard, 2009; Ariel Elbaz, 2009; Karl Wimmer, 2009 (Carnegie Mellon University); Seung Geol Choi, 2009; Spyrodon Antonakopoulis, 2009; Ilias Diakonikolas, 2010; Pannagata Shivaswamy, 2010; Raphael Pelossof, 2011; Blake Shaw, 2011; Dana Dachman-Soled, 2011; Imran Khan, 2011; Moritz Hardt, 2011 (Princeton University); Mariana Raykova, 2012; Snehit Prabhu, 2013; Aaron Bernstein, 2016; Dimitris Paparas, 2016; Dongqu Chen, 2016 (Yale

University); Xiaorui Sun, 2016, Sasha Golovnev, 2017 (New York University), Jinyu Xie, 2018, Luke Kowalczyk, 2018, Marshall Ball, 2020, Yu Zhao (Carnegie Mellon University), 2021, Jihye Kwon, 2022, Kiran Vodrahalli, 2022.

Postdoctoral Associates:

- Arnold Filtser (Ph.D. Ben-Gurion University) 2019–2021
- Chin Ho Lee (Ph.D. Northeastern University) 2019–2021
- Jonathan Ullman (Ph.D. Harvard University) 2014–2015
  (currently Assistant Professor of Computer Science at Northeastern University)
- Ariel Gabizon (Ph.D. Weizmann Institute) 2009–2010
  (currently Chief Scientist at AZTEC Protocol)
- Ragesh Jaiswal (Ph.D. UC San Diego) 2008–2010
  (currently Associate Professor of Computer Science at IIT Delhi)
- Troy Lee (Ph.D. Centrum Wiskunde & Informatica (CWI), Netherlands) 2008–2009
  (currently Associate Professor, University of Technology Sydney)
- Hoeteck Wee (Ph.D. UC Berkeley) 2007–2008
  (currently Senior Researcher, Computer Science Department of Ecole Normale Superieure)
  (co-supervised with Tal Malkin).
- Emanuele Viola (Ph.D. Harvard University) 2007-2008
  (currently Associate Professor of Computer Science at Northeastern University)

Other funded visitors:

- John Wright (Ph.D. student, Carnegie Mellon University) June 2014 – August 2014
- Anindya De (research scientist, Institute for Advanced Study) June 2014 – July 2014
- Dr. Sung-Soon Choi (Research Professor, Yonsei University, Korea) May 2012 – August 2012
- Clement Canonne (M.S. student, Ecole Centrale Paris) May 2012 – August 2012
- Anindya De (Ph.D. student, UC Berkeley) May 2012 – August 2012, May 2011 – August 2011
- Karl Wimmer (Ph.D. student, Carnegie Mellon University) June 2008 – August 2008
- Yi Wu (Ph.D. student, Carnegie Mellon University) May 2008 – August 2008
- Alexander Sherstov (Ph.D. student, UT Austin) May 2006 – August 2006

Outreach Efforts

• Served as co-chair of working group on "Natural Sciences" for "Visions for Theoretical Computer Science," sponsored by Computing Community Consortium, 2008. Helped create "vision nuggets" giving a concise summary description, in language understandable by people outside of theory, of key questions and challenges in theoretical computer science.

• Taught dynamic programming (an algorithmic technique usually introduced in a college-level data structures and algorithms course) to elementary school students in an after-school mathematics club at The School at Columbia, 2009.

• Five-time participant in "Science Expo" for elementary school students and their families at The School at Columbia, in 2010, 2012, 2014, 2016, 2018. Designed, created, and ran a hands-on exhibit introducing a general audience to great ideas in theoretical computer science and discrete mathematics (computational efficiency and intractability, parity-check codes and efficient communication).

Research Funding History

- NSF CCF – Algorithmic Foundations Grant in Computer Science 2022
  Title: AF: Medium: Continuous Concrete Complexity
  Co-PI: Li-Yang Tan, Stanford University
- NSF CCF – Algorithmic Foundations Grant in Computer Science 2021
  Title: AF: Medium: The Trace Reconstruction Problem

Co-PI: Xi Chen, Columbia University

- NSF QCIS-FF grant 2019
  Title: QCIS-FF: Columbia University Computer Science Department Proposal
  (PI of Columbia University Department of Computer Science proposal for quantum computing faculty support)
- NSF CCF – Algorithmic Foundations grant in Computer Science 2019
  Title: AF: Student Travel Support for CCC 2019
- NSF IIS – Big Data Grant 2018
  Title: BIGDATA: F: Big Data Analysis via Non-Standard Property Testing
  Co-PI: Xi Chen, Columbia University
- NSF CCF – Algorithmic Foundations Grant in Computer Science 2018
  Title: Collaborative Research: Boolean function analysis meets stochastic design
  Co-PI: Anindya De, Northwestern University
- Simons Collaboration on Algorithms and Geometry 2018
  One of twelve co-PIs
- NSF CCF – Algorithmic Foundations grant in Computer Science 2018
  Title: AF: Student Travel Support for CCC 2018
- NSF CCF – Algorithmic Foundations grant in Computer Science 2017
  Title: AF: Student Travel Support for CCC 2017
- NSF CCF – Algorithmic Foundations grant in Computer Science 2016
  Title: AF: Medium: Circuit Lower Bounds via Projections
  Co-PI: Li-Yang Tan, Toyota Technological Institute
- NSF CCF – Algorithmic Foundations grant in Computer Science 2014
  Title: AF: Small: Linear and Polynomial Threshold Functions:
  Structural Analysis and Algorithmic Applications
- NSF CCF – Algorithmic Foundations grant in Computer Science 2013
  Title: AF: Small: Learning and Testing Classes of Distributions
- NSF CCF – Algorithmic Foundations grant in Computer Science 2011
  Title: AF: Small: The Boundary of Learnability for Monotone Boolean Functions
- Google Research Award 2010
  Title: Noise-Tolerant Learning via Outlier Removal
- NSF CCF – Algorithmic Foundations grant in Computer Science 2009
  Title: AF: The Polynomial Method in Learning
  Co-PI: Ryan O'Donnell, Carnegie Mellon University
- DARPA Computer Science Study Group Phase II 2008
  Title: Efficient and Effective Learning from Incomplete and Noisy Data
- Google Research Award 2008
  Title: Martingale Ranking
- NSF CyberTrust grant in Computer Science 2007
  Title: CT-ISG: Cross-Leveraging Cryptography with Learning Theory
  Co-PI: Tal Malkin, Columbia University
- DARPA Computer Science Study Group 2007
  Title: Theoretical Foundations of Efficient Machine Learning Algorithms
- NSF Emerging Models and Technologies (EMT) grant in Computer Science 2005
  Title: QnTM: Quantum Computational Learning
- Alfred P. Sloan Foundation Research Fellowship in Computer Science 2005
- NSF Faculty Early Career Award in Theoretical Foundations of Computing 2004
  Title: CAREER: Efficient Learning Algorithms for Rich Function Classes
- NSF Mathematical Sciences Postdoctoral Research Fellowship 2001
  Title: Efficient Algorithms in Computational Learning Theory