Curriculum Vitae

Nisheeth K. Vishnoi

Department of Computer Science
Yale University

nisheeth.vishnoi@yale.edu
http://cs.yale.edu/homes/vishnoi/

Research Interests

My work spans various areas of Mathematics, Theoretical Computer Science, Optimization, and Artificial Intelligence. I aim to tackle some of the most pressing and complex problems at the intersection of computation and society.

Education

Georgia Institute of Technology — Atlanta, GA
Ph.D. in Algorithms, Combinatorics and Optimization — *1999-2004*

Indian Institute of Technology Bombay — Mumbai, India
Bachelor of Technology in Computer Science and Engineering — *1995-1999*

Employment

Yale University — USA
A. Bartlett Giamatti Professor of Computer Science — *January 2021-*

Yale University — USA
Professor of Computer Science — *January 2019-2020*

École Polytechnique Fédérale de Lausanne (EPFL) — Switzerland
Associate Professor — *June 2014-December 2018*

Microsoft Research — India
Researcher — *March 2009-May 2014*

CNRS — France
Chargé de Recherche, 1st Class, — *September 2008-March 2009*

University of California, Berkeley — Berkeley, CA
Visiting Researcher — *January 2007-December 2007*

Georgia Institute of Technology — Atlanta, GA
Visiting Researcher — *March 2006-December 2006*

IBM Research — India
Research Staff Member — *September 2004-September 2008*

Other Affiliations and Appointments

Indian Institute of Technology Kanpur — Kanpur, India
Adjunct Faculty — *2012-2015, 2017-2019, 2022-Present*

Simons Institute for the Theory of Computing — Berkeley, CA
Visiting Scientist and Program Organizer - Geometric Methods in Optimization and Sampling — *Fall 2021*

Cowles Foundation for Research in Economics — Yale University
Research Staff — *2021-Present*

Institution for Social and Policy Studies — Yale University
Faculty Fellow — *2021-Present*

Google — Mountain View
Visiting Researcher — *May 2021-May 2022*

Computation and Society Initiative — Yale University
co-founder — *2019-Present*

A+ Alliance — Geneva
Advisory Board Member — *2019-Present*

Thurman Arnold Project at Yale — Yale University
Affiliated Faculty — *2019-Present*

Indian Institute of Technology Goa — Goa, India
Adjunct Professor — *2019-2021*

Simons Institute for the Theory of Computing — Berkeley, CA
Visiting Scientist - Foundations of Deep Learning — *Summer 2019*

Simons Institute for the Theory of Computing — Berkeley, CA
Visiting Scientist - Geometry of Polynomials — *March 2019*

School of Mathematics, Institute for Advanced Study — Princeton, NJ
Short-Term Scholar — *January-February 2018*

Simons Institute for the Theory of Computing — Berkeley, CA
Visiting Scientist - Bridging continuous and discrete optimization — *August-September 2017*

Computation, Nature and Society Think Tank — Switzerland
Co-Founder — *June 2017-2018*

Indian Institute of Technology Delhi — New Delhi, India
Adjunct Faculty — *2016-2018*

Simons Institute for the Theory of Computing — Berkeley, CA
Visiting Scientist - Algorithmic spectral graph theory — *September-October 2014*

Simons Institute for the Theory of Computing — Berkeley, CA
Visiting Scientist - Evolutionary biology and the theory of computing — *March-May 2014*

International Centre for Theoretical Sciences — Bangalore, India
Associate — *2013-2018*

Selected Awards

Fellow, American Mathematical Society 2025

Co-PI in a 20,000,000 USD NSF funded AI Institute 2021-2026

Fellow, ACM 2019

Best Technical Paper Award, ACM Conference on Fairness, Accountability, and. Transparency (ACM FAccT) 2019

IIT Bombay Young Alumnus Achievers Award 2016
http://www.iitb.ac.in/alumni/en/content/young-alumnus-achiever-awards

Indian National Science Academy Young Scientist Medal 2011
http://www.insaindia.org/aa4young1.php

IBM Research Pat Goldberg Memorial Award 2006
http://researcher.watson.ibm.com/researcher/view_group.php?id=5855

Best Paper Award, IEEE Foundations of Computer Science (FOCS) 2005

Publications

An up-to-date list can be found at http://cs.yale.edu/homes/vishnoi/Publications.html.

(a) Monographs and Surveys

1. Boaz Barak, Yael Kalai, Ran Raz, Salil Vadhan, Nisheeth K. Vishnoi. *On the works of Avi Wigderson.* In: Holden, H., Piene, R. (eds) The Abel Prize 2018-2022. The Abel Prize. Springer, Cham, 2024. Available online at https://arxiv.org/abs/2307.09524.

2. Jonathan Leake, Nisheeth K. Vishnoi. *Optimization and Sampling Under Continuous Symmetry: Examples and Lie Theory.* Available online at https://arxiv.org/abs/2109.01080. Sep., 2021.

3. Nisheeth K. Vishnoi. *An Introduction to Hamiltonian Monte Carlo Method for Sampling.* Available online at https://arxiv.org/abs/2108.12107. Sep., 2021.

4. Nisheeth K. Vishnoi. *Geodesic convex optimization: differentiation on manifolds, geodesics, and convexity.* Available online at https://arxiv.org/abs/1806.06373. May, 2018.

5. Nisheeth K. Vishnoi. *Algorithms for Convex Optimization,* Cambridge University Press, 2021. A version of this book is available online at https://convex-optimization.github.io/.

6. Sushant Sachdeva, Nisheeth K. Vishnoi. *Faster algorithms via approximation theory.* Foundations and Trends in Theoretical Computer Science, 9(2):125–210, 2014.

7. Nisheeth K. Vishnoi. $Lx = b$. Foundations and Trends in Theoretical Computer Science, 8(1-2):1–141, 2013.

8. Nisheeth K. Vishnoi. *Zeros of polynomials and their applications to theory: A primer.* Survey accompanying a tutorial at FOCS 2013. Available online at http://cs.yale.edu/homes/vishnoi/Publications_files/ZerosIntro.pdf.

(b) Published

9. L. Elisa Celis, Lingxiao Huang, Nisheeth K. Vishnoi. A Mathematical Framework for AI-Human Integration in Work. In *The Forty-Second International Conference on Machine Learning (ICML)*, 2025.

10. Oren Mangoubi, Neil He, Nisheeth K. Vishnoi. Efficient Diffusion Models for Symmetric Manifolds. In *The Forty-Second International Conference on Machine Learning (ICML)*, 2025.

11. Oren Mangoubi, Nisheeth K. Vishnoi. Private Low-Rank Approximation for Covariance Matrices, Dyson Brownian Motion, and Eigenvalue-Gap Bounds for Gaussian Perturbations. *In the Journal of the ACM*, Volume 72, Issue 2 Article No. 14, Pages 1 - 88, 2025.

12. L. Elisa Celis, Amit Kumar, Nisheeth K. Vishnoi, S. Andrew Xu. Centralized Selection with Preferences in the Presence of Biases. In *the The Forty-first International Conference on Machine Learning (ICML)*, 2024. *Available online at* `https://openreview.net/pdf?id=9QRcp2ubDt`. Also appears as Invited Talk at the fourth ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO'24).

13. Oren Mangoubi, Nisheeth K. Vishnoi. Faster Sampling from Log-Concave Densities over Polytopes via Efficient Linear Solvers. In *The Twelfth International Conference on Learning Representations (ICLR)*, 2024. *Available online at* `https://openreview.net/pdf?id=v63GWletn8`

14. L. Elisa Celis, Amit Kumar, Anay Mehrotra, Nisheeth K. Vishnoi. Bias in Evaluation Processes: An Optimization-Based Model. In *the Thirty-seventh Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2023. *Available online at* `https://arxiv.org/abs/2310.17489`

15. L. Elisa Celis, Amit Kumar, Anay Mehrotra, Nisheeth K. Vishnoi. Bias in Evaluation Processes: An Optimization-Based Model. In *the Thirty-seventh Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2023. *Available online at* `https://arxiv.org/abs/2310.17489`

16. Oren Mangoubi, Nisheeth K. Vishnoi. Sampling from Structured Log-Concave Distributions via a Soft-Threshold Dikin Walk. In *the Thirty-seventh Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2023. *Available online at* `https://arxiv.org/abs/2206.09384`

17. Oren Mangoubi, Nisheeth K. Vishnoi. Private Covariance Approximation and Eigenvalue-Gap Bounds for Complex Gaussian Perturbations. In *Conference On Learning Theory (COLT)*, 2023. *Available online at* `https://arxiv.org/abs/2306.16648`

18. Niclas Boehmer, L. Elisa Celis, Lingxiao Huang, Anay Mehrotra, Nisheeth K Vishnoi. Subset Selection Based On Multiple Rankings in the Presence of Bias: Effectiveness of Fairness Constraints for Multiwinner Voting Score Functions. In *Proceedings of the 39th International Conference on Machine Learning (ICML)*, 2023. *Available online at* `https://arxiv.org/abs/2306.09835`

19. Anay Mehrotra, Nisheeth K. Vishnoi. Maximizing Submodular Functions for Recommendation in the Presence of Biases. In *the Proceedings of the ACM Web Conference (WWW)*, 2023. *Available online at* `https://arxiv.org/abs/2305.02806`

20. Oren Mangoubi, Nisheeth K. Vishnoi. Re-Analyze Gauss: Bounds for private matrix approximation via Dyson Brownian motion. **Spotlight** in *the Thirty-sixth Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2022. *Available online at* `https://arxiv.org/abs/2211.06418`

21. Oren Mangoubi, Nisheeth K. Vishnoi. Sampling from log-concave distributions with infinity-distance guarantees. **Spotlight** in in *the Thirty-sixth Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2022. *Available online at* `https://arxiv.org/abs/2111.04089`

22. Anay Mehrotra, Nisheeth K. Vishnoi. Fair ranking with noisy protected attributes. In *the Thirty-sixth Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2022. *Available online at* `https://arxiv.org/abs/2211.17067`

23. Jonathan Leake, Nisheeth K. Vishnoi. On the computability of continuous maximum entropy distributions with applications. In *SIAM Journal of Computing*, 51(5): 1451–1505 (2022). *Available online at* `https://dl.acm.org/doi/10.1145/3357713.3384302`

24. Oren Mangoubi, Yikai Wu, Satyen Kale, Abhradeep Thakurta, Nisheeth K. Vishnoi. Private Matrix Approximation and Geometry of Unitary Orbits. In *Conference On Learning Theory (COLT)*, 2022. *Available online at* `https://arxiv.org/abs/2207.02794`

25. Vijay Keswani, Oren Mangoubi, Sushant Sachdeva, Nisheeth K. Vishnoi. A Convergent and Dimension-Independent First-Order Algorithm for Min-Max Optimization. In *Proceedings of the 38th International Conference on Machine Learning (ICML)*, 2022. *Available online at* `https://arxiv.org/abs/2006.12376`.

26. Anay Mehrotra, Bary Pradleski, Nisheeth K. Vishnoi. Selection in the Presence of Implicit Bias: The Advantage of Intersectional Constraints. In *ACM Conference on Fairness, Accountability, and Transparency (FAccT)*, 2022. *Available online at* `https://arxiv.org/abs/2202.01661`.

27. Hortense Fong, Vineet Kumar, Anay Mehrotra, Nisheeth K. Vishnoi. Fairness for AUC via Feature Augmentation. In *ACM Conference on Fairness, Accountability, and Transparency (FAccT)*, 2022. *Available online at* `https://arxiv.org/abs/2111.12823`.

28. Damian Straszak, Nisheeth K. Vishnoi. Iteratively reweighted least squares and Slime Mold: Connection and Convergence. In *Mathematical Programming, Series A*, 2022. **Invited Paper** in *8th Innovations in Theoretical Computer Science (ITCS)*, 2017. Full version available at `https://arxiv.org/abs/1601.02712`. MIT Technology Review "Best of the arXiv": `https://goo.gl/ShLBKY`.

29. Lingxiao Huang, K. Sudhir, Nisheeth K. Vishnoi. Coresets for Time Series Clustering. **Spotlight** in *the Thirty-fifth Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2021. *Available online at* `https://arxiv.org/abs/2110.15263`

30. L. Elisa Celis, Anay Mehrotra, Nisheeth K. Vishnoi. Fair classification with adversarial perturbations. In *the Thirty-fifth Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2021. *Available online at* `https://arxiv.org/abs/2106.05964`

31. L. Elisa Celis, Vijay Keswani, Lingxiao Huang, Nisheeth K. Vishnoi. Fair classification with noisy protected attributes: A framework with provable guarantees. In *Proceedings of the 37th International Conference on Machine Learning (ICML)*, 2021. *Available online at* `https://arxiv.org/abs/2006.04778`

32. Rohit Gurjar, Nisheeth K. Vishnoi. On the number of near-shortest circuits in regular matroids. In *SIAM Journal of Discrete Math*, 35(3), 1688–1705, 2021.

33. Rohit Gurjar, Thomas Thierauf, Nisheeth K. Vishnoi. Isolating a vertex via lattices: Polytopes with totally unimodular faces. In *SIAM Journal of Computing*, 50(2), 636–661, 2021.

34. Weiming Feng, Nisheeth K. Vishnoi, Yitong Yin. Dynamic sampling from graphical models. In *SIAM Journal of Computing*, 50(2), 350–381, 2021.

35. Jonathan Leake, Colin McSwiggen, Nisheeth K. Vishnoi. Sampling Matrices from Harish-Chandra–Itzykson–Zuber Densities with Applications to Quantum Inference and Differential Privacy In *ACM 53rd ACM Symposium on Theory of Computing (STOC)*, 2021. *Available online at* `https://arxiv.org/abs/2011.05417`.

36. Oren Mangoubi, Nisheeth K. Vishnoi. Greedy Adversarial Equilibrium: An Efficient Alternative to Nonconvex-Nonconcave Min-Max Optimization In *ACM 53rd ACM Symposium on Theory of Computing (STOC)*, 2021. *Available online at* `https://arxiv.org/abs/2006.12363`.

37. L. Elisa Celis, Chris Hays, Anay Mehrotra, Nisheeth K. Vishnoi. The effect of the Rooney Rule on implicit bias in the long term. In *ACM Conference on Fairness, Accountability, and Transparency (FAccT)*, 2021. *Available online at* `https://arxiv.org/abs/2010.10992`.

38. Javad Ebrahimi, Damian Straszak, Nisheeth K. Vishnoi. Sub-determinant maximization via non-convex relaxations and anti-concentration. In *SIAM Journal of Computing*, 49(6): 1249–1270, 2020.

39. Lingxiao Huang, K. Sudhir, Nisheeth K. Vishnoi. Coresets for regressions with panel data. In *the Thirty-forth Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2020. *Available online at* `https://arxiv.org/abs/2011.00981`

40. L. Elisa Celis, Vijay Keswani, Nisheeth K. Vishnoi. Data preprocessing to mitigate bias: A maximum entropy based approach. In *Proceedings of the 36th International Conference on Machine Learning (ICML)*, 2020. *Available online at* `https://arxiv.org/abs/1906.02164`

41. Jonathan Leake, Nisheeth K. Vishnoi. On the computability of continuous maximum entropy distributions with applications. In *ACM 52nd ACM Symposium on Theory of Computing (STOC)*, 2020. *Available online at* `https://arxiv.org/abs/2004.07403`.

42. Lingxiao Huang, Nisheeth K. Vishnoi. Coresets for clustering in Euclidean spaces: Importance sampling is nearly optimal. In *ACM 52nd ACM Symposium on Theory of Computing (STOC)*, 2020. *Available online at* `https://arxiv.org/abs/2004.06263`.

43. L. Elisa Celis, Anay Mehrotra, Nisheeth K. Vishnoi. Interventions for ranking in the presence of implicit bias. In *ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT)*, 2020. *Available online at* `https://arxiv.org/abs/2001.08767`.

44. Lingxiao Huang, Shaofeng Jiang, Nisheeth K. Vishnoi. Coresets for clustering with fairness constraints. In *the Thirty-third Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2019. *Available online at* `https://arxiv.org/abs/1906.08484`

45. Holden Lee, Oren Mangoubi, Nisheeth K. Vishnoi. Online sampling from log-concave distributions. In *the Thirty-third Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2019.

46. Oren Mangoubi, Nisheeth K. Vishnoi. Faster algorithms for polytope rounding, sampling, and volume computation via a sublinear "Ball Walk". In *60th IEEE Foundations of Computer Science (FOCS)*, 2019.

47. L. Elisa Celis, Anay Mehrotra, Nisheeth K. Vishnoi. Toward controlling discrimination in online ads. In *Proceedings of the 36th International Conference on Machine Learning (ICML)*, PMLR 97:4456-4465, 2019. **Awarded Best Student Paper** in the 3rd workshop on Mechanism Design for Social Good, 2019 (MD4SG).

48. Lingxiao Huang, Nisheeth K. Vishnoi. Stable and fair classification. In *Proceedings of the 36th International Conference on Machine Learning (ICML)*, PMLR 97:2879-2890, 2019.

49. Oren Mangoubi, Nisheeth K. Vishnoi. Nonconvex sampling with the Metropolis-adjusted Langevin algorithm . In *Conference On Learning Theory (COLT)*, 2019. *Available online at* `https://arxiv.org/abs/1902.08452`.

50. Damian Straszak, Nisheeth K. Vishnoi. Maximum entropy distributions: Bit complexity and stability. In *Conference On Learning Theory (COLT)*, 2019. *Available online at* `https://arxiv.org/abs/1711.02036`.

51. Nisheeth K. Vishnoi. Isolating a matching when your coins go missing. **Invited Technical Perspective** in *Communications of the ACM*, March 2019.

52. Damian Straszak, Nisheeth K. Vishnoi. Belief propagation, Bethe approximation and polynomials. In *IEEE Transactions on Information Theory*, 2019.

53. L. Elisa Celis, Sayash Kapoor, Farnood Salehi, Vijay Keswani, Nisheeth K. Vishnoi. A dashboard for controlling polarization in personalization. **Invited** for publication in *AI Communications*, vol. 32, no. 1, pp. 77-89, 2019.

54. Weiming Feng, Nisheeth K. Vishnoi, Yitong Yin. Dynamic sampling from graphical models. In *ACM 51st ACM Symposium on Theory of Computing (STOC). Available online at* `https://arxiv.org/abs/1807.06481`.

55. L. Elisa Celis, Lingxiao Huang, Vijay Keswani, Nisheeth K. Vishnoi. Classification with fairness constraints: a meta-algorithm with provable guarantees. In *ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT)*, 2019. *Available online at* `https://arxiv.org/abs/1806.06055`.

56. L. Elisa Celis, Farnood Salehi, Sayash Kapoor, Nisheeth K. Vishnoi. An algorithmic framework to control polarization in personalization. **Awarded Best Technical Paper** at *ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT)*, 2019. *Available online at* `https://arxiv.org/abs/1802.08674`. Preliminary version appeared as (69).

57. Rohit Gurjar, Nisheeth K. Vishnoi. On the number of near-shortest circuits in regular matroids. In *ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 2019.

58. Oren Mangoubi, Nisheeth K. Vishnoi. Dimensionally tight bounds for second-order Hamiltonian Monte Carlo. In *the Thirty-second Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2018.

59. Suvrit Sra, Nisheeth K. Vishnoi, Ozan Yildiz. On geodesically convex formulations for the Brascamp-Lieb constant. In *the 21st International Conference on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)*, 2018.

60. L. Elisa Celis, Vijay Keswani, Damian Straszak, Amit Deshpande, Tarun Kathuria, Nisheeth K. Vishnoi. Fair and diverse DPP-based data summarization. In *Proceedings of the 35th International Conference on Machine Learning (ICML)*, 2018.

61. Oren Mangoubi, Nisheeth K. Vishnoi. Convex optimization with nonconvex oracles using simulated annealing. In *Conference On Learning Theory (COLT)*, pages 1086–1124, 2018.

62. L. Elisa Celis, Lingxiao Huang, Nisheeth K. Vishnoi. Multiwinner voting with fairness constraints. In *27th International Joint Conference on Artificial Intelligence (IJCAI) and the 23rd European Conference on Artificial Intelligence (ECAI)*, 2018. *Available online at* `https://arxiv.org/abs/1710.10057`.

63. Sayash Kapoor, Vijay Keswani, Nisheeth K. Vishnoi, L. Elisa Celis. Balanced news using constrained bandit-based personalization. In *27th International Joint Conference on Artificial Intelligence (IJCAI) and the 23rd European Conference on Artificial Intelligence (ECAI) (Demo track)*, 2018.

64. Rohit Gurjar, Thomas Thierauf, Nisheeth K. Vishnoi. Isolating a vertex via lattices: Polytopes with totally unimodular faces. In *45th International Colloquium on Automata, Languages, and Programming (ICALP)*, 2018. *Available online at* `https://arxiv.org/abs/1708.02222`.

65. L. Elisa Celis, Damian Straszak, Nisheeth K. Vishnoi. Ranking with fairness constraints. In *45th International Colloquium on Automata, Languages, and Programming (ICALP)*, 2018. *Available online at* `https://arxiv.org/abs/1704.06840`.

66. L. Elisa Celis, Mina Dalirrooyfard, Nisheeth K. Vishnoi. A dynamics for advertising on networks. In *13th Conference on Web and Internet Economics (WINE)*, 2017.

67. Javad Ebrahimi, Damian Straszak, Nisheeth K. Vishnoi. Sub-determinant maximization via non-convex relaxations and anti-concentration. In *58th IEEE Foundations of Computer Science (FOCS)*, pages 1020–1031, 2017.

68. Damian Straszak, Nisheeth K. Vishnoi. Belief propagation, Bethe approximation and polynomials. **Invited for presentation** *at the 55th Annual Allerton Conference on Communication, Control, and Computing*, 2017. Full version available at `https://arxiv.org/abs/1708.02581`

69. L. Elisa Celis, Nisheeth K. Vishnoi. Fair personalization. In *4th Workshop on Fairness, Accountability, and Transparency in Machine Learning (FAT/ML)*, 2017.

70. L. Elisa Celis, Amit Deshpande, Tarun Kathuria, Damian Straszak, Nisheeth K. Vishnoi. On the complexity of constrained determinantal point processes. In *Proceedings of the 20th APPROX-RANDOM*, 36, pages 1–22, 2017.

71. L. Elisa Celis, Peter M. Krafft, Nisheeth K. Vishnoi. A distributed learning dynamics in social groups. In *Proceedings of the ACM Symposium on Principles of Distributed Computing (PODC)*, pages 441–450, 2017.

72. Damian Straszak, Nisheeth K. Vishnoi. Real Stable Polynomials and Matroids: Optimization and counting. In *49th ACM Symposium on Theory of Computing (STOC)*, pages 370–383 2017.

73. Yuval Peres, Mohit Singh, Nisheeth K. Vishnoi. Random walks in polytopes and negative dependence. In *8th Innovations in Theoretical Computer Science (ITCS)*, 2017.

74. L. Elisa Celis, Amit Deshpande, Tarun Kathuria, Nisheeth K. Vishnoi. How to be fair and diverse? In *3rd Workshop on Fairness, Accountability, and Transparency in Machine Learning (FAT/ML)*, 2016.

75. Sushant Sachdeva, Nisheeth K. Vishnoi. The Mixing time of the Dikin walk in polytopes – A simple proof. In *Operations Research Letters*, 44(5), pages 630–634, 2016.

76. Ioannis Panageas, Nisheeth K. Vishnoi. Mixing time of Markov chains, dynamical systems and evolution. In *International Colloquium on Automata, Languages, and Programming (ICALP)*, 63, pages 1–14, 2016.

77. Christos H. Papadimitriou, Nisheeth K. Vishnoi. On the computational complexity of limit cycles in dynamical systems. In *7th Innovations in Theoretical Computer Science (ITCS)*, 2016. Full version available at `https://arxiv.org/pdf/1511.07605`.

78. Damian Straszak, Nisheeth K. Vishnoi. On a natural dynamics for linear programming. In *7th Innovations in Theoretical Computer Science (ITCS)*, 2016. Full version available at `https://arxiv.org/abs/1511.07020`.

79. Damian Straszak, Nisheeth K. Vishnoi. Natural algorithms for flow problems. In *Proceedings of the 27th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 1868–1883, 2016.

80. Ioannis Panageas, Piyush Srivastava, and Nisheeth K. Vishnoi. Evolutionary dynamics in finite populations mix rapidly. In *Proceedings of the Twenty-Seventh Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 480–497, 2016.

81. Subhash Khot and Nisheeth K. Vishnoi. The unique games conjecture, integrality gap for cut problems and embeddability of negative-type metrics into ℓ_1. In *Journal of the ACM*, 62(1): pages 8:1–8:39, 2015.

82. Nisheeth K. Vishnoi. The speed of evolution. In *Proceedings of the Twenty-sixth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 1590–1601, 2015.

83. Subhash A. Khot, Preyas Popat, Nisheeth K. Vishnoi. Almost polynomial factor hardness for Closest Vector Problem with Preprocessing. In *SIAM Journal of Computing*, 43(3), pages 1184-1205, 2014.

84. Mohit Singh and Nisheeth K. Vishnoi. Entropy, optimization and counting. In *Symposium on Theory of Computing, (STOC)*, pages 50–59, 2014.

85. Nisheeth K. Vishnoi. Making evolution rigorous- the error threshold. In *5th Innovations in Theoretical Computer Science (ITCS)*, 2013. Full version available at `http://cs.yale.edu/homes/vishnoi/Publications_files/VError.pdf`.

86. Jugal Garg, Ruta Mehta, Milind A. Sohoni, and Nisheeth K. Vishnoi. Towards polynomial simplex-like algorithms for market equlibria. In *Proceedings of the Twenty-Fourth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 1226–1242, 2013.

87. Nisheeth K. Vishnoi. A permanent approach to the Traveling Salesman Problem. In *53rd Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pages 76–80, 2012.

88. Kushal Tripathi, Rajesh Balagam, Nisheeth K. Vishnoi, and Narendra M. Dixit. Stochastic simulations suggest that HIV-1 survives close to its error threshold. *PLoS Computational Biology*, 8(9):e1002684, 09, 2012.

89. Narendra Dixit, Piyush Srivastava, and Nisheeth K. Vishnoi. A finite population model of molecular evolution: Theory and computation. *Journal of Computational Biology*, 19(10):1176–1202, 2012.

90. Michael W. Mahoney, Lorenzo Orecchia, and Nisheeth K. Vishnoi. A local spectral method for graphs: with applications to improving graph partitions and exploring data graphs locally. *Journal of Machine Learning Research*, 13: pages 2339–2365, 2012.

91. Lorenzo Orecchia, Sushant Sachdeva, and Nisheeth K. Vishnoi. Approximating the exponential, the Lanczos method and an $\tilde{O}(m)$-time spectral algorithm for balanced separator. In *44th ACM Symposium on Theory of Computing (STOC)*, pages 1141–1160, 2012.

92. Subhash Khot, Preyas Popat, Nisheeth K. Vishnoi. $2^{\log^{1-\varepsilon} n}$ hardness for closest vector problem with preprocessing. In *44th ACM Symposium on Theory of Computing (STOC)*, pages 277–288, 2012.

93. Mikhail Alekhnovich, Subhash Khot, Guy Kindler, Nisheeth K. Vishnoi. Hardness of approximating the closest vector problem with pre-Processing. In *Computational Complexity*, 20(4): pages 741–753, 2011.

94. Subhransu Maji, Nisheeth K. Vishnoi, and Jitendra Malik. Biased normalized cuts. In *24th IEEE Conference on Computer Vision and Pattern Recognition, (CVPR)*, pages 2057–2064, 2011.

95. Amit Kumar, Rajsekar Manokaran, Madhur Tulsiani, and Nisheeth K. Vishnoi. On LP-based approximability for strict CSPs. In *ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages1560–1573, 2011.

96. Lorenzo Orecchia and Nisheeth K. Vishnoi. Towards an SDP-based approach to spectral methods: A nearly-linear-time algorithm for graph partitioning and decomposition. In *ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 532–545, 2011.

97. Amit Deshpande, Madhur Tulsiani, Nisheeth K. Vishnoi. Algorithms and hardness for subspace approximation. In *ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 482–496, 2011.

98. Anand Louis, Nisheeth K. Vishnoi. Improved algorithm for degree bounded survivable network design problem. In *the 12th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT)*, pages 408–419, 2010.

99. Mihail N. Kolountzakis, Richard J. Lipton, Evangelos Markakis, Aranyak Mehta, Nisheeth K. Vishnoi. On the Fourier spectrum of symmetric Boolean functions. In *Combinatorica*, 29(3), pages 363–387, 2009.

100. Markus Blaser, Moritz Hardt, Richard J. Lipton, Nisheeth K. Vishnoi. Deterministically testing sparse polynomial identities of unbounded degree. In *Information Processing Letters*, 109(3), pages187–192, 2009.

101. Lorenzo Orecchia, Leonard J. Schulman, Umesh V. Vazirani, and Nisheeth K. Vishnoi. On partitioning graphs via single commodity flows. In *40th ACM Symposium on Theory of Computing (STOC)*, pages 461–470, 2008.

102. Sanjeev Arora, Subhash Khot, Alexandra Kolla, David Steurer, Madhur Tulsiani, and Nisheeth K. Vishnoi. Unique games on expanding constraint graphs are easy. In 40th ACM Symposium on Theory of Computing (STOC), pages 21–28, 2008.

103. Nisheeth K. Vishnoi. The impact of noise on the scaling of collectives: The nearest neighbor model. In *the 14th International Conference on High Performance Computing (HiPC)*, pages 476–487, 2007.

104. Nikhil R. Devanur, Subhash Khot, Rishi Saket, and Nisheeth K. Vishnoi. Integrality gaps for sparsest cut and minimum linear arrangement problems. In *38th ACM Symposium on Theory of Computing (STOC)*, pages 537–546, 2006.

105. Subhash Khot and Nisheeth K. Vishnoi. The unique games conjecture, integrality gap for cut problems and embeddability of negative type metrics into ℓ_1. **Best Paper at** *the 46th Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pages 53–62, 2005.

106. Mikhail Alekhnovich, Subhash Khot, Guy Kindler, and Nisheeth K. Vishnoi. Hardness of approximating the closest vector problem with pre-processing. In *the 46th Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pages 216–225, 2005.

107. Parikshit Gopalan, Howard J. Karloff, Aranyak Mehta, Milena Mihail, Nisheeth K. Vishnoi. Caching with expiration times for internet applications. In *Internet Mathematics*, 2(2), pages 165–184, 2005.

108. Saurabh Agarwal, Rahul Garg, Nisheeth K. Vishnoi. The Impact of Noise on the Scaling of Collectives: A Theoretical Approach. *the 12th International Conference on High Performance Computing (HiPC)*, pages 280–289, 2005.

109. Richard J. Lipton, Evangelos Markakis, Aranyak Mehta, Nisheeth K. Vishnoi. On the Fourier Spectrum of Symmetric Boolean Functions with Applications to Learning Symmetric Juntas. In *IEEE Conference on Computational Complexity (CCC)*, pages 112–119, 2005.

110. Nikhil R. Devanur, Richard J. Lipton, and Nisheeth K. Vishnoi. On the complexity of Hilbert's 17th problem. In *Foundations of Software Technology and Theoretical Computer Science (FSTTCS)*, pages 237–249, 2004.

111. Nisheeth K. Vishnoi. Non uniform random walks. In *Discrete Mathematics and Theoretical Computer Science, vol. AC (2003)*, pages 345–358, Discrete Random Walks 2003. Editors: Cyril Banderier and Christian Krattenthaler.

112. Who's *The Weakest Link*? Nikhil R. Devanur, Richard J. Lipton, Nisheeth K. Vishnoi. *In the 2nd Symposium on Stochastic Algorithms, Foundations and Applications, pp. 108–116, 2003.*

113. Parikshit Gopalan, Howard Karloff, Aranyak Mehta, Milena Mihail, Nisheeth K. Vishnoi. Caching with expiration times. In *the 13th ACM-SIAM ACM Symposium on Discrete Algorithms (SODA)*, pages 540–547, 2002.

114. Milena Mihail, Nisheeth K. Vishnoi. On generating graphs with prescribed degree sequences for complex network modeling applications. In *Approximation and Randomized Algorithms for Communication Networks*, 2002.

115. An algebraic proof of Alon's Combinatorial Nullstellensatz. Nisheeth K. Vishnoi. In *Congressus Numerantium*, vol. 152, pages 89–91, 2001.

(d) Technical Reports

116. Damian Straszak, Nisheeth K. Vishnoi. On convex programming relaxations for the permanent. *Available online at* `https://arxiv.org/abs/1701.01419`, 2017.

117. Rahul Jain, Troy Lee, Nisheeth K. Vishnoi. A quadratically tight partition bound for classical communication complexity and query complexity. *Available online at* `https://arxiv.org/abs/1401.4512`, 2014.

118. Sushant Sachdeva, Nisheeth K. Vishnoi. Matrix inversion is as easy as exponentiation. *Available online at* `https://arxiv.org/abs/1305.0526`, 2013.

119. David Steurer, Nisheeth K. Vishnoi. Connections between Unique Games and Multicut. ECCC Technical Report TR09-125. *Available online at* `https://eccc.weizmann.ac.il/report/2009/125/`, 2009.

120. Rohit M. Khandekar, Subhash A. Khot, Lorenzo Orecchia, Nisheeth K. Vishnoi. On a cut-matching game for expansion. University of California, Berkeley Technical Report No. UCB/EECS-2007-177. *Available online at* `http://vm133.lib.berkeley.edu:90/reports/TRWebData/accessPages/EECS-2007-177.html`, 2007.

121. Richard J. Lipton, Nisheeth K. Vishnoi. A Generalization of the Characteristic Polynomial of a Graph. Presented *in 35th Southeastern International Conference on Combinatorics, Graph Theory and Computing, Boca Raton*, 2004. *Available online at* `http://cs.yale.edu/homes/vishnoi/Publications_files/LVgraphpoly.pdf`, 2004.

122. Joseph M. Landsberg, Jacob Taylor, Nisheeth K. Vishnoi. The geometry of matrix rigidity. *Available online at* `https://smartech.gatech.edu/bitstream/handle/1853/6514/GIT-CC-03-54.pdf`, 2003.

Selected Media Coverage

1. Interview: "AMA Issues Principles on AI in Healthcare, Calls for Larger Regulatory Framework". MedCentral. December 26, 2023. https://www.medcentral.com/ai/ama-issues-principles-on-ai-in-healthcare-calls-for-larger-regulatory-framework
2. In the news: "Pentagon Urged to Do More Against Biased Artificial Intelligence". Bloomberg Law, May 2, 2022. https://news.bloomberglaw.com/tech-and-telecom-law/pentagon-urged-to-do-more-against-biased-artificial-intelligence
3. Interview on bias in AI: "Hard choices: AI in health care". Yale Medicine, 2021 Issue 166. https://medicine.yale.edu/news/yale-medicine-magazine/hard-choices-ai-in-health-care/
4. Interview and article on our work on controlling bias in AI: "Artificial intelligence could deepen biases and make us more mechanical". March 13, 2021. https://timesofindia.indiatimes.com/artificial-intelligence-could-deepen-biases-and-make-us-more-mechanical/articleshow/81472179.cms
5. Interview and article on our work on reducing polarization: "When our view of the world is distorted by algorithms". March 28, 2019. https://www.pbs.org/wgbh/nova/article/radical-ideas-social-media-algorithms
6. Links to extensive media coverage on our work on Fair Elections in September 2018 can be found at https://nisheethvishnoi.wordpress.com/2018/09/16/fair-elections/.
7. An article on reducing polarization: "When our view of the world is distorted by algorithms". April 19, 2018. https://actu.epfl.ch/news/when-our-view-of-the-world-is-distorted-by-algorit/
8. An interview on Algorithm dynamics: Asking Google, Facebook and others to be "fair". January 26, 2018. *The Ken.* Available at https://the-ken.com/relook-google-facebook-algorithm/.
9. An interview on the deployment of Artificial Intelligence in India. October 30, 2017. *The Ken.* Available at https://the-ken.com/you-can-bring-bullet-train-from-japan-but-not-artificial-intelligence/.
10. An interview on Algorithmic Bias. August 9, 2017. *livemint.* Available at http://www.livemint.com/Technology/VXCMw0Vfilaw0aIInD1v2O/When-artificial-intelligence-goes-wrong.html.
11. An interview on Algorithmic Bias. January 23, 2017. *The Ken.* Available at https://the-ken.com/humanising-algorithms/.

Professional Activities

(a) At Yale

1. **Member of Provost's AI Task Force.** Yale *2024*
2. **Member of Advisory Committee of the QBio with PEB** Yale *2023-2025*

3. **Member of Steering Committee of the Kline Tower Institute (KTI)** — Yale, *2022-2024*

4. **Member of Provost's Data Science Advisory Committee** — Yale, *2021-2022*

5. **Member of the Strategic Planning Committee** — Yale, *2020-2021*
   School of Engineering and Applied Sciences

6. **Member of the Ph.D. student recruiting committee** — Yale, *2020*
   Department of Computer Science

7. **Member of the faculty recruiting committee** — Yale, *2020*
   Department of Computer Science

8. **Member of the PSE Area and Tenure Appointments Committee** — Yale, *2019-2020*
   Physical Science and Engineering

(b) At EPFL

1. **Member of the Research Commission** — EPFL, *2017-Present*
   Official body of the Swiss Nat. Science Found. and advisory to the EPFL direction

2. **Chair of the Doctoral Dissertation Awards Committee** — EPFL, *2017*
   School of Computer and Communication Sciences

3. **Chair of the School of Computer and Communication Sciences Research Day** — EPFL, *2015*
   Title: The Computational Universe

4. **Organization of Summer@EPFL** — EPFL, *2015*
   Helped with internship program of the School of Computer and Communication Sciences

5. **Member of the Committee that runs the Doctoral Program (EDIC)** — EPFL, *2014-Present*
   School of Computer and Communication Sciences

6. **Member of the Faculty Hiring Committee** — EPFL, *2014*
   School of Computer and Communication Sciences

(d) Panels/Conference/Workshop/Semester Organization

7. **Panelist in Session for IndiaAI Innovation Centre organized by Govt. of India** — *2024*

8. **Panelist in an Expert Group Meeting for the CEDAW GR 40 on AI** — *2023*

9. **NSF Panel: Reliability of Current Large Language Models** — *2023*

10. **Panelist in AI Ethics roundtable organized by the TILOS AI Institute** — *2023*

11. **Workshop Organizer - Entropy and Optimization** — DIMACS, *2022*

12. **Panelist in AI and Big Data: Risks and Opportunities** — *2022*
    Jackson Institute for Global Affairs, Yale

13. **Panelist in Deconstructing AI Adoption**
Tata Consultancy Services *2022*

14. **Workshop Organizer - Optimization under Symmetry** Simons
2021

15. **Program Organizer - Geometric Methods for Optimization & Sampling** Simons
2021

16. **Panelist in U.S. - India AI Initiative: Principles of Trustworthy AI**
Indo-U.S. Science and Technology Forum *2021*

17. **Committee member for XPrize at AI for Good Global Summit** AI for Good Summit
2020

18. **Co-Organizer of Workshop on Dynamical Systems and Computation** Gump Station
2019

19. **NSF Panels**
2018, 2019, 2022

20. **Co-Organizer of the 1st Yale workshop on AI, Ethics, and Society** Yale
2019

21. **Panelist in ICRC/IIT Delhi Initiative on Humanitarian Policy and Technology, (New Delhi, 2019).**

22. **Round tables on Governance of Decision Making Algorithms organized by IRGC (Zurich, 2018), AI and Global Health organized by Wilton Park (London, 2018).**

23. **Panels of Philanthropy Impact panel on Artificial Intelligence (Zurich, 2018), Responsible Finance & Investment Summit (Zurich, 2018).**
The goal of these panels is to direct philanthropy and investment in AI

24. **Steering Committee Member of the "DIMACS/Simons Collaboration in Bridging Continuous and Discrete Optimization".**

25. **Co-organizer of a semester at the Bernoulli Center, Lausanne on "Computational Aspects of Partition Functions"**

26. **Co-Organizer of an interdisciplinary workshop** EPFL
Title: Computation and Society *2018*

27. **Organizer of a session at the International Symposium on Math. Prog. (2018) on "Algorithmic Fairness and Optimization"**

28. **Co-Organizer of a workshop** ICTS, Bangalore, India
Title: Algorithms and Optimization *2018*

29. **Co-Organizer of a Banff Workshop** Banff, Canada
Title: Approximation and Hardness of Approximation *2017*

30. **Co-Organizer of a Bellairs workshop** EPFL
Title: Algorithmic Aspects of Dynamical Systems *2017*

31. **Co-Organizer of an interdisciplinary workshop** Mysore
Title: Computation, Sciences and Society *2017*

32. **Co-Organizer of a Dagstuhl Seminar** Dagstuhl, Germany
Title: Evolution and Computing *2016*

33. **Co-Organizer of a workshop series** — India
Title: Breakthroughs in Theoretical Computer Science — *2011, 2013*

34. **Co-Organizer of a winter school** — Bangalore, India
Title: The 2011 School of Approximability — *2011*

(c) Committees

35. Senior PC Member of Computational Learning Theory (COLT) 2023
36. Senior PC Member of Computational Learning Theory (COLT) 2022
37. PC Chair of IEEE Foundations of Computer Science (FOCS) 2021
38. PC Member of FORC: Foundations of Responsible Computing 2020
39. Program Committee of India Science Festival, Pune, India 2020-2021
40. PC Member of CRAFT: Critiquing and Rethinking Accountability, Fairness and Transparency 2020
41. PC Member of ACM Conference on Fairness, Accountability, and Transparency (FAccT) 2020
42. PC Member of ACM-SIAM Symposium on Discrete Algorithms (SODA) 2020
43. PC Member of Computational Learning Theory (COLT) 2019
44. PC Member of ACM Conference on Fairness, Accountability, and Transparency (FAccT) 2019
45. PC Member of IEEE Foundations of Computer Science (FOCS) 2018
46. PC Member of Foundations of Software Technology and Theoretical Computer Science 2018
47. PC Member of ACM-SIAM Symposium on Discrete Algorithms (SODA) 2018
48. PC Member of Innovations in Theoretical Computer Science (ITCS) 2016
49. PC Member of Innovations in Theoretical Computer Science (ITCS) 2015
50. PC Member of ACM-SIAM Symposium on Discrete Algorithms (SODA) 2014
51. PC Chair of Foundations of Software Technology and Theoretical Computer Science 2013
52. PC Member of ACM Symposium on Theory of Computing (STOC) 2011
53. PC Member of Foundations of Software Technology and Theoretical Computer Science 2011
54. PC Member of Foundations of Software Technology and Theoretical Computer Science 2009

Selected Talks in Recent Years

Invited talk at Responsible AI in Global Business — April 2025
AI and Society — *School of Management, Yale*

Invited talk at IIT Kanpur — Jan 2025
Title: College Admissions in the Presence of Biases — *Kanpur, India*

Invited talk at TIFR — Jan 2025
Title: Algorithms in the Presence of Biased Inputs — *Mumbai, India*

Invited talk by Yale Class of 1960 — December 2024
Title: AI and Society: Applications, Impacts, and the Future — *Virtual*

Invited talk at Yale Class of 1969 55th Reunion — June 2024
Title: The (Broken) AI Mirror and how we could fix it — *New Haven, USA*

Invited talk at TILOS Ethics and Early Career Webinar — March 2024
Title: The AI Mirror — *Virtual*

Invited talk at IBM Research — March 2024
Title: Algorithms in the Presence of Biased Inputs — *Gurugram, India*

Invited talk at IIT Kanpur — March 2024
Title: Algorithms in the Presence of Biased Inputs — *Kanpur, India*

Invited talk at IIT Delhi — March 2024
Title: Algorithms in the Presence of Biased Inputs — *Delhi, India*

Invited talk at IIT Bombay — March 2024
Title: Algorithms in the Presence of Biased Inputs — *Mumbai, India*

Invited talk at Yale Law School — February 2024
Title: The AI Mirror — *New Haven, USA*

Invited talk at Google Research — December 2023
Title: Algorithms in the Presence of Biased Inputs — *Bangalore, India*

Fireside Chat at People+ai — December 2023
Title: AI's Impact on Society — *Bangalore, India*

Keynote talk at FSTTCS — December 2023
Title: Algorithms in the Presence of Biased Inputs — *Hyderabad, India*

TILOS Fireside Chat — October 2022
Theory in the age of modern AI — *Virtual*

Invited talk at the School of Mathematics — October 2023
Title: Private Optimization and Statistical Physics — *IAS, Princeton*

Invited seminar at the Department of Computer Science and Engineering — January 2023
Title: Selection in the Presence of Biases — *IIT Delhi*

Invited seminar at the Department of Computer Science and Engineering — January 2023
Title: Selection in the Presence of Biases — *IIT Bombay*

Invited speaker at the Infosys-Chandrasekharan Random Geometry Colloquium — January 2023
Title: Private Optimization and Statistical Physics — *TIFR Mumbai*

Invited speaker at the ICTS discussion meeting "Statistical Physics of Complex Systems" — December 2022
Title: Private Optimization and Statistical Physics — *ICTS Bangalore*

Fireside Chat at Data Science Conference Europe — November 2022
Title: Understanding the nature of Bias in Natural & AI Systems — *Virtual*

Invited seminar at the Department of Computer Science and Engineering — June 2022
Title: Sampling Under Symmetry — *IIT Kanpur*

Invited speaker at the Sampling Methods and Inverse Problems Workshop — June 2022
Title: Sampling Under Symmetry — *Duke University*

Invited speaker at the CS Colloquium, Hebrew University — May 2022
Title: Sampling under Symmetry — *Virtual*

Invited seminar at the IBM India Research Lab — Mar. 2022
Title: Bias in Algorithms — *Gurugram, India*

Invited seminar at the Department of Computer Science and Engineering — Mar. 2022
Title: Bias in Algorithms — *IIT Kanpur*

Invited speaker at the Simons Institute Workshop on Adversarial Approaches in ML — Feb. 2022
Title: Computationally Efficient Alternatives to Nonconvex-Nonconcave Min-Max Optimization — *Virtual*

Invited speaker at the joint TILOS and OPTML++ Seminar at MIT — Feb. 2022
Title: Sampling under Symmetry — *Virtual*

Invited speaker in the Colloquium Series of the Inference Project — Nov. 2021
Title: Bias in Algorithms — *Virtual*

Invited speaker in the Algorithms and Machine Learning Seminar at Princeton University — Nov. 2021
Title: Optimization and Sampling Under Continuous Symmetry — *Virtual*

Invited talk at Google India — Oct. 2021
Title: Controlling Bias in Algorithmic Decision Making — *Virtual*

Bootcamp talk at Simons semester on Geometric Methods for Optimization and Sampling — Sep. 2021
Title: Optimization and Sampling Under Symmetry: Examples — *Virtual*

Bootcamp talk at Simons semester on Geometric Methods for Optimization and Sampling — Sep. 2021
Title: An introduction to Hamiltonian Monte Carlo method for sampling — *Virtual*

Invited talk at Theory Lunch at Dept. of Economics, Yale — May 2021
Title: Selection problems in the presence of implicit biases — *Virtual*

Invited talk at Franke Ideas Salon — January 2021
Title: A Minimalist Approach to Intelligence — *Virtual*

Keynote at Walmart AI Summit — January 2021
Title: Controlling bias in algorithmic decision making — *Virtual*

Tutte Colloquium at University of Waterloo — November 2020
Title: Sampling under Symmetry — *Virtual*

Invited Talk at Google Brain — October 2020
Title: Efficient Alternatives to Min-Max Models — *Virtual*

Invited talk in the Law & Tech Series at Yale Law School — September 2020
Title: Challenges of Making Unbiased Decisions in a World of Data and Algorithms — *Virtual*

Invited talk in the Convening Yale series at Yale SOM — September 2020
Title: Challenges of Making Unbiased Decisions in a World of Data and Algorithms — *Virtual*

Invited talk ML Seminar at JHU — September 2020
Title: Equilibrium in Min-Max Optimization — *Virtual*

Keynote talk at Highlights of Algorithms — September 2020
Title: Controlling Bias in Algorithms — *Virtual*

Invited talk in Simons reunion workshop on Deep Learning, Berkeley — August 2020
Title: Equilibrium in Min-Max Optimization — *Virtual*

Invited presentation to European Commission — May 2020
Title: Controlling Bias in AI — *Virtual*

Invited Webinar of A+ Alliance — April 2020
Title: Virtual Algorithms 101 — *Virtual*

Trusted AI Seminar at IBM Research — February 2020
Title: Optimization-Based Approaches to Control Algorithmic Bias — *New York*

Invited talk at India Science Festival — January 2020
Title: Humans are not alone, AI discriminates too — *Pune*

Invited talk at ICTS — January 2020
Title: Physics-Inspired Algorithms — *Bangalore*

Keynote talk at LinkedIn-IISC workshop — January 2020
Title: Towards Controlling Bias in AI/ML — *Bangalore*

Invited talk at Rice University — October 2019
Title: Towards Controlling Bias in AI — *Houston*

Invited talk at University of Colorado — October 2019
Title: Physics-inspired Algorithms: Hamiltonian Monte Carlo for Sampling — *Boulder*

Invited talk at Google ML Theory Day — September 2019
Title: Physics-inspired Algorithms: Hamiltonian Monte Carlo for Sampling — *New York City*

Invited talk at Courant Institute — August 2019
Title: Entropy, Optimization and Symmetry — *NYU*

Invited talk at Facebook — July 2019
Title: Towards Controlling Bias in AI Systems — *Seattle*

HCI and Data Visualization PIC Seminar Series — May 2019
Title: Towards controlling bias in machine learning — *IBM Research, Cambridge*

Invited talk at Jump Trading — May 2019
Title: Towards controlling bias in machine learning — *Jump Trading, Chicago*

Invited talk at Collaboration on Algorithms and Geometry Annual Meeting — May 2019
Title: Physics-inspired Algorithms: Hamiltonian Monte Carlo for Sampling — *Simons Foundation, NY*

Department Seminar at the Statistics and Data Science Dept. — April 2019
Title: Physics-Inspired Algorithms for Sampling — *Yale University*

Invited talk at the Workshop on Deterministic counting — March 2019
Title: Entropy, Capacity, and Counting — *Simons Institute, UC Berkeley*

Invited talk at the Geometry of Polynomials seminar — March 2019
Title: Bethe approximation for partition functions — *Simons Institute, UC Berkeley*

CMI seminar — March 2019
Title: Towards controlling bias in AI systems — *Caltech*

ACO Alumni Colloquium — January 2019
Title: Opportunities at the intersection of AI and society — *Georgia Tech*

CSE Department Talk — November 2018
Title: Algorithms for Machine Learning, Inspired from Physics — *IIT Delhi*

CSE Department Talk — October 2018
Title: Algorithms from Physics — *IIT Goa*

STCS Colloquium — October 2018
Title: Algorithms from Physics — *TIFR, Mumbai*

CSE Department Talk — October 2018
Title: Algorithms from Physics — *IIT Bombay*

Invited talk at the FOCS workshop on Scaling Algorithms and Applications — June 2018
Title: On the Computability of Maximum Entropy Distributions — *Paris*

Invited talk at AWS — August 2018
Title: Algorithms and Bias — *New York*

Invited talk at ISMP — July 2018
Title: Fair and Diverse DPP-based Sampling — *Bordeaux*

Invited talk at the workshop on Optimization, Complexity and Invariant Theory — June 2018
Title: An Introduction to Geodesic Convexity — *IAS, Princeton*

DSI Colloquium — May 2018
Title: Optimization, Sampling, and Physics — *Boston University*

Center for Quantum Technologies Seminar — April 2018
Title: Algorithms from Physics — *National University of Singapore*

CSE Seminar — February 2018
Title: Algorithms, Nature, and Society — *U Michigan*

CS Colloquium — February 2018
Title: Algorithms and Bias — *Yale University*

DSI Distinguished Lecture — February 2018
Title: Algorithms, Nature, and Society — *Boston University*

CS Colloquium — February 2018
Title: Algorithms, Nature, and Society — *Northeastern University*

DCS Colloquia — February 2018
Title: Algorithms, Nature, and Society — *Rutgers University*

CS Seminar — February 2018
Title: Algorithms from Physics — *Princeton University*

Invited talk at ICTS at TEN — January 2018
Title: The mathematics of bias — *Bangalore*

Distinguished speakers lecture — December 2017
Title: Algorithms, complexity, and bias — *Max Planck Institute for Informatics*

Invited Presentation to delegates from United Nations OHCHR and Women@TheTable — November 2017
Title: Bias in AI — *Geneva*

Invited talk in the Theory seminar in the Computer Science department — October 2017
Title: Entropy, optimization and polynomials (to counter algorithmic bias) — *UIUC*

Invited talk at Allerton — October 2017
Title: Belief propagation, Bethe approximation and polynomials — *Illinois*

Invited talk at the Workshop on Fast Iterative Methods — October 2017
Title: Slime molds and sparse recovery — *Simons Institute, UC Berkeley*

Invited talk at the Workshop on Discrete Opt. via Continuous Relaxations — September 2017
Title: Subdeterminant maximization via nonconvex relaxations — *Simons Institute, UC Berkeley*

Invited talk in the Optimization Seminar at the Simons Institute — September 2017
Title: Entropy, optimization and polynomials — *Simons Institute, UC Berkeley*

Invited talk at Google — September 2017
Title: Fair algorithms — *Mountain View, CA*

Invited talk at the Workshop on Learning Theory at Foundations of Computational Math. — July 2017
Title: Learning in nature — *Barcelona*

Plenary talk at the "Special Year on Complexity Theory and Cryptography" — January 2017
Title: Computational aspects of partition functions — *IISc, Bangalore*

Invited talk at the Innovations in Theoretical Computer Science (ITCS) conference — Jan. 2017
Title: IRLS and slime molds: Equivalence and convergence — *Berkeley*

Invited talk at the meeting "The Interface of Biology & TCS" — December 2016
Title: Evolution and computation — *Simons Center, NCBS*

Invited talk at the MIT Theory of Computation Colloquium — November 2016
Title: Slime molds, sparse recovery and beyond — *MIT*

Invited talk at the Yale Applied Math Seminar — November 2016
Title: Slime molds, sparse recovery and beyond — *Yale*

Invited talk at the CS/IEOR Seminar — November 2016
Title: Slime molds, sparse recovery and beyond — *Columbia*

Plenary talk at "Probabilistic Structures in Deterministic Population Genetics" — November 2016
Title: Evolutionary dynamics in finite populations — *Vienna*

Invited Talk at FOCS 2016 Workshop on Orthogonal Polynomials — October 2016
Title: Orthogonal polynomials and spectral algorithms — *New Brunswick*

Invited talk at the meeting on Discrete Optimization — August 2016
Title: Sparse recovery, iteratively reweighed least squares and beyond — *ETH Zurich*

Invited talk at 5th Mysore Park Workshop — August 2016
Title: Sparse recovery, iteratively reweighed least squares and beyond — *Mysore*

Invited talk at Algebraic and Spectral Graph Theory Workshop — August 2016
Title: IRLS, sparse recovery and beyond — *Banff*

Invited talk at the ICML Workshop on Advances in Nonconvex Analysis and Optimization — June 2016
Title: Slime molds and sparse recovery — *New York*

Invited talk at the Computational Complexity Conference — June 2016
Title: Evolution and computation — *Tokyo*

Ng Kong Beng Public Lecture at the Institute of Mathematical Sciences — March 2016
Title: Evolution and computation — *IMS-NUS, Singapore*

Keynote at the meeting on "Computation and Optimization in Science and Engineering" February 2016
Title: Evolution and computation *IIT Kanpur*

Invited talk at the meeting "Population Genetics and Evolution" January 2016
Title: Evolution and computation *ICTS, Bangalore*

Invited talk at the workshop Fast Algorithms via Spectral Methods December 2015
Title: Faster spectral algorithms via approximation theory *Simons Institute, UC Berkeley*

Invited talk at the OR Seminar December 2015
Title: Natural algorithms for flows and linear programming *LSE*

Distinguished Speaker at the 6th Cargese workshop on Combinatorial Optimization September 2015
Title: Three lectures on linear solvers and convex optimization *Corsica*

Invited Talk at the Department of Computer Science July 2015
Title: Evolution, dynamical systems and computation *Princeton*

Invited talk at the 22nd International Symposium on Mathematical Programming July 2015
Title: Natural algorithms for flow problems *Pittsburgh*

Invited talk at the Theory Seminar April 2015
Title: Natural algorithms for flow problems *Columbia, NY*

Plenary talk at the Bellairs Workshop on Combinatorial Optimization April 2015
Title: Natural algorithms for flow problems *Barbados*

Invited talk at the Computer Science/Discrete Mathematics Seminar April 2015
Title: Natural algorithms for flow problems *IAS, Princeton*

Invited Lecture Series at the Department of Computer Science and Engineering December 2014
Title: Three lectures on convex optimization *IIT Kanpur*

Invited Lecture Series at the Department of Computer Science and Engineering December 2014
Title: Three lectures on convex optimization *IIT Madras*

Invited talk at the Workshop on Flexible Network Design July 2014
Title: On the computability of max-entropy distributions for combinatorial problems *Lugano*

Keynote talk at ARC Theory Day April 2014
Title: Entropy, optimization and counting *Georgia Tech*

Invited talk at the workshop "Electrical Flows, Graph Laplacians, and Algorithms ..." April 2014
Title: Faster algorithms via approximation theory *ICERM, Brown*

Invited talk at the Ideas and Problems Seminar March 2014
Title: How could life have emerged? *Simons Institute, UC Berkeley*

Plenary talk at the meeting "Population Genetics and Evolution" February 2014
Title: Making evolution rigorous? *ICTS, Bangalore*

Invited talk at RIMS January 2014
Title: Entropy, optimization and counting *Kyoto*

Plenary talk at the ELC Workshop in Inapproximability January 2014
Title: Inapproximability *Tokyo*

Invited talk at the Department of Mathematics January 2014
Title: Approximation theory and the design of fast algorithms *Indian Institute of Science*

Invited talk at the Chennai Mathematical Institute — January 2014
Title: Zeros of polynomials and their applications to theory — *Chennai*

Invited talk in the International Center for Theoretical Sciences Colloquium — November 2013
Title: Asexual evolution through the lens of theory — *ICTS, Bangalore*

Invited talk at the FOCS Workshop on Zeros of Polynomials and their Applications to Theory — Oct. 2013
Title: Introduction to real stability and strongly Rayleigh measures — *Berkeley*

School of Natural Science Colloquium — September 2013
Title: Asexual evolution through the lens of theory — *TIFR, Mumbai*

Invited talk at TCS+ — March 2013
Title: Evolution through the lens of theory — *Online seminar*