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Department of Mathematics, Statistics, and
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University of Illinois at Chicago
Chicago, Illinois
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Will Perkins

Positions

Georgia Institute of Technology, School of Computer Science — **Atlanta, Georgia**
Associate Professor — 2022 – present
Algorithms and Randomness Center — **Georgia Tech**
Director — 2023 – present
University of Illinois at Chicago, MSCS Department — **Chicago, Illinois**
Associate Professor — 2021 – 2022
Assistant Professor — 2018 – 2021
University of Birmingham, School of Mathematics — **Birmingham, England**
Birmingham Fellow (Assistant Professor equiv.) — 2015 – 2018
Institute for Mathematics and its Applications — **Minneapolis, Minnesota**
Postdoc, Special Year on Discrete Structures — 2014 – 2014
Georgia Institute of Technology, School of Mathematics — **Atlanta, Georgia**
NSF Postdoc — 2011 – 2014

Education

New York University — **New York, NY**
Ph.D. in Mathematics — 2007 – 2011
Supervisor: Joel Spencer
Yale University — **New Haven, CT**
B.A. in History — 1999 – 2003

Research Interests

Algorithms, probability, combinatorics, and statistical physics.

Grants and Awards

NSF AF Small Collaborative Award (PI), 2023–2026.
IDEAL Data Science Institute, NSF HDR Tripods Grant (former co-PI), 2022–2027.
UIC Foundations of Data Science Institute, NSF HDR Tripods Grant (co-PI), 2019–2022.
NSF CAREER Award, 2019–2024.
EPSRC First Grant (UK), 2017–2018.
NSF Mathematical Sciences Postdoctoral Fellowship, 2011–2014.
Kurt O. Friedrichs Prize for Outstanding Dissertation in Mathematics at New York University, 2011.

Papers

Submitted:

[58] W. Perkins. Searching for (sharp) thresholds in random structures: where are we now? *arXiv preprint arXiv:2401.01800* (2024)

[57] M. Jenssen, W. Perkins, and A. Potukuchi. On the evolution of structure in triangle-free graphs. *arXiv preprint arXiv:2312.09202* (2023)

[56] M. Michelen and W. Perkins. Potential-weighted connective constants and uniqueness of Gibbs measures. *arXiv preprint arXiv:2109.01094* (2021)

Accepted:

[55] W. Perkins and Y. Wang. On the hardness of finding balanced independent sets in random bipartite graphs. *SODA 2024* (to appear)

[54] K. Anand, A. Göbel, M. Pappik, and W. Perkins. Perfect Sampling for Hard Spheres from Strong Spatial Mixing. *RANDOM 2023* (to appear)

Published:

[53] D. Gamarnik, E. C. Kizildağ, W. Perkins, and C. Xu. Geometric barriers for stable and online algorithms for discrepancy minimization. *The Thirty Sixth Annual Conference on Learning Theory (COLT 2023)*. PMLR. 2023, pp. 3231–3263

[52] D. Galvin, G. McKinley, W. Perkins, M. Sarantis, and P. Tetali. On the zeroes of hypergraph independence polynomials. *Combinatorics, Probability and Computing* 33.1 (2023), 65–84

[51] T. Helmuth, H. Lee, W. Perkins, M. Ravichandran, and Q. Wu. Approximation algorithms for the random-field Ising model. *SIAM Journal on Discrete Mathematics* 37.3 (2023), 1610–1629

[50] M. Jenssen, W. Perkins, and A. Potukuchi. Approximately counting independent sets in bipartite graphs via graph containers. *Random Structures & Algorithms* 63.1 (2023), 215–241. Extended abstract at SODA 2022

[49] C. Borgs, J. Chayes, T. Helmuth, W. Perkins, and P. Tetali. Efficient Sampling and Counting Algorithms for the Potts Model on $\mathbb{Z}^d$ at All Temperatures. *Random Structures & Algorithms* 63.1 (2023), 130–170. Extended abstract at *STOC 2020*

[48] M. Michelen and W. Perkins. Analyticity for classical gasses via recursion. *Communications in Mathematical Physics* 399 (2023), 367–388

[47] T. Helmuth, M. Jenssen, and W. Perkins. Finite-size scaling, phase coexistence, and algorithms for the random cluster model on random graphs. *Annales de l'Institut Henri Poincare (B) Probabilites et statistiques*. Vol. 59. 2. Institut Henri Poincaré. 2023, pp. 817–848

[46] G. McKinley, M. Michelen, and W. Perkins. Maximum entropy and integer partitions. *Combinatorial Theory* 3.1 (2023)

[45] M. Michelen and W. Perkins. Strong spatial mixing for repulsive point processes. *Journal of Statistical Physics* 189.1 (2022), 9

[44] D. Gamarnik, E. C. Kızıldağ, W. Perkins, and C. Xu. Algorithms and barriers in the symmetric binary perceptron model. *2022 IEEE 63rd Annual Symposium on Foundations of Computer Science (FOCS)*. IEEE. 2022, pp. 576–587

[43] A. Blanca, S. Cannon, and W. Perkins. Fast and Perfect Sampling of Subgraphs and Polymer Systems. *Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques (APPROX/RANDOM 2022)*. Schloss Dagstuhl-Leibniz-Zentrum für Informatik. 2022

[42] M. Jenssen, W. Perkins, and A. Potukuchi. Independent sets of a given size and structure in the hypercube. *Combinatorics, Probability and Computing* 31.4 (2022), 702–720

[41] V. Jain, W. Perkins, A. Sah, and M. Sawhney. Approximate counting and sampling via local central limit theorems. *Proceedings of the 54th Annual ACM SIGACT Symposium on Theory of Computing*. 2022, pp. 1473–1486

[40] C. Carlson, E. Davies, A. Kolla, and W. Perkins. Computational thresholds for the fixed-magnetization Ising model. *Proceedings of the 54th Annual ACM SIGACT Symposium on Theory of Computing*. 2022, pp. 1459–1472

[39] T. Helmuth, W. Perkins, and S. Petti. Correlation decay for hard spheres via Markov chains. *Annals of Applied Probability* 32.3 (2022), 2063–2082

[38] E. Cohen, W. Perkins, M. Sarantis, and P. Tetali. On the number of independent sets in uniform, regular, linear hypergraphs. *European Journal of Combinatorics* 99 (2022), 103401

[37] P. Charbonneau, P. K. Morse, W. Perkins, and F. Zamponi. Three simple scenarios for high-dimensional sphere packings. *Physical Review E* 104.6 (2021), 064612

[36] E. Davies, M. Jenssen, and W. Perkins. A proof of the Upper Matching Conjecture for large graphs. *Journal of Combinatorial Theory, Series B* 151 (2021), 393–416

[35] E. Davies and W. Perkins. Approximately Counting Independent Sets of a Given Size in Bounded-Degree Graphs. *48th International Colloquium on Automata, Languages, and Programming (ICALP 2021)*. Vol. 198. 2021, 62:1–62:18

[34] W. Perkins and C. Xu. Frozen 1-RSB structure of the symmetric Ising perceptron. *Proceedings of the 53rd Annual ACM SIGACT Symposium on Theory of Computing (STOC)*. 2021, pp. 1579–1588

[33] Z. Chen, A. Galanis, L. A. Goldberg, W. Perkins, J. Stewart, and E. Vigoda. Fast Algorithms at Low Temperatures via Markov Chains. *Random Structures & Algorithms* 58.2 (2021), 294–321. Extended abstract at *RANDOM 2019*

[32] M. Jenssen and W. Perkins. Independent sets in the hypercube revisited. *Journal of the London Mathematical Society* 102.2 (2020), 645–669

[31] M. Jenssen, P. Keevash, and W. Perkins. Algorithms for #BIS-hard problems on expander graphs. *SIAM Journal on Computing* 49.4 (2020), 681–710. Extended abstract at *SODA 2019*

[30] T. Helmuth, W. Perkins, and G. Regts. Algorithmic Pirogov-Sinai theory. *Probability Theory and Related Fields* 176 (2020), 851–895. Extended abstract at *STOC 2019*

[29] S. Cannon and W. Perkins. Counting independent sets in unbalanced bipartite graphs. *Proceedings of the Fourteenth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*. SIAM. 2020, pp. 1456–1466

[28] A. Coja-Oghlan and W. Perkins. Spin systems on Bethe lattices. *Communications in Mathematical Physics* 372.2 (2019), 441–523

[27] B. Aubin, W. Perkins, and L. Zdeborová. Storage capacity in symmetric binary perceptrons. *Journal of Physics A: Mathematical and Theoretical* 52.29 (2019), 294003

[26] A. Coja-Oghlan and W. Perkins. Bethe states of random factor graphs. *Communications in Mathematical Physics* 366 (2019), 173–201

[25] M. Jenssen, F. Joos, and W. Perkins. On the hard sphere model and sphere packings in high dimensions. *Forum of Mathematics, Sigma* 7 (2019), E1

[24] M. Jenssen, F. Joos, and W. Perkins. On kissing numbers and spherical codes in high dimensions. *Advances in Mathematics* 335 (2018), 307–321

[23] G. Perarnau and W. Perkins. Counting independent sets in cubic graphs of given girth. *Journal of Combinatorial Theory, Series B* 133 (2018), 211–242

[22] V. Feldman, W. Perkins, and S. Vempala. On the complexity of random satisfiability problems with planted solutions. *SIAM Journal on Computing* 47.4 (2018), 1294–1338. Extended abstract at *STOC 2015*

[21] A. Coja-Oghlan, F. Krzakala, W. Perkins, and L. Zdeborová. Information-theoretic thresholds from the cavity method. *Advances in Mathematics* 333 (2018), 694–795. Extended abstract at *STOC 2017*

[20] E. Davies, M. Jenssen, W. Perkins, and B. Roberts. Tight bounds on the coefficients of partition functions via stability. *Journal of Combinatorial Theory, Series A* 160 (2018), 1–30

[19] E. Davies, M. Jenssen, W. Perkins, and B. Roberts. Extremes of the internal energy of the Potts models on cubic graphs. *Random Structures & Algorithms* 53.1 (2018), 59–75

[18] A. Coja-Oghlan and W. Perkins. Belief Propagation on replica symmetric random factor graph models. *Annales de l'Institut Henri Poincaré D* 5 (2018), 211–249. Extended abstract at *RANDOM 2016*

[17] E. Davies, M. Jenssen, W. Perkins, and B. Roberts. On the average size of independent sets in triangle-free graphs. *Proceedings of the American Mathematical Society* 146 (2018), 111–124

[16] S. Heinecke, W. Perkins, and L. Reyzin. On the resilience of bipartite networks. *2018 56th Annual Allerton Conference on Communication, Control, and Computing (Allerton)*. IEEE. 2018, pp. 72–77

[15] E. Davies, M. Jenssen, W. Perkins, and B. Roberts. Independent sets, matchings, and occupancy fractions. *Journal of the London Mathematical Society* 96.1 (2017), 47–66

[14] A. Coja-Oghlan, W. Perkins, and K. Skubch. Limits of discrete distributions and Gibbs measures on random graphs. *European Journal of Combinatorics* 66 (2017), 37–59

[13] E. Cohen, P. Csikvári, W. Perkins, and P. Tetali. The Widom–Rowlinson model, the hard-core model and the extremality of the complete graph. *European Journal of Combinatorics* 62 (2017), 70–76

[12] E. Cohen, W. Perkins, and P. Tetali. On the Widom–Rowlinson Occupancy Fraction in Regular Graphs. *Combinatorics, Probability and Computing* 26.2 (2017), 183–194

[11] W. Perkins. Birthday inequalities, repulsion, and hard spheres. *Proceedings of the American Mathematical Society* 144.6 (2016), 2635–2649

[10] L. Florescu and W. Perkins. Spectral thresholds in the bipartite stochastic block model. *29th Annual Conference on Learning Theory (COLT)*. 2016, pp. 943–959

[9] V. Feldman, W. Perkins, and S. Vempala. Subsampled Power Iteration: a Unified Algorithm for Block Models and Planted CSP's. *Advances in Neural Information Processing Systems (NeurIPS)*. 2015, pp. 2836–2844

[8] O. Louidor and W. Perkins. Large deviations for the empirical distribution in the branching random walk. *Electron. J. Probab.* 20 (2015), no. 18, 19

[7] W. Perkins. Random k-SAT and the power of two choices. *Random Structures & Algorithms* 47.1 (2015), 163–173

[6] M. Bradonjic and W. Perkins. On Sharp Thresholds in Random Geometric Graphs. *RANDOM 2014, September 4-6, 2014, Barcelona, Spain*. 2014, pp. 500–514

[5] W. Perkins, M. Tygert, and R. Ward. Some deficiencies of $\chi 2$ and classical exact tests of significance. *Applied and Computational Harmonic Analysis* 36.3 (2014), 361–386

[4] M. Kang, W. Perkins, and J. Spencer. The Bohman-Frieze process near criticality. *Random Structures & Algorithms* 43.2 (2013), 221–250

[3] W. Perkins. The forgetfulness of balls and bins. *Random Structures & Algorithms* 42.2 (2013), 250–267

[2] W. Perkins, M. Tygert, and R. Ward. Computing the confidence levels for a root-mean-square test of goodness-of-fit. *Applied Mathematics and Computation* 217.22 (2011), 9072–9084

[1] I. Dinur, S. Khot, W. Perkins, and M. Safra. Hardness of finding independent sets in almost 3-colorable graphs. *2010 IEEE 51st Annual Symposium on Foundations of Computer Science (FOCS)*. IEEE. 2010, pp. 212–221

Students supervised

Sam van der Poel, Georgia Tech, current PhD student
Jade Lintott, Georgia Tech, current PhD student
Yuzhou Wang, Georgia Tech, current PhD student
Wei En Tan, University of Birmingham, PhD 2017 (now Teaching Fellow, Aston University).
Joe Duffield-Harding, University of Birmingham, MSci 2018.
Liam Barstable, University of Birmingham, MSci 2017.
Charlie Dickens, University of Birmingham, MSci 2016 (now PhD student at Warwick University).

Postdocs mentored

Corrine Yap, Georgia Tech, 2023–
Aditya Potukcuhi, University of Illinois at Chicago, 2020–2022 (now faculty at York University).
Marcus Michelen, University of Illinois at Chicago, 2019–2021 (now faculty at UIC).
Michelle Delcourt, University of Birmingham, 2017-2018 (now faculty at Toronto Metropolitan University).

Outreach

Director of Participation and Outreach for the IDEAL Institute for Data, Econometrics, Algorithms, and Learning. 2022- present.

Organizer of **Young Scholars Program at UIC**, a 4-week summer math program for Chicago-area high school students, introducing them to new topics in mathematics and preparing them to major in a STEM subject in college. https://willp.people.uic.edu/YSP/. 2021–2022.

Co-organizer of **GROW 2021** (Graduate Research Opportunities for Women 2021) https://sites.google.com/uic.edu/grow2021/home

Organization

Workshop and seminar organizer:
Probabilistic Trajectories in Algorithms and Combinatorics, 2023
IDEAL Get Ready for Research Workshop, 2023
IDEAL High School Teacher Workshop, 2023
ACORN 2023 workshop at Georgia Tech, 2023
UIC Tripods workshop on Probability, Inference, and Algorithms, 2022
7th Lake Michigan Workshop on Combinatorics and Graph Theory, 2022
Frontiers of Statistical Mechanics and Theoretical Computer Science (hybrid workshop), 2021
AIM SQUARE: Connections between computational and physical phase transitions, 2021-
Phase transitions and algorithms working group, SAMSI program on Combinatorial Probability, 2021
Uniqueness Methods in Statistical Mechanics and Computer Science (online workshop), 2020
UIC Combinatorics and Probability seminar, 2019–2022
UIC Computer Science Theory seminar, 2019–2022
Birmingham Combinatorics seminar, 2015–2016
Birmingham Student Combinatorics Day 2016
Birmingham Workshop on Probabilistic and Extremal Combinatorics 2015
Georgia Tech Combinatorics Seminar, 2013–2014

Talks

Invited conference, colloquium, and workshop talks:

2024	Jan	Joint Math Meetings, invited speaker	San Francisco
2023	May	124th Statistical Mechanics Conference	Rutgers
2022	Nov	BIRS-CMO workshop on learning in networks	Oaxaca, MX
2022	May	UIUC Mathematics Colloquium	Urbana, IL
2021	Sept	Eurocomb 2021, plenary speaker	Online
2021	May	Canadam mini-symposium on probabilistic methods	Online
2020	Oct	Midwest Probability Colloquium	Online
2020	Oct	Recent Probabilistic Advances in Mathematical Physics, AMS Eastern Sectional	Online
2020	Sept	Probabilistic Combinatorics Online, MIPT	Online
2020	Sept	Simons Institute Computational Phase Transitions	Online
2020	Sept	Simons Institute Geometry of Polynomials Reunion	Online
2020	Jun	STOC 2020 New Frontiers in Approximate Counting workshop	Online
2019	Nov	Atlanta Lecture Series in Combinatorics	Atlanta, GA
2019	Dec	CLAPEM XV session on random discrete structures	Merida, Mexico
2019	Nov	UIC Undergraduate Mathematics Symposium	Chicago, IL
2019	Sept	IIT Applied Mathematics Colloquium	Chicago, IL
2019	Mar	Simons Institute workshop on Deterministic Counting	Berkeley, CA
2018	Nov	Georgia Tech ARC Colloquium	Atlanta, GA
2018	Aug	Statistical physics and machine learning back together	Cargese, France
2018	Jul	Large networks and random graphs	Frankfurt, Germany

2018	Jun	LSE postgraduate combinatorics conference, plenary speaker	London, England
2018	May	Georgia Tech workshop on algorithms and randomness	Atlanta, GA
2018	Apr	Scottish Combinatorics Meeting	Edinburgh, Scotland
2018	Apr	SFI workshop on limits to inference in networks	Santa Fe, NM
2017	Sept	Eurandom workshop on randomness and graphs	Eindhoven, Netherlands
2017	Aug	Dagstuhl workshop on computational counting	Saarbrucken, Germany
2017	Jul	Hausdorff school on random constraint satisfaction	Bonn, Germany
2017	Jun	AIM workshop on randomized computational problems	San Jose, CA
2017	Feb	Les Houches workshop on statistical inference and physics	Les Houches, France
2016	Oct	Birmingham EPS Research Conference, keynote speaker	Birmingham, England
2016	Jul	Workshop on Phase Transitions in Discrete Structures	Frankfurt, Germany
2016	Jun	Minisymposium, SIAM Conference on Discrete Mathematics	Atlanta, GA
2016	Apr	Random Roads: A Celebration of Joel Spencer's 70th Birthday	New York, NY
2016	Feb	Simons Institute workshop on Markov Chains and Phase Transitions	Berkeley, CA
2016	Feb	University of Bristol Algorithms Days	Bristol, England
2015	May	London Colloquia in Combinatorics	London, England
2014	Jun	Minisymposium, SIAM Conference on Discrete Mathematics	Minneapolis, MN
2014	Apr	Atlanta Lecture Series in Combinatorics and Graph Theory	Atlanta, GA
2014	Apr	New Frontiers in Random Geometric Graphs, Lorentz Center	Leiden, Netherlands
2012	Jun	Minisymposium, SIAM Conference on Discrete Mathematics	Halifax, Canada

Invited lecture series:

2023	Feb	Statistical physics methods in combinatorics, Lake Michigan Workshop on Combinatorics	Notre Dame
2023	Feb	Statistical physics methods in combinatorics, IBS ECOPRO Winter School	Daejeon
2022	Jul	Counting and phase transitions, Cornell Probability Summer School	Ithaca
2022	Jul	Statistical physics methods in combinatorics, Summer School in Discrete Mathematics	Prague
2020	Nov	Mini-course on statistical mechanics methods in combinatorics, Laboratory of Combinatorial and Geometrical Structures, MIPT	Online
2018	Mar	Mini-course on Gibbs measures, Graph Limits Workshop	Bohemian Switzerland
2017	May	Mini-course on Gibbs measures, phase transitions, and combinatorics	Athens, Greece

Invited seminar talks:

2023	Oct	Northwestern probability seminar	Evanston, IL
2023	Oct	UIC probability and combinatorics seminar	Chicago, IL
2023	Feb	Rutgers discrete math seminar	Piscataway, NJ
2023	Jan	U Victoria probability seminar	Online
2022	Dec	McGill probability seminar	Montreal, QC
2022	Nov	TU Graz combinatorics seminar	Online
2022	Sept	Minnesota-Lehigh probability seminar	Online
2022	Apr	Duke-UNC probability seminar	Online
2022	Apr	University of Chicago CS theory seminar	Chicago, IL
2022	Mar	Wisconsin probability seminar	Madison, WI
2022	Feb	Carnegie Mellon ACO seminar	Pittsburgh, PA

2021	Jul	Warwick combinatorics seminar	Online
2021	Apr	Waterloo probability seminar	Online
2021	Mar	Penn State probability seminar	Online
2021	Mar	University of Florida combinatorics seminar	Online
2020	Oct	Amsterdam complex dynamics and combinatorics seminar	Online
2020	Jun	Oxford discrete mathematics and probability seminar	Online
2020	May	MIPT Laboratory of combinatorial and geometric structures, Big Seminar	Online
2019	Sept	Columbia probability seminar	New York, NY
2019	May	MIT statistics and stochastics seminar	Cambridge, MA
2019	Apr	MIT combinatorics seminar	Cambridge, MA
2019	Feb	Berkeley probability seminar	Berkeley, CA
2018	Oct	University of Chicago probability seminar	Chicago, IL
2018	Oct	Northwestern probability seminar	Chicago, IL
2018	Sept	Carnegie Mellon ACO seminar	Pittsburgh, PA
2018	Jun	Theory and Algorithms in Data Science, Turing Institute	London, England
2018	Jun	Oxford combinatorics seminar	Oxford, England
2018	Mar	University of Bristol probability seminar	Bristol, England
2018	Feb	University of Birmingham optimization seminar	Birmingham, England
2017	Dec	London School of Economics discrete math seminar	London, England
2017	Sept	Ecole Normale Superiure Golosino statistical physics seminar	Paris, France
2017	May	University of Birmingham CS Theory Seminar	Birmingham, England
2017	Apr	Santa Fe Institute seminar	Santa Fe, NM
2017	Jan	Queen Mary University combinatorics seminar	London, England
2016	Dec	University of Warwick combinatorics seminar	Warwick, England
2016	Oct	Oxford probability workshop	Oxford, England
2016	Oct	University of Birmingham Popular Maths Lecture	Birmingham, England
2016	Feb	University of Birmingham Theoretical Physics Seminar	Birmingham, England
2016	Feb	Cambridge Statistics Seminar	Cambridge, England
2016	Jan	Universite Paris Ouest Probability Seminar	Paris, France
2015	Dec	University of Frankfurt Discrete Math Seminar	Frankfurt, Germany
2015	Nov	Oxford University Algorithms Seminar	Oxford, England
2015	Oct	University of Bath Probability Seminar	Bath, England
2015	Apr	Cambridge Combinatorics Seminar	Cambridge, England
2015	Apr	University of Warwick DIMAP Seminar	Warwick, England
2015	Mar	London School of Economics Combinatorics Seminar	London, England
2015	Jan	University of Birmingham Combinatorics Seminar	Birmingham, England
2014	Dec	Indiana University Probability and Related Fields Seminar	Bloomington, IN
2014	Dec	Penn/Temple Probability Seminar	Philadelphia, PA
2014	Oct	University of Minnesota Probability Seminar	Minneapolis, MN
2014	Oct	Georgia Tech CETL: Innovations in Teaching	Atlanta, GA
2014	Apr	ESPCI Golosino Seminar	Paris, France
2013	Nov	Emory University Combinatorics Seminar	Atlanta, GA

2013	Oct	Georgia Tech Stochastics Seminar	Atlanta, GA
2013	May	University of Illinois Chicago Combinatorics Seminar	Chicago, IL
2013	Feb	Courant Institute CS Theory Seminar	New York, NY
2013	Feb	Purdue University CS Theory Seminar	West Lafayette, IN
2013	Jan	UCLA Probability Seminar	Los Angeles, CA
2012	Oct	Georgia Tech ACO Student Seminar	Birmingham, England
2012	Oct	Clemson University Discrete Math seminar	Clemson, SC
2012	Sept	Georgia Tech Combinatorics Seminar	Atlanta, GA
2012	May	Yandex Corporation	Moscow, Russia
2011	May	Hebrew University CS Theory Seminar	Jerusalem, Israel
2011	May	Weizmann Institute Computer Science Seminar	Rehovot, Israel
2011	May	Tel Aviv University CS Theory Seminar	Tel Aviv, Israel
2011	Apr	Georgia Tech Combinatorics Seminar	Atlanta, GA
2011	Mar	Carnegie Mellon ACO Seminar	Pittsburgh, PA
2011	Feb	Courant Institute Probability Seminar	New York, NY
2011	Feb	Rutgers Discrete Math Seminar	Piscataway, NJ
2011	Feb	Princeton Discrete Math Seminar	Princeton, NJ
2010	Sept	ETH Mittagsseminar	Zurich, Switzerland
2010	Mar	Courant Institute CS Theory Seminar	New York, NY

Teaching

2023	CS 3510: Design & Analysis of Algorithms	Georgia Tech
2022	CS 4540: Advanced Algorithms	Georgia Tech
2022	MCS 521: Combinatorial Optimization	University of Illinois at Chicago
2022	STAT 461: Applied Probability Models	University of Illinois at Chicago
2021	STAT 401: Introduction to Probability	University of Illinois at Chicago
2021	MCS 591: Statistical Physics and Applications	University of Illinois at Chicago
2020	STAT 401: Introduction to Probability	University of Illinois at Chicago
2020	MCS 521: Combinatorial Optimization	University of Illinois at Chicago
2019	MATH 215: Introduction to Advanced Mathematics	University of Illinois at Chicago
2018	MCS 425: Cryptography and Coding Theory	University of Illinois at Chicago
2018	MATH 215: Introduction to Advanced Mathematics	University of Illinois at Chicago
2017	2STAT: Statistics	University of Birmingham
2016	2STAT: Statistics	University of Birmingham
2016	3COM: Combinatorics	University of Birmingham
2013	Math 4221: Stochastic Processes I	Georgia Tech
2013	Math 6221: Advanced Classical Probability	Georgia Tech
2012	Math 4221: Stochastic Processes I	Georgia Tech
2012	Math 3215: Probability and Statistics	Georgia Tech
2012	CS 8803: Discrete Fourier Analysis and Applications	Georgia Tech
2010	Linear Algebra	New York University
2009	Math Patterns in Nature	New York University

Service

Managing editor, Combinatorial Theory, 2023-
Associate editor, SIAM Journal on Discrete Mathematics, 2022-
Program committee, RANDOM 2023, SODA 2023, ICALP 2023, RANDOM 2017
Local organizer, RANDOM-APPROX 2023

Previous employment

University of Michigan Rowing Team — **Ann Arbor, MI**
Assistant Men's Rowing Coach — September 2005 – June 2007
St. Ignatius High School — **Chicago, IL**
Head Boys' and Girls' Rowing Coach — September 2003 – June 2005