

Nima Anari

(Nima Ahmadipouranari)

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Stanford, CA 94305

RESEARCH INTERESTS Applications of Polynomials in Algorithms, Combinatorics, and Probability

Approximation Algorithms

Spectral Graph Theory

Algorithmic Game Theory

EDUCATION **University of California, Berkeley** 8/2010 - 12/2015
Ph.D. in Computer Science. Advisor: Satish Rao.
Dissertation: New Approaches to the Asymmetric Traveling Salesman and Related Problems.

Sharif University of Technology 9/2006 - 6/2010
B.Sc. in Computer Engineering and B.Sc. in Pure Mathematics.
Thesis: Resource-Constrained Routing and Network Design Problems.

PUBLICATIONS **Graph Clustering using Effective Resistance** *ITCS 2018*
Vedat Levi Alev, *Nima Anari*, Lap Chi Lau, and Shayan Oveis Gharan.
Proceedings of the 9th Conference on Innovations in Theoretical Computer Science (2018).

Approximating the Largest Root and Applications to Interlacing Families *SODA 2018*
Nima Anari, Shayan Oveis Gharan, Amin Saberi, and Nikhil Srivastava.
Proceedings of the 29th Annual ACM-SIAM Symposium on Discrete Algorithms (2018).

Nash Social Welfare for Indivisible Items under Separable, Piecewise-Linear Concave Utilities *SODA 2018*
Nima Anari, Tung Mai, Shayan Oveis Gharan, and Vijay V. Vazirani.
Proceedings of the 29th Annual ACM-SIAM Symposium on Discrete Algorithms (2018).

Simply Exponential Approximation of the Permanent of Positive Semidefinite Matrices *FOCS 2017*
Nima Anari, Leonid Gurvits, Shayan Oveis Gharan, and Amin Saberi.
Proceedings of the 58th IEEE Annual Symposium on Foundations of Computer Science (2017).

A Generalization of Permanent Inequalities and Applications in Counting and Optimization *STOC 2017*
Nima Anari and Shayan Oveis Gharan.
Proceedings of the 49th Annual ACM SIGACT Symposium on Theory of Computing (2017).

Nash Social Welfare, Matrix Permanent, and Stable Polynomials *ITCS 2017*
Nima Anari, Shayan Oveis Gharan, Amin Saberi, and Mohit Singh.
Proceedings of the 8th Conference on Innovations in Theoretical Computer Science (2017).
Elevated to invited paper.

Monte Carlo Markov Chain Algorithms for Sampling Strongly Rayleigh Distributions and Determinantal Point Processes *COLT 2016*
Nima Anari, Shayan Oveis Gharan, and Alireza Rezaei.
Proceedings of the 29th Conference on Learning Theory (2016).

Effective-Resistance-Reducing Flows, Spectrally Thin Trees, and Asymmetric TSP *FOCS 2015*
Nima Anari and Shayan Oveis Gharan.
Proceedings of the 56th IEEE Annual Symposium on Foundations of Computer Science (2015).
Invited to special issue of SIAM Journal on Computing.

Mechanism Design for Crowdsourcing: An Optimal $1 - 1/e$ Competitive Budget-Feasible Mechanism for Large Markets *FOCS 2014*
Nima Anari, Gagan Goel, and Afshin Nikzad.
Proceedings of the 55th IEEE Annual Symposium on Foundations of Computer Science (2014).

Euclidean Movement Minimization *CCCG 2011*
Nima Anari, Mohammad Amin Fazli, Mohammad Ghodsi, and Mohammad Ali Safari.
Journal of Combinatorial Optimization 32 (2016).
Proceedings of the 23rd Annual Canadian Conference on Computational Geometry (2011).

Equilibrium Pricing with Positive Externalities *WINE 2010*
Nima Anari, Shayan Ehsani, Mohammad Ghodsi, Nima Haghpanah, Nicole Immorlica, Hamid Mahini, and Vahab S. Mirrokni.
Theoretical Computer Science 476 (2013).
Proceedings of the 6th International Workshop on Internet and Network Economics (2010).

PREPRINTS AND MANUSCRIPTS **Planar Graph Perfect Matching is in NC** *Manuscript*
Nima Anari and Vijay V. Vazirani.
CoRR abs/1709.07822 (2017).

Robust Submodular Maximization: Offline and Online Algorithms *Manuscript*
Nima Anari, Nika Haghtalab, Joseph (Seffi) Naor, Sebastian Pokutta, Mohit Singh, and Alfredo Torrico.
CoRR abs/1710.04740 (2017).

The Kadison-Singer Problem for Strongly Rayleigh Measures and Applications to Asymmetric TSP *Manuscript*
Nima Anari and Shayan Oveis Gharan.
CoRR abs/1412.1143 (2014).

WORK AND TEACHING EXPERIENCE **Stanford University** *1/2018 - present*
Researcher in Computer Science.

Simons Institute for the Theory of Computing *8/2017 - 12/2017*
Research Fellow.

Stanford University 1/2016 - 8/2017
 Postdoctoral Scholar in Management Science & Engineering.

University of California, Berkeley 9/2012 - 12/2015
 Graduate Student Researcher.
 Graduate Student Instructor for Discrete Mathematics and Probability Theory.
 Graduate Student Instructor for Efficient Algorithms and Intractable Problems.

Microsoft Research, Redmond 5/2015 - 8/2015
 Intern at Theory Group.

Google, New York 5/2014 - 8/2014
 Intern at Algorithms Research Group.

Jane Street, New York 5/2013 - 8/2013
 Research Intern.

Facebook, Menlo Park 5/2012 - 8/2012
 Software Engineering Intern.

D.E. Shaw & Co., New York 6/2011 - 8/2011
 Quantitative Analyst Intern.

ACM ICPC Regional Contest Scientific Committee, Tehran 9/2009 - 12/2009

Iranian Olympiad in Informatics Scientific Committee, Tehran 9/2007 - 4/2009

Iranian Mathematical Olympiad Scientific Committee, Tehran 9/2006 - 4/2009

Farzanegan High School, Tehran 10/2007 - 8/2008
 Mentored a Team of Students.
 The project, Computation of the Minimum and Maximum Area Shadows of Convex Polyhedra,
 received First Prize at Khwarizmi Award for Young Researchers.

HONORS AND
 AWARDS

Simons-Berkeley Research Fellowship 8/2017 - 12/2017
 Simons Institute for the Theory of Computing.
 Program on Bridging Continuous and Discrete Optimization.

Berkeley Fellowship for Graduate Studies 8/2010 - 8/2012
 University of California, Berkeley.

Grant for Undergraduate Studies 9/2006 - 6/2010
 Iranian National Elites Foundation.

Outstanding Student 2007, 2008, and 2009
 Sharif University of Technology.

Ranked 14th ACM ICPC 2009
 ACM International Collegiate Programming Contest World Finals, Stockholm.

First Prize IMC 2007 and 2008
 International Mathematics Competition, Blagoevgrad.

Ranked 13th	<i>ACM ICPC 2008</i>
ACM International Collegiate Programming Contest World Finals, Banff.	
Gold Medal	<i>2006 and 2007</i>
Iranian Mathematical Society Collegiate Competition, Tehran.	
Silver Medal	<i>IOI 2006</i>
International Olympiad in Informatics, Merida.	
Gold Medal	<i>IMO 2006</i>
International Mathematical Olympiad, Ljubljana.	
Silver Medal	<i>IMO 2005</i>
International Mathematical Olympiad, Merida.	
Gold Medal	<i>2006</i>
Iranian National Olympiad in Informatics, Tehran.	
Gold Medal	<i>2004 and 2005</i>
Iranian National Mathematical Olympiad, Tehran.	