

# Nima Anari

## (Nima Ahmadipouranari)

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RESEARCH INTERESTS      Polynomials in Algorithms, Combinatorics, and Probability  
Algorithmic Spectral Graph Theory  
Approximation Algorithms  
Algorithmic Game Theory

ACADEMIC POSITIONS      **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.

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).

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|---|--|---|
| WORK AND<br>TEACHING<br>EXPERIENCE  | <b>University of California, Berkeley</b> ..... 9/2012 - 12/2015<br>Graduate Student Researcher.<br>Graduate Student Instructor for Discrete Mathematics and Probability Theory.<br>Graduate Student Instructor for Efficient Algorithms and Intractable Problems. |   |
|   | <b>Microsoft Research, Redmond</b> ..... 5/2015 - 8/2015<br>Intern at Theory Group.  |   |
|   | <b>Google, New York</b> ..... 5/2014 - 8/2014<br>Intern at Algorithms Research Group.  |   |
|   | <b>Jane Street, New York</b> ..... 5/2013 - 8/2013<br>Research Intern.   |   |
|   | <b>Facebook, Menlo Park</b> ..... 5/2012 - 8/2012<br>Software Engineering Intern.  |   |
|   | <b>D.E. Shaw &amp; Co., New York</b> ..... 6/2011 - 8/2011<br>Quantitative Analyst Intern.   |   |
|   | <b>ACM ICPC Regional Contest Scientific Committee, Tehran</b> ..... 9/2009 - 12/2009   |   |
|   | <b>Iranian Olympiad in Informatics Scientific Committee, Tehran</b> ..... 9/2007 - 4/2009  |   |
|   | <b>Iranian Mathematical Olympiad Scientific Committee, Tehran</b> ..... 9/2006 - 4/2009  |   |
|   | <b>Farzanegan High School, Tehran</b> ..... 10/2007 - 8/2008<br>Mentored a Team of Students.<br>The project, Computation of the Minimum and Maximum Area Shadows of Convex Polyhedra,<br>received First Prize at Khwarizmi Award for Young Researchers.            |   |
|   | HONORS AND<br>AWARDS   | <b>Simons-Berkeley Research Fellowship</b> ..... 1/2019 - 5/2019<br>Simons Institute for the Theory of Computing.<br>Program on Geometry of Polynomials.                        |
|   |  | <b>Simons-Berkeley Research Fellowship</b> ..... 8/2017 - 12/2017<br>Simons Institute for the Theory of Computing.<br>Program on Bridging Continuous and Discrete Optimization. |
| <b>Berkeley Fellowship for Graduate Studies</b> ..... 8/2010 - 8/2012<br>University of California, Berkeley.        |  |   |
| <b>Grant for Undergraduate Studies</b> ..... 9/2006 - 6/2010<br>Iranian National Elites Foundation.                 |  |   |
| <b>Outstanding Student</b> ..... 2007, 2008, and 2009<br>Sharif University of Technology.                           |  |   |
| <b>Ranked 14th</b> ..... ACM ICPC 2009<br>ACM International Collegiate Programming Contest World Finals, Stockholm. |  |   |

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

**Ranked 13th** ..... *ACM ICPC 2008*  
ACM International Collegiate Programming Contest World Finals, Banff.

**Gold Medal** ..... *2006 and 2007*  
Iranian Mathematical Society Collegiate Competition, Tehran.

**Silver Medal** ..... *IOI 2006*  
International Olympiad in Informatics, Merida.

**Gold Medal** ..... *IMO 2006*  
International Mathematical Olympiad, Ljubljana.

**Silver Medal** ..... *IMO 2005*  
International Mathematical Olympiad, Merida.

**Gold Medal** ..... *2006*  
Iranian National Olympiad in Informatics, Tehran.

**Gold Medal** ..... *2004 and 2005*  
Iranian National Mathematical Olympiad, Tehran.