Jugal Garg

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Research Interests

Computational Aspects of Economics, Fair Division, and Game Theory; Design and Analysis of Algorithms; Mathematical Programming

Education

- **Ph.D.** (2012), Computer Science and Engineering, Indian Institute of Technology, Bombay, India. (Advisors: Prof. Milind Sohoni and Prof. Bharat Adsul)
- **B.Tech.** (2001), Computer Science and Engineering, Indian Institute of Technology, Bombay, India.

Appointments

- **Assistant Professor** (2018-), Dept. of Industrial and Enterprise Systems Engineering, Univ. of Illinois at Urbana-Champaign, USA.
- **Affiliate Assistant Professor** (2016-), Dept. of Computer Science, Univ. of Illinois at Urbana-Champaign, USA.
- **Research Assistant Professor** (2016-18), Dept. of Industrial and Enterprise Systems Engineering, Univ. of Illinois at Urbana-Champaign, USA.
- **Post-doctoral Research Fellow** (2014-16), Algorithms and Complexity Group, Max-Planck-Institut für Informatik, Saarbrücken, Germany. (Mentor: Prof. Kurt Mehlhorn)
- **Post-doctoral Research Fellow** (2012-14), College of Computing, Georgia Tech, USA. (Mentor: Prof. Vijay V. Vazirani)

Honors and Awards

- The paper *EFX Exists for Three Agents* won the Exemplary Theory Paper Award and the Best Paper with a Student Lead Author Award at 21st ACM EC, 2020.
- NSF CAREER Award, 2020.
- The James Franklin Sharp Outstanding Teaching Award, 2019.
- NSF CRII Award, 2018.
- Featured in the List of Teachers Ranked as Excellent for Spring 2016, Fall 2018, and Spring 2021.
- Algorithms and Randomness Center (ARC) Postdoctoral Fellowship, Georgia Tech, 2012-14.
- MSR India Rising Star Award, 2011.
- Shantanu Deshpande Memorial Scholarship for 2009-12.

Publications (papers with my students are marked with *)

Refereed Journal Papers

* J17. Jugal Garg and Setareh Taki. An Improved Approximation Algorithm for Maximin Shares. *Artificial Intelligence, 2021.*

* J16. Timothy Murray, Jugal Garg, and Rakesh Nagi. Prize-Collecting Multi-Agent Orienteering: Price of Anarchy Bounds and Solution Methods. *IEEE Transactions on Automation Science and Engineering, 2021 (accepted).*

J15. Bharat Adsul, Jugal Garg, Ruta Mehta, Milind Sohoni, and Bernhard von Stengel. Fast Algorithms for Rank-1 Bimatrix Games. *Operations Research, 69(2): 613-631, 2021.*

* J14. Timothy Murray, Jugal Garg, and Rakesh Nagi. Limited-Trust Equilibria. *European Journal of Operational Research, 289(1): 364-380, 2021.*

* J13. Peter McGlaughlin and Jugal Garg. Improving Nash Social Welfare Approximations. *Journal of Artificial Intelligence Research, 68: 225-245, 2020.*

* J12. Omkar Thakoor, Jugal Garg, and Rakesh Nagi. Multi-Agent UAV Routing: A Game Theory Analysis with Tight Price of Anarchy Bounds. *IEEE Transactions on Automation Science and Engineering, 17(1): 100-116, 2020.*

J11. Xiaohui Bei, Jugal Garg, Martin Hoefer, and Kurt Mehlhorn. Earning and Utility Limits in Fisher Markets. *ACM Transactions on Economics and Computation, 7(2): 10:1-10:35, 2019.*

J10. Xiaohui Bei, Jugal Garg, and Martin Hoefer. Ascending-Price Algorithms for Unknown Markets. *ACM Transactions on Algorithms, 15(3): 37:1-37:33, 2019.*

J9. Jugal Garg, Ruta Mehta, and Vijay Vazirani. Substitution with Satiation: A New Class of Utility Functions and a Complementary Pivot Algorithm. *Mathematics of Operations Research, 43(3): 996-1024, 2018.*

J8. Jugal Garg, Ruta Mehta, Vijay Vazirani, and Sadra Yazdanbod. `ETR`-Completeness for Decision Versions of Multi-Player (Symmetric) Nash Equilibria. *ACM Transactions on Economics and Computation, 6(1): 1:1-1:23, 2018.*

* J7. Reshmina William, Jugal Garg, and Ashlynn Stillwell. A Game Theory Analysis of Green Infrastructure Implementation Policies. *Water Resources Research, 53:9 8003-8019, 2017.*
(featured in Editor's Highlight)

J6. Jugal Garg. Market Equilibrium under Piecewise Leontief Concave Utilities. *Theoretical Computer Science, 703: 55-65, 2017.*

J5. Nikhil Devanur, Jugal Garg, and László Végh. A Rational Convex Program for Linear Arrow-Debreu Markets. *ACM Transactions on Economics and Computation 5(1): 6:1-6:13, 2016.*

J4. Jugal Garg, Ruta Mehta, and Vijay Vazirani. Dichotomies in Equilibrium Computation, and Membership of PLC markets in `FIXP`. *Theory of Computing12(1): 1-25, 2016.*

J3. Jugal Garg, Ruta Mehta, Milind Sohoni, and Vijay Vazirani. A Complementary Pivot Algorithm for Market Equilibrium under Separable, Piecewise-Linear Concave Utilities. *SIAM Journal on Computing 44(6): 1820-1847, 2015.*

J2. Bharat Adsul, Ch. Sobhan Babu, Jugal Garg, Ruta Mehta and Milind Sohoni. A Simplex-like Algorithm for Fisher Markets. *Current Science, 103(9): 1033-1042, 2012.*

J1. Narayan Rangaraj, Milind Sohoni, Prashant Puniya, and Jugal Garg. Rake Linking for Suburban Train Services. *Opsearch, 43(2), 2006.*

Refereed Conference Papers ("AR" stands for *acceptance rate*)

* C37. Jugal Garg and Aniket Murhekar. Computing Fair and Efficient Allocations with Few Utility Values. *Proceedings of the 14th International Symposium on Algorithmic Game Theory (SAGT), 2021.* `(41% AR)`

* C36. Jugal Garg, Martin Hoefer, Peter McGlaughlin, and Marco Schmalhofer. When Dividing Mixed Manna is Easier than Dividing Goods: Competitive Equilibria with a Constant Number of Chores. *Proceedings of the 14th International Symposium on Algorithmic Game Theory (SAGT), 2021.* `(41% AR)`

C35. Bhaskar Ray Chaudhury, Jugal Garg, Kurt Mehlhorn, Ruta Mehta, and Pranabendu Misra. Improving EFX Guarantees through Rainbow Cycle Number. *Proceedings of the 22nd ACM Conference on Economics and Computation (EC), 2021.* `(26% AR)`

C34. Jugal Garg, Edin Husić, and László Végh. Approximating Nash Social Welfare under Rado Valuations. *Proceedings of the 53rd Symposium on Theory of Computing (STOC), 2021.* (28% AR)

* C33. Bhaskar Ray Chaudhury, Jugal Garg, Peter McGlaughlin, and Ruta Mehta. Competitive Allocation of a Mixed Manna. *Proceedings of the 32nd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2021.* (28% AR)

C32. Bhaskar Ray Chaudhury, Jugal Garg, and Ruta Mehta. Fair and Efficient Allocations under Subadditive Valuations. *Proceedings of the 35th AAAI Conference on Artificial Intelligence (AAAI), 2021.* (21% AR)

* C31. Jugal Garg and Aniket Murhekar. On Fair and Efficient Allocations of Indivisible Goods. *Proceedings of the 35th AAAI Conference on Artificial Intelligence (AAAI), 2021.* (21% AR)

C30. Jugal Garg, Edin Husić, and László Végh. Auction Algorithms for Market Equilibrium with Weak Gross Substitute Demands and their Applications. *Proceedings of the 38th International Symposium on Theoretical Aspects of Computer Science (STACS), 2021.* **(Invited to the TOCS Special Issue for STACS 2021)** (24% AR)

* C29. Jugal Garg and Setareh Taki. An Improved Approximation Algorithm for Maximin Shares. *Proceedings of the 21st ACM Conference on Economics and Computation (EC), 2020.* (20% AR)

C28. Bhaskar Ray Chaudhury, Jugal Garg, and Kurt Mehlhorn. EFX Exists for Three Agents. *Proceedings of the 21st ACM Conference on Economics and Computation (EC), 2020.* **(The Exemplary Theory Paper Award and the Best Paper with a Student Lead Author Award)** (20% AR)

* C27. Jugal Garg and Peter McGlaughlin. Computing Competitive Equilibria with Mixed Manna. *Proceedings of the 19th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), 2020.* (23% AR)

* C26. Jugal Garg, Pooja Kulkarni, and Rucha Kulkarni. Approximating Nash Social Welfare under Submodular Valuations through (Un)Matchings. *Proceedings of the 31st Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2020.* (30% AR)

* C25. Jugal Garg and Peter McGlaughlin. Improving Nash Social Welfare Approximations. *Proceedings of the 28th International Joint Conference on Artificial Intelligence (IJCAI), 2019.* (18% AR)

C24. Jugal Garg and László Végh. A Strongly Polynomial Algorithm for Linear Exchange Markets. *Proceedings of the 51st Symposium on Theory of Computing (STOC), 2019.* **(Invited to the SICOMP special issue for STOC 2019)** (27% AR)

* C23. Jugal Garg, Peter McGlaughlin, and Setareh Taki. Approximating Maximin Share Allocations. *Proceedings of the Symposium on Simplicity in Algorithms (SOSA), 2019.* (29% AR)

C22. Bhaskar Chaudhuri, Yun Kuen Cheung, Jugal Garg, Naveen Garg, Martin Hoefer, and Kurt Mehlhorn. On Fair Division of Indivisible Items. *Proceedings of the 38th Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS), 2018.* (35% AR)

* C21. Rahul Swamy, Timothy Murray, and Jugal Garg. Network Cost-Sharing Games: Equilibrium Computation and Applications to Election Modeling. *Proceedings of the 12th International Conference on Combinatorial Optimization and Applications (COCOA), 2018.* **(Invited to the JOCO Special Issue for COCOA 2018)** (47% AR)

* C20. Jugal Garg and Peter McGlaughlin. A Truthful Mechanism for Interval Scheduling. *Proceedings of the 11th International Symposium on Algorithmic Game Theory (SAGT), 2018.* (35% AR)

C19. Jugal Garg, Martin Hoefer, and Kurt Mehlhorn. Approximating the Nash Social Welfare with Budget-Additive Valuations. *Proceedings of the 29th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2018.* (33% AR)

C18. Nikhil Devanur, Jugal Garg, Ruta Mehta, Vijay Vazirani and Sadra Yazdanbod. A New Class of Combinatorial Markets with Covering Constraints: Algorithms and Applications. *Proceedings of the 29th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2018.* (33% AR)

C17. Jugal Garg, Ruta Mehta, Vijay Vazirani, and Sadra Yazdanbod. Settling the Complexity of Leontief and PLC Exchange Markets under Exact and Approximate Equilibria. *Proceedings of the 49th Symposium on Theory of Computing (STOC), 2017.* (24% AR)

C16. Xiaohui Bei, Jugal Garg, Martin Hoefer, and Kurt Mehlhorn. Earning Limits in Fisher Markets with Spending-Constraint Utilities. *Proceedings of the 10th International Symposium on Algorithmic Game Theory (SAGT), 2017.* (45% AR)

C15. Xiaohui Bei, Jugal Garg, Martin Hoefer, and Kurt Mehlhorn. Computing Equilibria in Markets with Budget-Additive Utilities. *Proceedings of the 24th European Symposium on Algorithms (ESA), 2016.* (27% AR)

C14. Xiaohui Bei, Jugal Garg, and Martin Hoefer. Ascending-Price Algorithms for Unknown Markets. *Proceedings of the 17th ACM Conference on Economics and Computation (EC), 2016.* (33% AR)

C13. Ran Duan, Jugal Garg, and Kurt Mehlhorn. An Improved Combinatorial Polynomial Algorithm for the Linear Arrow-Debreu Market. *Proceedings of the 27th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2016.* (28% AR)

C12. Xiaohui Bei, Wei Chen, Jugal Garg, Martin Hoefer, and Xiaoming Sun. Learning Market Parameters using Aggregate Demand Queries. *Proceedings of the 30th AAAI Conference on Artificial Intelligence (AAAI), 2016.* (26% AR)

C11. Jugal Garg, Ruta Mehta, Vijay Vazirani, and Sadra Yazdanbod. ETR-Completeness for Decision Versions of Multi-Player (Symmetric) Nash Equilibria. *Proceedings of the 42nd International Colloquium on Automata, Languages and Programming (ICALP), 2015.* (28% AR)

C10. Jugal Garg and Ravi Kannan. Markets with Production: A Polynomial Time Algorithm and a Reduction to Exchange. *Proceedings of the 16th ACM Conference on Economics and Computation (EC), 2015.* (33% AR)

C9. Jugal Garg, Ruta Mehta, and Vijay Vazirani. Dichotomies in Equilibrium Computation, and Complementary Pivot Algorithms for a New Class of Non-Separable Utility Functions. *Proceedings of the 46th Symposium on Theory of Computing (STOC), 2014.* (29% AR)

C8. Jugal Garg and Vijay Vazirani. On Computability of Equilibria in Markets with Production. *Proceedings of the 25th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2014.* (28% AR)

C7. Jugal Garg. Market Equilibrium under Piecewise Leontief Concave Utilities. *Proceedings of the 10th Conference on Web and Internet Economics (WINE), 2014.* (43% AR)

C6. Jugal Garg, Ruta Mehta, Milind Sohoni, and Nisheeth Vishnoi. Towards Polynomial Simplex-Like Algorithms for Market Equilibria. *Proceedings of the 24th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2013.* (29% AR)

C5. Jugal Garg, Ruta Mehta, Milind Sohoni, and Vijay V. Vazirani. A Complementary Pivot Algorithm for Market Equilibrium under Separable, Piecewise-Linear Concave Utilities. *Proceedings of the 44th Symposium on Theory of Computing (STOC), 2012.* (29% AR)

C4. Bharat Adsul, Jugal Garg, Ruta Mehta, and Milind Sohoni. Rank-1 Bi-matrix Games: A Homeomorphism and a Polynomial Time Algorithm. *Proceedings of the 43rd Symposium on Theory of Computing (STOC), 2011.* **(Invited to the GEB Special Issue for STOC/FOCS/SODA 2011)** (28% AR)

C3. Jugal Garg, Albert Jiang and Ruta Mehta. Bilinear Games: Polynomial Time Algorithms for Rank Based Subclasses. *Proceedings of the 7th Workshop on Internet and Network Economics (WINE), 2011.* (31% AR)

C2. Bharat Adsul, Ch. Sobhan Babu, Jugal Garg, Ruta Mehta, and Milind Sohoni. Nash Equilibria in Fisher Market. *Proceedings of the 3rd International Symposium on Algorithmic Game Theory (SAGT), 2010.* **(Invited to the TOCS special issue for SAGT 2010)** (42% AR)

C1. Bharat Adsul, Ch. Sobhan Babu, Jugal Garg, Ruta Mehta, and Milind Sohoni. A Simplex-like Algorithm for Fisher Markets. *Proceedings of the 3rd International Symposium on Algorithmic Game Theory (SAGT), 2010.* **(Invited to the TOCS Special Issue for SAGT 2010)** (42% AR)

Mentorship

- PhD students
  - Timothy Murray (co-advised with Rakesh Nagi; 2017 - 2020)
  - Peter McGlaughlin (2016 - 2021)
  - Setareh Taki (2017 -)
  - John Qin (2020 -)
  - Pooja Kulkarni (CS; CJ Desai and Hina Desai Computer Science Fellowship; 2018 -)
  - Aniket Murhekar (CS; 2020 -)
- Masters students
  - Aniket Murhekar (MS CS; Graduated in August 2020; **Siebel Scholar 2020**)
  - Omkar Thakoor (MS CS, Graduated in May 2017; currently a PhD student at USC)
- Undergraduate students
  - Xiao Tan (BA, Economics; Funded by REU) (May - December 2019; currently an MCS student at Illinois)

Teaching

- IE 405: Computing for ISE, Fall 2019, Fall 2020.
- IE 498: Computing for ISE, Spring 2016, Spring 2017, Spring 2018, Fall 2018. (Featured in the *List of Teachers Ranked as Excellent* for Spring 2016, Fall 2018)
- IE 598: Games, Markets, and Mathematical Programming, Fall 2016, Fall 2017, Spring 2020.
- IE 598: Topics in Game Theory and Fair Division, Spring 2021. (Featured in the *List of Teachers Ranked as Excellent* for Spring 2021)
- CS 8803: Advanced Topics in Algorithmic Game Theory, Spring 2013 (co-taught at Georgia Tech).

Professional Activities

- **Program Committee:** EC 2021, AAAI 2021, IJCAI 2021, AAMAS 2021, FOCS 2020, EC 2020, IJCAI 2020, AAAI 2020, SODA 2020, FAMAS 2019, EC 2019, ESA 2019, FSTTCS 2018, EC 2018, WINE 2017, WINE 2016
- **Tutorial** (co-organized) on *Nash welfare, Market Equilibrium, and Stable Polynomials* at STOC 2019, Phoenix, June 23-26, 2019.
- **Journal Refereeing:** Journal of the ACM, Mathematical Programming, Annals of Operations Research, International Journal on Game Theory, Information and Computation, SIAM Journal on Discrete Mathematics, Mathematical Methods of Operations Research, IEEE Transactions on Cloud Computing, ACM Transactions on Economics and Computation, Information Processing Letters, Operations Research Letters, Theoretical Computer Science, Journal of Artificial Intelligence Research, Autonomous Agents and Multi-Agent Systems
- **Conference Refereeing:** APPROX, FOCS, ICALP, SAGT, SODA, STACS, STOC, WINE, ITCS
- **Committee Memberships:** Seminars 2020 - , Research and Scholarly Enhancement 2020 - , Faculty Meeting Secretary 2018-19, Graduate Committee 2018-20, Engineering − Computer Science Liaison (UIUC) 2016-20.
- **Member of Ph.D. Examining Committee:**
  1. Rahul Swamy, ISE, UIUC (Advisor: Sheldon Jacobson)
  2. Jialin Song, ISE, UIUC (Advisor: Qiong Wang)

3. Menglong Li, ISE, UIUC (Advisor: Xin Chen)
4. Arun Raman, ISE, UIUC (Advisor: RS Sreenivas)
5. Tung Mai, College of Computing (ACO program), Georgia Tech (Advisor: Vijay Vazirani), Defended on May 17, 2018 (Member)
6. Ioannis Panageas, College of Computing (ACO program), Georgia Tech (Advisor: Prasad Tetali), Defended in July 2016 (Reader)

- served on NSF panel (2019, 2020)
- Part of organizing committee of FSTTCS 2011.

Invited and Conference Talks

- Invited talk at IJTCS 2021, Beijing, China, August 16-20, 2021 (Online), *Fair division of indivisible goods.*
- Invited talk at EC'21 workshop on Fair Resource Allocation: Concepts, Algorithms and Complexity EC 2021, Hungary, July 18-23, 2021 (Online), *Approximating maximin shares.*
- Invited speaker at ADFOCS 2020, Saarbrcken, Germany, August 24-28, 2020 (Online), *A short course on computational fair division.*
- Invited talk at HALG 2020, Zurich, August 31 - September 2, 2020 (Online), *A Strongly Polynomial Algorithm for Linear Exchange Markets.*
- Plenary talk at ITA 2020, San Diego, February 2-7, 2020, *A Strongly Polynomial Algorithm for Linear Exchange Markets.*
- Invited talk at IIT-Bombay, India, January 14, 2020, *A Strongly Polynomial Algorithm for Linear Exchange Markets.*
- Invited talk at INFORMS Annual Meeting, Seattle, October 20 - 23, 2019, *An Improved Approximation Algorithm for Maximin Shares.*
- The 51^{st} ACM Symposium on Theory of Computing (STOC), Phoenix, June 2019, *A Strongly Polynomial Algorithm for Linear Exchange Markets.*
- Tutorial (co-organized) on *Nash welfare, Market Equilibrium, and Stable Polynomials* at STOC 2019, Phoenix, June 23-26, 2019.
- Invited talk at UCI, Irvine, May 16, 2019, *A Strongly Polynomial Algorithm for Linear Exchange Markets.*
- Invited talk at LSE, London, UK, March 12-28, 2019, *A Strongly Polynomial Algorithm for Linear Exchange Markets.*
- Invited talk at Purdue University, West Lafayette, October 17, 2018, *Fisher Markets and Nash Social Welfare.*
- Plenary talk at Bellairs Workshop on Algorithmic Game Theory, Barbados, April 2018, *Fisher Markets and Nash Social Welfare.*
- Seminar on Combinatorics, Games and Optimisation, LSE, London, UK, March 2018, *Fisher Markets and Nash Social Welfare.*
- The 29^{th} ACM-SIAM Symposium on Discrete Algorithms (SODA), New Orleans. January 2018, *Approximating the Nash Social Welfare with Budget-Additive Valuations.*
- Invited talk, Workshop on Algorithms and Optimization, ICTS, Bangalore, January 2018, *Fisher Markets and Nash Social Welfare.*
- The 21^{st} Conference of the International Federation of Operational Research Societies (IFORS), Quebec City, Canada, July 2017, *A New Class of Combinatorial Markets with Covering Constraints: Algorithms and Applications.*

- The 49^{th} ACM Symposium on Theory of Computing (STOC), Montreal, Canada, June 2017, *Settling the Complexity of Leontief and PLC Exchange Markets under Exact and Approximate Equilibria* (poster).
- INFORMS 2016 Annual Conference, Nashville, November 2016, *A Market Model for Scheduling with Applications to Cloud Computing.*
- The 5^{th} International Conference on Continuous Optimization (ICCOPT), Tokyo, Japan, August 2016, *Polynomial-Time Complementary Pivot Algorithms for Market Equilibria.*
- CS Theory Seminar, UIUC, February 2016, *A Market for Scheduling, with Applications to Cloud Computing.*
- Game Theory Workshop, Bonn, Germany, December 2015, *ETR-Completeness for Decision Versions of Multi-Player (Symmetric) Nash Equilibria.*
- Operations Research Seminar, UCL, Louvain-la-Neuve, Belgium, October 2015, *Complementary Pivot Algorithms for Market Equilibria.*
- The 8^{th} International Symposium on Algorithmic Game Theory (SAGT), Saarbrücken, Germany, September 2015, *Settling Some Open Problems on 2-Player Symmetric Nash Equilibria.*
- Operations Research Seminar, LSE, London, UK, September 2015, *Polynomial-Time Complementary Pivot Algorithms for Market Equilibria.*
- The 22^{nd} International Symposium on Mathematical Programming (ISMP), Pittsburgh, July 2015, *Polynomial-Time Complementary Pivot Algorithms for Market Equilibria.*
- The International Colloquium on Automata, Languages and Programming (ICALP), Kyoto, Japan, July 2015, *ETR-Completeness for Decision Versions of Multi-Player (Symmetric) Nash Equilibria.*
- The 16^{th} ACM Conference on Economics and Computation (EC), Portland, USA, June 2015, *Markets with Production: A Polynomial Time Algorithm and a Reduction to Exchange.*
- ISE Seminar, UIUC, May 2015, *Complementary Pivot Algorithms for Market Equilibria.*
- CSE Seminar, IIT-Bombay, India, March 2015, *Equilibrium in Markets: Algorithms and Complexity.*
- CSE Seminar, IIT-Kanpur, India, March 2015, *Equilibrium in Markets: Algorithms and Complexity.*
- School of Technology and Computer Science Seminar, Tata Institute of Fundamental Research, Mumbai, India, March 2015, *Equilibrium in Markets: Algorithms and Complexity.*
- The 10^{th} Conference on Web and Internet Economics (WINE), Beijing, China, December 2014, *Market Equilibrium under Piecewise Leontief Concave Utilities* (Poster).
- CSE Seminar, IIT-Bombay, India, December 2014, *Leontief Exchange Markets Can Solve Multivariate Polynomial Equations, Yielding* `FIXP` *and* `ETR` *Hardness.*
- School on Algorithmic Game Theory, Sangli, India, December 2014, *Lectures on Equilibrium Computation.*
- MPI Seminar, Germany, November 2014, *Leontief Exchange Markets Can Solve Multivariate Polynomial Equations, Yielding* `FIXP` *and* `ETR` *Hardness.*
- Dagstuhl Seminar on Equilibrium Computation, Germany, August 2014, *Leontief Exchange Markets Can Solve Multivariate Polynomial Equations, Yielding* `FIXP` *and* `ETR` *Hardness.*
- The 46^{th} ACM Symposium on Theory of Computing (STOC), New York, June 2014, *Dichotomies in Equilibrium Computation, and Complementary Pivot Algorithms for a New Class of Non-Separable Utility Functions.*
- The 25^{th} ACM-SIAM Symposium on Discrete Algorithms (SODA), Portland. January 2014, *On Computability of Equilibria in Markets with Production.*
- ACO Seminar, Georgia Tech, Atlanta, October 2013, *On Computability of Equilibria in Markets with Production.*
- The 24^{th} ACM-SIAM Symposium on Discrete Algorithms (SODA), New Orleans, January 2013, *Towards Polynomial Simplex-Like Algorithms for Market Equilibria.*

- The 21^{st} International Symposium on Mathematical Programming (ISMP), Berlin, Germany, August 2012, *A Complementary Pivot Algorithm for Market Equilibrium under Separable, Piecewise-Linear Concave Utilities.*
- China Theory Week 2012, Aarhus University, Denmark, August 2012, *Linear Complementarity Problem and Market Equilibria.*
- Mysore Park Theory Workshop 2012, Mysore, India, August 2012, *Linear Complementarity Problem and Market Equilibria.*
- IBM T. J. Watson Research Center, New York, May 2012, *A Complementary Pivot Algorithm for Market Equilibrium under Separable, Piecewise-Linear Concave Utilities.*
- The 44^{th} ACM Symposium on Theory of Computing (STOC), New York, May 2012, *A Complementary Pivot Algorithm for Market Equilibrium under Separable, Piecewise-Linear Concave Utilities.*
- Microsoft Research, India, March 2012, *A Complementary Pivot Algorithm for Market Equilibrium under Separable, Piecewise-Linear Concave Utilities.*
- Microsoft Research, India, June 2011, *Rank-1 Bi-matrix Games: A Homeomorphism and a Polynomial Time Algorithm.*
- Workshop on Innovations in Algorithmic Game Theory, Israel, May 2011, *Rank-1 Bi-matrix Games: A Homeomorphism and a Polynomial Time Algorithm* (Poster).
- The 3^{rd} International Symposium on Algorithmic Game Theory (SAGT), Athens, Greece, October 2010, *Nash Equilibria in Fisher Market.*
- International Summer School on Algorithmic Game Theory, Shanghai, China, July 2010, *Nash Equilibria in Fisher Market.*