Deeparnab Chakrabarty

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Education

Ph.D., ACO (Algorithms, Combinatorics and Optimization), Georgia Tech. August 2008
Adviser: Prof. Vijay V. Vazirani

B.Tech, Computer Science and Engineering, IIT Bombay, July 2003
Undergraduate Adviser: Prof. Abhiram Ranade

Research Interests

Approximation Algorithms, Combinatorial Optimization,
Algorithmic Game Theory, Combinatorics

Employment

Post-doctoral Fellow, University of Waterloo, Sep 2008 – current.

Summer Intern, Toyota Technological Institute, May 2008 – Aug 2008

Summer Intern, HP Labs, Palo Alto, May 2006 – Aug 2006

Graduate Teaching Assistant, Georgia Tech, 7 Semesters from July 2003 – Aug 2008.

Graduate Research Assistant, Georgia Tech, 6 Semesters from July 2003 – Aug 2008.

Journal Publications

J2. D. Chakrabarty, N. R. Devanur, V. V. Vazirani. "New Geometry-Inspired Relaxations and Algorithms for the Metric Steiner Tree Problem". Math. Programming, Ser. A, July 2009.

J1. D. Chakrabarty, N. Devanur. "On Competitiveness in Uniform Utility Allocation Markets". Operations Research Letters, May 2009.

Conference Publications

C12. M. Ammar, D. Chakrabarty, A. Das Sarma, S. Kalyanasundaram, R. J. Lipton. "Algorithms for Message Ferrying on Mobile ad hoc Networks." Proceedings of the IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS), 2009.

C11. E. Anshelevich, D. Chakrabarty, A. Hate, C. Swamy. "Approximations for the FireFighter Problem: Cuts over Time and Submodularity." Proceedings of the 20th International Symposium on Algorithms and Computation (ISAAC), 2009.

C10. D. Chakrabarty, J. Chuzhoy, S. Khanna. "On Allocating Goods to Maximize Fairness". Proceedings of the 50th IEEE Conference on Foundations of Computer Science (FOCS), 2009.

C9. D. Chakrabarty, Y. Zhou, R. Lukose. "Budget Constrained Bidding in Keyword Auctions and Online Knapsack Problems". Proceedings of the 4th Workshop on Internet and Network Economics (WINE), 2008.

C8. D. Chakrabarty, G. Goel, V. V. Vazirani, L. Wang, Y. Yu. "Efficiency, Fairness and Competitiveness in Nash Bargaining Games.". Proceedings of the 4th Workshop on Internet and Network Economics (WINE), 2008.

C7. D. Chakrabarty, G. Goel. "On the Approximability of Budgeted Allocations and Improved Lower Bounds for Submodular Welfare Maximization and GAP". Proceedings of the 49th IEEE Conference on Foundations of Computer Science (FOCS), 2008. Journal version under revision with SIAM Journal of Computing.

C6. D. Chakrabarty, N. R. Devanur, V. V. Vazirani. "New Geometry-Inspired Relaxations and Algorithms for the Metric Steiner Tree Problem". Proceedings of the 13th Conference on Integer Programming and Combinatorial Optimization (IPCO), 2008. Conference version of [J2].

C5. D. Chakrabarty, N. R. Devanur. "On Competitiveness in Uniform Utility Allocation Markets". Proceedings of 3rd Workshop on Internet and Network Economics (WINE) 2007. Conference version of [J1].

C4. A. Das Sarma, D. Chakrabarty, S. Gollapudi. "Public Advertisement Broker Markets". Proceedings of 3rd Workshop on Internet and Network Economics (WINE) 2007.

C3. D. Chakrabarty, N. R. Devanur, V. V. Vazirani. "New Results on Rationality and Strongly Polynomial Time Solvability in Eisenberg-Gale Markets." Proceedings of 2nd Workshop on Internet and Network Economics (WINE), 2006. Journal version under revision with SIAM Journal of Discrete Mathematics and Algorithms.

C2. D. Chakrabarty, A. Mehta, V. V. Vazirani. "Design is as easy as Optimization". Proceedings of the 33rd International Colloquium on Automata, Languages and Programming (ICALP), 2006. Journal version submitted to SIAM Journal of Discrete Mathematics.

C1. D. Chakrabarty, A. Mehta, V. Nagarajan, V. V. Vazirani. "Fairness and Optimality in Congestion Games". Proceedings of 6th ACM Conference on Electronic Commerce (EC), 2005.

Workshop Publications

W2. D. Chakrabarty, Y. Zhou, R. Lukose. "Budget Constrained Bidding in Keyword Auctions and Online Knapsack Problems". 3rd Workshop on Sponsored Search Auctions (SSA), Banff, May 2007. Conference version appeared as [C9]

W1. D. Chakrabarty, S. Khot, R. J. Lipton, N. K. Vishnoi. "The Computational Aspect of Risk in Playing Non-Cooperative Games". International Conference in Game Theory (ICGT), July 2007.

Patents

"Bidding in Online Auctions". US Patent 11830698. Filed July 30, 2007. Patent pending.

Selected Invited Presentations

"Two Generalizations of $(0, 1)$-Covering Problems." Discrete Math and Optimization Seminar, McGill University, October 2009.

"Algorithmic Issues in Allocation of Indivisible Goods." Microsoft Research, Bangalore, January 2009.

"Market Equilibrium and Convex Programs (with two agents)". Algorithms and Complexity Seminar, University of Waterloo, January 2009.

"New Geometry-Inspired Relaxations and Algorithms for the Metric Steiner Tree Problem". IPCO, Bertinoro, Italy, May 2008.

"On the Approximability of Budgeted Allocations". Toyota Technological Institute, Chicago, February 2008.

"Steiner Trees: Linear Programs, Geometry and Algorithms". Theory Seminar. Carnegie Mellon University, February 2008; Combinatorics Seminar. Georgia Tech, November 2007.

"Design is as easy as Optimization". HP-Labs Algorithms Seminar, Palo Alto, CA, Summer 2006.

Teaching Experience

Instructor for Senior Level Undergraduate course "Scheduling", Summer Term (May–July) 2009. Class of 22 students.

Honors and Awards

Recepient of the IIT Bombay, Ms Jayanti Deshmukh Memorial Scholarship

Gold Medallist, Indian National Physics Olympiad, 1999

Programming Skills

Languages: C, C++
Platforms: Mac OSX and Unix platforms.

References

Prof. Vijay V. Vazirani. College of Computing, Georgia Tech. Email: `vazirani@cc.gatech.edu`

Prof. Prasad Tetali. School of Mathematics, Georgia Tech. Email: `tetali@math.gatech.edu`

Prof. Jochen Könemann Department of Combinatorics and Optimization, University of Waterloo Email: `jochen@math.uwaterloo.ca`

Prof. Sanjeev Khanna Department of Computer and Information Sciences, University of Pennsylvania Email: `sanjeev@cis.upenn.edu`