

# Tanmoy Chakraborty

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## Education

- **Ph.D., Computer and Information Science, University of Pennsylvania (September 2006 - present)** Research advisors: Prof. Sanjeev Khanna and Prof. Michael Kearns. CGPA: 3.90.  
**Research interests:** Algorithmic Game Theory and Computational Economics.

Requirements for **M.S.E., Computer and Information Science** completed in Dec 2007.

Graduate courses: Advanced Algorithms, Machine Learning, Computational Learning Theory, Sponsored Search and Adword Auctions, Software Systems, Game Theory, Stochastic Calculus with Financial Applications, Stochastic Processes, Advanced Probability.

- **B.Sc. (Honors), Mathematics, Chennai Mathematical Institute, India (Aug, 2003 - Aug, 2006)** CGPA=9.65/10.00 (normalized CGPA: 3.86).  
Selected courses: Linear and Abstract Algebra (4 courses), Single variable and Multi-variable Calculus (3 courses), Real and Complex Analysis (2 courses), Programming in C/Haskell/Java.

## Current Projects

- Modelling bargaining solutions in a social network and computing such solutions efficiently.
- Efficient algorithms for computing Nash equilibria of congestion games.

## Previous Projects

- Randomized approximation algorithms for network connectivity optimization problems.
- Algorithms that require very little memory, for reachability in graphs and circuit evaluation problems.
- Designed and implemented (in Java) email clients and a distributed system of email servers, capable of communicating with commercial servers and clients following SMTP and POP protocols.

## Skills

- Strong mathematical background. Expertise in algorithms, machine learning and probabilistic analysis.
- Experience of programming in Java, C++, C, Matlab and Haskell. Experience in working on Linux and Windows operating systems.

## Selected Publications

- **Bargaining Solutions in a Social Network** (with Michael Kearns): 4th International Workshop on Internet and Network Economics (WINE), 2008.
- **Network Design for Vertex Connectivity** (with J. Chuzhoy and S. Khanna): 40th ACM Symposium on Theory of Computation (STOC), 2008.
- **One-input-face MPCVP is hard for L, but in LogDCFL** (with S. Datta): Conference on Foundations of Software Technology and Theoretical Computer Science (FST&TCS), 2006.
- **Grid Graph Reachability Problems** (with E. Allender, D. A. M. Barrington, S. Datta and S. Roy): IEEE Conference on Computational Complexity (CCC), 2006.

## Selected Honors

- Doctoral Fellowship, University of Pennsylvania, 2006 onwards.
- Ranked 6<sup>th</sup> in Indian National Mathematical Olympiad, 2002.

- Ranked 38<sup>th</sup> and 28<sup>th</sup> in 2005 and 2006, respectively, at the Google India Code Jam (an algorithmic programming (in C/C++/Java) competition organized by Google, with about 15000 participants).
- National Board of Higher Mathematics (India) Scholarship (2003-2006), National Talent Search Scholar(2001-2003).

## Teaching

- Teaching Assistant for Theory of Computation (Fall '07) and Algorithms (Spring '08).
- Coach of the Indian team to the International Olympiad in Informatics, 2004 and 2005.

## References

- **Sanjeev Khanna.** Professor, Computer and Information Science, University of Pennsylvania. Website: <http://www.cis.upenn.edu/~sanjeev/>. Email: [sanjeev@cis.upenn.edu](mailto:sanjeev@cis.upenn.edu)
- **Michael Kearns.** Professor, Computer and Information Science, University of Pennsylvania. Website: <http://www.cis.upenn.edu/~mkearns/>. Email: [mkearns@cis.upenn.edu](mailto:mkearns@cis.upenn.edu)
- **Sudipto Guha.** Associate Professor, Computer and Information Science, University of Pennsylvania. Website: <http://www.cis.upenn.edu/~sudipto/>. Email: [sudipto@cis.upenn.edu](mailto:sudipto@cis.upenn.edu)