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Devavrat Shah

Jamieson Associate Professor

IIT-Bombay, B. Tech, Computer Science and Engineering, 1999

Stanford, PhD, Computer Science, 2004

BRIEF BIOGRAPHY

Devavrat Shah completed his PhD at Stanford University in October 2004. His thesis focused on the development of novel design and analytic methods for network algorithms.

Before coming to LIDS in the fall of 2005, he spent a year at the Mathematical Sciences Research Institute (MSRI) in Berkeley, California. During this year of study, he was introduced to message-passing algorithms and graphical statistical inference. At LIDS, his research areas include statistical inference, network algorithms, and stochastics.

SELECTED PUBLICATIONS

Books and Book Chapters:

- D. Shah, “Network scheduling and message-passing,” Performance Modeling and Engineering, Z. Liu and C. Xia, eds., a collection of tutorials from ACM Sigmetrics/Performance, 2008.

Journal Papers:

- D. Shah and D. Wischik, “Heavy Traffic Analysis of Optimal Scheduling Algorithm for Switched Networks,” [undergoing revision].
- D. Mosk Aoyama and D. Shah, “Fast Gossip Algorithms for Computing Separable Functions,” IEEE Transactions on Information Theory, 54(7), 2008.
- M. Bayati, D. Shah, and M. Sharma, “Max-product for Maximum Weight Matching: Correctness, Convergence and LP Duality,” IEEE Transactions on Information Theory, 54 (3), 2008.
- S. Boyd, A. Ghosh, B. Prabhakar, and D. Shah, "Randomized Gossip Algorithms," IEEE Transactions on Information Theory, 52(6), 2006.
- A. El Gamal, J. Mammen, B. Prabhakar, and D. Shah, “Optimal Throughput-Delay Tradeoff in Wireless Networks – Part I: The Fluid Model,” IEEE Transactions on Information Theory, 52(6), 2006.

Conference Papers:/h4>

- S. Rajagopalan, J. Shin, and D. Shah, “Network Adiabetic Theorem: An Efficient Randomized Protocol for Contention Resolution,” ACM Sigmetrics/Performance, 2009.
- U. Niesen, P. Gupta, and D. Shah, “The Multicast Capacity Region of Large Wireless Networks,” IEEE Infocom, 2009.
- J. Salez and D. Shah, “Belief Propagation: Optimal Algorithm For Random Assignment Problem,” SIAM SODA, 2009.

- S. Jagabathula and D. Shah, “Inferring Popular Rankings Under Constrained Sensing,” Neural Information Processing Systems, 2008 (Best Student Paper Award).
- K. Jung, Y. Lu, D. Shah, M. Sharma, and M. Squillante, “Revisiting Stochastic Loss Networks: Structures and Algorithms,” ACM Sigmetrics/Performance, 2008.

SELECTED AWARDS

- Erlang Prize from Applied Probability Society of INFORMS 2010
- Management Science and Operations Management Student Paper Competition First Prize 2010 (supervised)
- ACM SIGMETRICS/Performance best student paper award 2009 (supervised)
- First ACM SIGMETRICS Rising Star Award 2008
- Neural Information Processing System (NIPS) outstanding paper award 2008 (supervised)
- ACM SIGMETRICS/Performance best paper award 2006
- NSF CAREER Award 2006
- George B. Dantzig best dissertation award from INFORMS 2005
- IEEE INFOCOM best paper award 2004
- President of India Gold Medal at Indian Institute of Technology-Bombay 1999

COURSES TAUGHT

- Fall 2005 Probabilistic Systems Analysis and Applied Probability (6.431)
- Spring 2006 Quantitative Foundations of Engg. Systems (6.976/ESD.937)
  Special Seminar in Applied Probability (6.979/15.098)
- Fall 2006 Probabilistic Systems Analysis and Applied Probability (6.041)
- Spring 2007 Network Algorithms (6.976)
  Special Seminar: Applied Probability and Stochastic Processes (6.979/15.098)
- Fall 2007 Probabilistic Systems Analysis and Applied Probability (6.431)
  Graduate Seminar in Area I (6.454)

- Spring 2008 Advanced Stochastic Processes (6.975/15.070)
- Fall 2008 Network Algorithms (6.266)
  Graduate Seminar in Area I (6.454)
- Spring 2009 Probabilistic Systems Analysis and Applied Probability (6.041)
  Special Seminar: Applied Probability and Stochastic Processes (6.976/15.098)
- Fall 2009 Data Communication Networks (6.263J/16.37J)
- Fall 2010 Data Communication Networks (6.263J/16.37J)
- Spring 2011 Introduction to EECS II: Digital Communication Systems (6.02)
- Fall 2011 Algorithms for Inference (6.438)

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