

Siddhartha Banerjee

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School of Operations Research and Information Engineering
Cornell University
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RESEARCH INTERESTS *Stochastic modeling and the design of scalable algorithms and incentive mechanisms for large systems. My work spans across several fields, in particular:*

Matching Markets and Social Computing - game theory, mechanism design.
Control of Information-Flows - network algorithms, epidemic processes, queueing.
Learning and Recommendation - bandit algorithms, privacy, graphical models.

CURRENT POSITION **Cornell University:** Ithaca, NY, July 2015 - Present
Assistant Professor, School of Operations Research and Information Engineering.

PROFESSIONAL POSITIONS **Stanford University:** Stanford, CA, August 2013 - June 2015
Postdoctoral Researcher, [Social Algorithms Lab \(SOAL\)](#).
Hosted by [Ramesh Johari](#) and [Ashish Goel](#).
Technical Consultant: [Lyft](#), San Francisco, CA, August 2014 - November 2014.
Development and testing of algorithms for dynamic pricing.

EDUCATION **The University of Texas at Austin**, Austin, TX, September 2007 - July 2013.
PhD. in Electrical and Computer Engineering, July 2013
(M.S. in Electrical and Computer Engineering, Dec. 2009.)
Department of Electrical and Computer Engineering
Thesis: [Controlling Complex Information Flows in Networks](#)
Advisors: [Sujay Sanghavi](#) and [Sanjay Shakkottai](#)
Indian Institute of Technology Madras, Chennai, India, 2003 - July 2007.
Bachelor's in Electrical Engineering, July 2007.

PRIOR INDUSTRY INTERNSHIPS **Technicolor Paris Research Lab:** Paris, France, Summer 2011.
Privacy-preserving recommendation algorithms
Mentors: Laurent Massoulié and Nidhi Hegde

Bell Labs, Alcatel-Lucent: Murray Hill, NJ, Summer 2009.
Algorithms for in-network function computation Mentor: Piyush Gupta

Fixed Income Division, Lehman Brothers: Tokyo, Japan, Summer 2006.
Models for pricing exotic derivatives Mentor: Prasana Venkatesh

TEACHING EXPERIENCE **ORIE 4520, Stochastics at Scale:** Instructor, Cornell University, Fall 2015.
MS&E 221, Stochastic Modeling: Teaching Assistant, Stanford University, Spring 2016.

EE 381V, Advanced Probability in Learning, Inference and Networks: Teaching Assistant, UT Austin, Spring 2013.

Teaching Assistant for Information Theory, and Probability and Stochastic Processes (graduate and undergraduate) at UT Austin

- PUBLICATIONS Google Scholar profile: [Siddhartha Banerjee](#)
For preprints/ArXiv versions, see [my research page](#).
- Bidirectional PageRank Estimation: From Average-Case to Worst-Case**
With Peter Lofgren, and Ashish Goel.
Under submission.
- Personalized PageRank Estimation and Search: A Bidirectional Approach**
With Peter Lofgren, and Ashish Goel.
Under submission.
- Coalition Loyalty Programs: Network Formation and Credit Settlement**
With Arpit Goel, Pranav Dandekar and Ashish Goel.
Under submission.
- The Importance of Exploration in Online Marketplaces**
With Zhengyuan Zhou, and Ramesh Johari.
To appear in *IEEE Internet Computing*
(Earlier version in *IEEE CDC 2014*, December 2014.)
- Fast Bidirectional Probability Estimation in Markov Models**
With Peter Lofgren.
To appear in *NIPS 2015*, December 2015.
- Pricing in Ride-Share Platforms: A Queueing-Theoretic Approach**
With Ramesh Johari, and Carlos Riquelme.
in *ACM EC 2015*, June 2015.
- The Price of Privacy in Untrusted Recommendation Engines**
With Nidhi Hegde and Laurent Massoulié.
In the *IEEE Journal of Selected Topics in Signal Processing (Special Issue on Privacy)*
(Earlier version in *50th Allerton Conference*, October 2012.)
- FAST-PPR: Scaling Personalized PageRank Estimation for Large Graphs**
With Peter Lofgren, Ashish Goel, and C. Seshadri.
in *ACM SIGKDD 2014*, August 2014.
- Re-incentivizing Discovery: Mechanisms for Progress Sharing in Research**
With Anilesh Krishnaswamy, and Ashish Goel.
in *ACM EC 2014*, June 2014.
- The Behavior of Epidemics under Bounded Susceptibility**
With Subhashini Krishnasamy, and Sanjay Shakkottai.
In *ACM SIGMETRICS 2014*, June 2014.
- Epidemic Thresholds with External Agents**
With Avhishek Chatterjee, and Sanjay Shakkottai.
In *IEEE INFOCOM 2014*, April 2014.
- Epidemic Spreading with External Agents**
With Aditya Gopalan, Abhik Das, and Sanjay Shakkottai.
In the *IEEE Transactions on Information Theory*, 2014
(Earlier version in *IEEE INFOCOM 2011*, April 2011.)
- Large-Scale Online Recommendation on Graphs**
With Sujay Sanghavi and Sanjay Shakkottai.
Under submission.
- Towards a Queueing-Based Framework for In-Network Function Computation**
With Piyush Gupta and Sanjay Shakkottai.

In *Queueing Systems - Theory and Applications (QUESTA)*, 2012
(Earlier version in *ISIT 2011*, July 2011.)

Wireless Scheduling with Heterogeneous Delayed Network-State Information

With Aneesh Reddy, Aditya Gopalan, Sanjay Shakkottai, and Lei Ying.

In *Queueing Systems - Theory and Applications (QUESTA)*, 2012.
(Earlier version in *48th Allerton Conference*, October 2010.)

Greedy Learning of Markov Network Structure

With Praneeth Netrapalli, Sujay Sanghavi, and Sanjay Shakkottai.

In *48th Allerton Conference*, October 2010.

Optimal Feedback Allocation For Cellular Uplink: Theory and Algorithms

With Harish Ganapathy, Ned Dimitrov, and Constantine Caramanis.

In *IEEE Transactions on Signal Processing*, 2012.
(Earlier version in *47th Allerton Conference*, October 2009.)

Greedy Sensor Selection: Leveraging Submodularity

With Manohar Shamaiah, and Haris Vikalo.

In *IEEE Wireless Communications Letters*, 2012.
(Earlier version in *IEEE CDC 2010*, December 2010.)

PROFESSIONAL SERVICE Journal Reviewer: Operations Research, QUESTA, IEEE Trans. Networking, IEEE Trans. Mobile Computing, IEEE Trans. Signal Processing.

Conference Reviewer: INFOCOM, SIGMETRICS, MOBIHOC, ISIT, SPCOM, ICC.

Co-Organizer: Cornell ORIE Colloquium (2015-)

RAIN seminar series at Stanford (2013 - 2015), WNCG Conference Series (2012 - 2013) and WNCG student seminar at UT Austin (2009 - 2012).

Member: INFORMS, IEEE, ACM.

HONORS AND ACTIVITIES *WNCG Student Leadership Award*, UT Austin, 2013.

Governor's Gold Medal, Institute Silver Medal, IIT Madras, 2007.

Represented of IIT Madras at University Challenge 2006-07 (a nationwide collegiate quiz competition), and many other inter-collegiate and open quiz competitions.

Represented UT Austin at NAQT Intercollegiate Quizbowl Championship, 2008-09.