

## Naman Agarwal

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CONTACT INFORMATION	Graduate Student Department of Computer Science Princeton University Princeton, NJ 08540 USA	<i>Mobile:</i> +1-217-418-9266 <i>E-mail:</i> namana@princeton.edu <a href="http://www.cs.princeton.edu/~namana">http://www.cs.princeton.edu/~namana</a>
RESEARCH INTERESTS	Convex/Non-Convex Optimization for Machine Learning, Deep Learning, Privacy for Machine Learning and Data Analysis, Online Learning, Theoretical Computer Science.	
EDUCATION	<b>Princeton University</b> , Princeton, NJ, USA Pursuing PhD in Computer Science <ul style="list-style-type: none"><li>• GPA : 3.95/4.00</li><li>• Advisor: Dr. Elad Hazan</li></ul> <b>University of Illinois Urbana-Champaign</b> , Urbana, IL, USA Master of Science in Computer Science, May 2014 <ul style="list-style-type: none"><li>• GPA : 3.96/4.00</li><li>• Advisor: Dr. Alexandra Kolla</li><li>• Masters Thesis: Unique Games Conjecture : the Boolean Hypercube and connections to graph lifts</li></ul> <b>IIT Bombay</b> , Mumbai, India Bachelor of Technology in Computer Science and Engineering, August 2012 <ul style="list-style-type: none"><li>• GPA : 9.48/10.00</li><li>• Advisor: Dr. Abhiram G. Ranade</li><li>• Bachelor Thesis: Convergence Analysis of Newton's Method in Draw-CAD</li></ul>	
PUBLICATIONS / MANUSCRIPTS	<ul style="list-style-type: none"><li>• <b>Communication Efficient Differentially Private Mechanisms for Distributed Mean Estimation</b> <i>Naman Agarwal, Ananda Theertha Suresh, Felix Yu</i> Under preparation</li><li>• <b>Leverage Score Sampling for Faster Accelerated Regression and ERM</b> <i>Naman Agarwal, Sham Kakade, Rahul Kidambi, Praneeth Nethrapalli, Aaron Sidford, Yin Tat-Lee</i> Under Submission</li><li>• <b>Lower Bounds for Higher-Order Convex Optimization</b> <i>Naman Agarwal, Elad Hazan</i> Under Submission Arxiv Link: <a href="https://arxiv.org/pdf/1710.10329.pdf">https://arxiv.org/pdf/1710.10329.pdf</a></li><li>• <b>The Price of Differential Privacy For Online Learning</b> <i>Naman Agarwal, Karan Singh</i> International Conference on Machine Learning (ICML) 2017 Arxiv Link: <a href="https://arxiv.org/abs/1701.07953">https://arxiv.org/abs/1701.07953</a></li><li>• <b>Finding Approximate Local Minima for Nonconvex Optimization in Linear Time</b> <i>Naman Agarwal, Zeyuan Allen-Zhu, Brian Bullins, Elad Hazan, Tengyu Ma</i> Symposium on Theory of Computing (STOC) 2017 Arxiv link : <a href="https://arxiv.org/abs/1611.01146">https://arxiv.org/abs/1611.01146</a></li><li>• <b>Second Order Stochastic Optimization in Linear Time</b> <i>Naman Agarwal, Brian Bullins, Elad Hazan</i> Journal of Machine Learning Research (JMLR) Arxiv link : <a href="https://arxiv.org/abs/1602.03943">https://arxiv.org/abs/1602.03943</a></li></ul>	

- **On the Expansion of Group-Based Lifts**  
Naman Agarwal, Karthekeyan Chandrasekaran, Alexandra Kolla, Vivek Madan  
21<sup>st</sup> International Workshop on Randomization and Computation (RANDOM) 2017  
An earlier version of the paper appears at the Arxiv link : <http://arxiv.org/abs/1311.3268>
- **Multisection in the Stochastic Block Model using Semidefinite Programming**  
Naman Agarwal, Afonso Bandeira, Konstantinos Koiliaris, Alexandra Kolla  
To appear in Compressed Sensing and Its Applications: Second International MATHEON Conference, 2015  
Arxiv link : <http://arxiv.org/abs/1507.02323>
- **Unique Games on the Hypercube**  
Naman Agarwal, Guy Kindler, Alexandra Kolla, Luca Trevisan  
Chicago Journal of Theoretical Computer Science  
Link : <http://cjtcs.cs.uchicago.edu/articles/2015/1/contents.html>

WORK/RESEARCH EXPERIENCE	<p><b>Research Internship</b>, <i>BigML Team, Google Research NYC</i> <i>Privacy and Communication in Large Scale Distributed Machine Learning</i> Summer 2017</p> <p><b>Research Assistantship</b>, <i>supervised by Dr. Elad Hazan</i> <i>Second Order Methods for Optimization in Machine Learning</i> 2015- ongoing</p> <p><b>Research Internship</b>, <i>supervised by Dr. Nikhil Srivastava, Microsoft Research, Bangalore</i> <i>Optimization Approaches for Faster Graph Sparsification</i> Summer 2014</p> <p><b>Research Assistantship</b>, <i>supervised by Dr. Alexandra Kolla, University of Illinois Urbana-Champaign</i> <i>Spectral Graph Theory and Stochastic Networks</i> 2012-2014</p> <p><b>Research Internship</b>, <i>supervised by Dr. Ranjita Bhagwan, Microsoft Research, Bangalore</i> <i>Algorithms for Automated Data Center Design</i> Summer 2011</p> <p><b>Research Internship</b>, <i>supervised by Dr. Stefan Schwoon, LSV, ENS-Cachan</i> Summer 2010</p>
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ACADEMIC ACHIEVEMENTS	<ul style="list-style-type: none"> <li>• Selected to receive the Chirag Foundation Graduate Fellowship in Computer Science awarded by the Computer Science Department at University of Illinois Urbana-Champaign.</li> <li>• Awarded the Student Travel Award to attend the conferences STOC-2013 and CCC-2013.</li> <li>• Secured an All India Rank 64 in IITJEE 2008 among 300,000 students.</li> <li>• Secured an All India Rank of 148 in AIEEE 2008 among 8,00,000 students</li> <li>• Awarded the CBSE Merit Scholarship on the basis of my performance in AIEEE</li> </ul>
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TEACHING EXPERIENCE	<ul style="list-style-type: none"> <li>• Teaching Assistant, CS 423 : Theory of Algorithms – Spring 2016, Princeton University</li> <li>• Teaching Assistant, CS 402 : Artificial Intelligence – Fall 2015, Princeton University</li> <li>• Teaching Assistant, CS 461 : Computer Security – Fall 2012, UIUC</li> <li>• Teaching Assistant, CS 420 : Graph Theory – Spring 2012, IIT Bombay</li> </ul>
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PROGRAMMING SKILLS	<ul style="list-style-type: none"> <li>• Deep Learning in TensorFlow, Python</li> <li>• Java, C++, MATLAB</li> </ul>
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PROFESSIONAL SERVICE	<ul style="list-style-type: none"> <li>• Reviewer for NIPS 2017, COLT 2017, COLT 2016, Journal of Machine Learning Research, Mathematical Programming, Theory of Computing.</li> </ul>
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