

## SAMUEL B. HOPKINS

Miller Fellow  
UC Berkeley EECS

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INTERESTS      *Algorithms and Complexity* – average case analysis, statistical inference, planted problems, approximation algorithms, linear and semidefinite programming hierarchies, combinatorial optimization, hardness of approximation

EDUCATION      Ph.D, Cornell University, 2013 – 2018  
Computer Science, Theory of Computing Group  
Advisor: David Steurer  
Thesis: *Statistical Inference: Statistical Inference and the Sum of Squares Method*

B.S., University of Washington, 2008 – 2013  
Computer Science, Mathematics, Philosophy (minor)  
Advisor: Paul Beame  
Thesis: *Towards a Theory of Multiparty Information Complexity*

OTHER  
ACADEMIC  
POSITIONS      Research Intern, Microsoft Research New England, Summer 2017  
Hosted by Jennifer Chayes and Christian Borgs

Visitor, Berkeley Theory Group, Summer 2016 and Spring 2018  
Hosted by Prasad Raghavendra

Research Intern, Microsoft Research New England, Summer 2015  
Hosted by Boaz Barak.

Visiting Graduate Student, Simons Institute, Fall 2014

Visiting Researcher, DIMACS at Rutgers, Summer 2011  
Hosted by Eric Allender.

HONORS AND  
AWARDS      Miller Fellow, 2018  
Microsoft Research Fellow, 2016  
National Science Foundation Graduate Research Fellow, 2013  
Cornell University Fellow, 2013  
Outstanding Graduating Senior in Computer Science, UW CSE, 2013  
Outstanding Graduating Comprehensive Senior, UW Mathematics, 2013  
James A. Hewitt, Jr. Endowed Scholar, 2011

Outstanding Undergraduate Scholar, UW Philosophy, 2011  
Phi Beta Kappa, 2011  
Dean's List, 2008 – 2013  
National Merit Finalist, 2008

- PUBLICATIONS
- Mean Estimation with Sub-Gaussian Rates in Polynomial Time  
Samuel B. Hopkins  
*In Submission*
- A Robust Spectral Algorithm for Overcomplete Tensor Decomposition  
Samuel B. Hopkins, Tselil Schramm, Jonathan Shi  
*Manuscript*
- Mixture Models, Robustness, and Sum of Squares Proofs  
Samuel B. Hopkins, Jerry Li  
*STOC 2018*
- The Power of SoS for Detecting Hidden Structures  
Samuel B. Hopkins, Pravesh Kothari, Aaron Potechin, Prasad Raghavendra, Tselil Schramm, David Steurer  
*FOCS 2017*
- Efficient Bayesian Estimation from Few Samples: Community Detection and Related Problems  
Samuel B. Hopkins, David Steurer  
*FOCS 2017*
- A Nearly-Tight Sum-of-Squares Lower Bound For the Planted Clique Problem  
Boaz Barak, Samuel B. Hopkins, Jonathan Kelner, Pravesh Kothari, Ankur Moitra, Aaron Potechin  
*FOCS 2016, Invited to Special Issue for FOCS 2016*
- Speeding up Sum-of-Squares for Tensor Decomposition and Planted Sparse Vectors  
Samuel B. Hopkins, Tselil Schramm, Jonathan Shi, David Steurer  
*STOC 2016*
- On the SoS Integrality Gap for Planted Clique  
Samuel B. Hopkins, Pravesh Kothari, Aaron Potechin, Prasad Raghavendra, Tselil Schramm  
*SODA 2016, Invited to Special Issue for SODA 2016*
- Tensor Principal Component Analysis via Sum-of-Squares Proofs

Samuel B. Hopkins, Jonathan Shi, David Steurer  
*COLT 2015*

Kolmogorov Complexity, Circuits, and the Strength of Formal Theories  
of Arithmetic

Eric Allender, George Davie, Luke Friedman, Samuel B. Hopkins, Iddo  
Tzameret

*Chicago Journal of Theoretical Computer Science, 2013*

On Objects as Events and the Ontology of Temporal Parts

Sam Hopkins

*Res Cogitans, Summer 2010*

#### SERVICE

Volunteer mathematics tutor, Berkeley High School, 2018

Organizer, STOC workshop on computational thresholds, 2018

Organizer, Cornell student theory seminar (a.k.a. *theory tea*), 2013–2015

Co-Organizer, Cornell CS theory retreat, 2015

Co-Organizer, Cornell CS prospective PhD visit day, 2014

Conference reviewing (external): STOC, FOCS, SODA, NIPS, CCC,  
ITCS, APPROX, RANDOM, ALT

Journal reviewing: Mathematics of Operations Research, Mathematical  
Statistics and Learning, Physical Review X

#### INVITED TALKS AND GUEST LECTURES

Cornell, theory seminar, March 2016

University of Washington, theory seminar, November 2016

Stanford, theory seminar, November 2016

Cornell, theory seminar, April 2017

KTH Stockholm, theory seminar, May 2017

KTH Stockholm, complexity reading group, May 2017

Toyota Technical Institute Chicago, young researcher seminar, May  
2017

Stanford, theory seminar, May 2017

Stanford, graduate algorithms guest lecture on robust tensor decom-  
position, May 2017

Sum of Squares Workshop, STOC 2017

Simons Institute Workshop on Hierarchies, Extended Formulations,  
and Matrix-Analytic Techniques, November 2017

Banff Workshop on Approximation Algorithms and Hardness of Ap-  
proximation, November 2017

University of Washington, theory seminar, November 2017

NYU, theory seminar, May 2018

Columbia, theory seminar, May 2018

University of Massachusetts, discrete math seminar, May 2018  
TheoryFest workshop on computational thresholds, June 2018  
Robust statistics workshop at TTIC, August 2018  
High-dimensional and robust statistics workshop at Simons Institute,  
November 2018

TEACHING AND	TA, senior-level complexity theory, Cornell CS, Fall 2015
INDUSTRY	TA, senior-level compilers, Cornell CS, Fall 2013
EXPERIENCE	Tutor, UW Philosophy Writing Center, Fall 2010 – Spring 2012
	TA, sophomore/junior-level probability, UW CSE, Fall 2011
	TA, University of Washington Robinson Center for Young Scholars ethics, Winter 2010, mathematics, Summer 2010
	Engineering Intern, Google, Summer 2012