

SAMUEL B. HOPKINS

Miller Fellow
UC Berkeley EECS

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INTERESTS	<i>Algorithms and Complexity</i> – average case analysis, 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: <i>Statistical Inference: Statistical Inference and the Sum of Squares Method</i> B.S., University of Washington, 2008 – 2013 Computer Science, Mathematics, Philosophy (minor) Advisor: Paul Beame Thesis: <i>Towards a Theory of Multiparty Information Complexity</i>
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 A Robust Spectral Algorithm for Overcomplete Tensor Decomposition
Samuel B. Hopkins, Tselil Schramm, Jonathan Shi
In submission
- 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

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, APPROX, RANDOM, ALT

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

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 decomposition, 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 Approximation, 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