

SAMUEL B. HOPKINS

Ph.D Student
Cornell Computer Science

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

EDUCATION Ph.D Student, Cornell University, 2013 –
Computer Science, Theory of Computing Group
Advisor: David Steurer

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
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 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

Mixture Models, Robustness, and Sum of Squares Proofs

Samuel B. Hopkins, Jerry Li

In submission

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 Zameret

Chicago Journal of Theoretical Computer Science, 2013

On Objects as Events and the Ontology of Temporal Parts

Sam Hopkins

Res Cogitans, Summer 2010

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
TEACHING AND INDUSTRY EXPERIENCE	TA, senior-level complexity theory, Cornell CS, Fall 2015 TA, senior-level compilers, Cornell CS, Fall 2013 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