

RYAN O'DONNELL

Curriculum vitae

February, 2024

- CONTACT: odonnell@cs.cmu.edu, @BooleanAnalysis,
<https://www.youtube.com/ryanodonnellteaching>
- CURRENT POSITION: Professor
Computer Science Department, School of Computer Science
Carnegie Mellon University
- CITIZENSHIP: Canada, USA
- RESEARCH INTERESTS: Quantum computation and information theory
Approximability of optimization problems
Spectral graph theory
Analysis of Boolean functions
Probability
Complexity theory and algorithms
Learning theory
- EDUCATION: **Ph.D., Massachusetts Institute of Technology**, 1999 – 2003
Department of Applied Mathematics
Thesis: *Computational applications of noise sensitivity*
Advisor: Madhu Sudan
B.Sc., University of Toronto, 1995 – 1999
Joint Specialist degree in Mathematics and Computer Science
- PROFESSIONAL EXPERIENCE: **Sabbatical visitor, University of British Columbia Comp. Sci. Dept.**, 2019
Professor, Carnegie Mellon Comp. Sci. Dept., 2017–present
Assoc. Professor with Tenure, Carnegie Mellon Comp. Sci. Dept., 2014–2017
Visiting Professor, Boğaziçi University Comp. Eng. Dept., 2014
Associate Professor, Carnegie Mellon Comp. Sci. Dept., 2011–2014
Member, Sch. of Mathematics, Institute for Advanced Study, 2010–2011
Assistant Professor, Carnegie Mellon Comp. Sci. Dept., 2006–2011
Lecturer (unofficial), University of Washington, fall 2005
Postdoctoral researcher, Microsoft Theory Group, 2004–2006
Postdoctoral researcher, Institute for Advanced Study, 2003–2004

PH.D. STUDENTS	Karl Wimmer:	graduated 2009 (now Duquesne University)
SUPERVISED:	Yi Wu:	graduated 2010 (now in industry)
	Eric Blais:	graduated 2012 (now University of Waterloo)
	Yuan Zhou:	graduated 2014 (joint w/ V.Guruswami, now Tsinghua)
	Aaron Roth:	2006 – 2008 (joint w/ A.Blum, now Penn)
	Ali Kemal Sinop:	2008 – 2011 (w/ V.Guruswami, now Google)
	John Wright:	graduated 2016 (now UC Berkeley)
	David Witmer:	graduated 2017 (joint w/ A.Gupta, now a preacher)
	Yu Zhao:	graduated 2021
	Srivatsan Narayanan:	2013
	Sarah Allen:	2013 – 2017 (obtained Master's; now Google)
	Pedro Paredes	graduated 2022 (now Princeton)
	Kevin Pratt	graduated 2023 (now NYU)
	Costin Bădescu	2016 – present
	Xinyu Wu	2019 – present
	William He	2023 – present
	Noah Singer	2023 – present

MS THESIS	Corwin de Boor	2018–19
STUDENTS	Xinyu Wu	2018–19
SUPERVISED:	Amulya Musipatla	2020–21

BS SENIOR THESIS	Yongshan Ding:	2016–17 (now Yale faculty)
STUDENTS	Christopher Jones:	2016–17 (now U. Chicago PhD program)
SUPERVISED:	Calvin Beideman:	2017–18 (now UIUC PhD program)
	Yeongwoo Hwang:	2017–18 (w/ A. Ada, now Austin PhD prog.)
	Sidhanth Mohanty:	2017–18 (now Berkeley PhD program)
	Ramgopal Venkateswaran	2020–21 (now Facebook)

PH.D. THESIS	R. Ryan Williams:	August 2007, Carnegie Mellon University
COMMITTEES:	Per Austrin:	November 2008, Royal Inst. Tech., Sweden
	Andrew Wan	April 2010, Columbia University
	Daniel Kane	June 2011, Harvard University (Math Dept)
	Ali K. Sinop	July 2012, Carnegie Mellon University
	Dvir Falik	August 2012, Hebrew University
	Pranjal Awasthi	July 2013, Carnegie Mellon University
	Amit Weinstein	November 2013, Tel Aviv University
	Li-Yang Tan	May 2014, Columbia University
	Chenggang Wu	June 2014, Tsinghua University

Carol Wang	August 2015, Carnegie Mellon University
Girish Varma	December 2015, Tata Inst. of Fundamental Research
Ziling Jiang	April 2016, Carnegie Mellon University (Math Dept)
Misha Lavrov	April 2017, Carnegie Mellon University (Math Dept)
Ross Berkowitz	April 2017, Rutgers University (Math Dept)
Euiwoong Lee	May 2017, Carnegie Mellon University
Nicolas Resch	May 2020, Carnegie Mellon University
Vikesh Siddhu	July 2020, Carnegie Mellon Univ. (Physics Dept)
Andrii Riazonov	May 2022, Carnegie Mellon University
Sai Sandeep	May 2022, Carnegie Mellon University
Alex Wang	June 2022, Carnegie Mellon University
Ainesh Bakshi	July 2022, Carnegie Mellon University
Michael Rudow	April 2023, Carnegie Mellon University
Sidhanth Mohanty	April 2023, UC Berkeley
Francisco Maturana	August 2023, Carnegie Mellon University

TEACHING:

F23:	15-459: Undergraduate Quantum Computing (4.87/4.77)
S23:	15-750: Algorithms in the Real World (4.36/3.80)
F22:	15-459: Undergraduate Quantum Computing (4.82/4.68)
S22:	15-751: A Theorist's Toolkit (4.92/4.92)
F21:	15-459: Undergraduate Quantum Computing (4.9/4.81)
S21:	15-855: Graduate Computational Complexity Theory (4.93/4.86)
F20:	15-459: Undergraduate Quantum Computing (5.0/4.96)
S20:	15-751: A Theorist's Toolkit (4.84/4.88)
F19:	15-455: Undergraduate Complexity Theory (4.8/4.66)
F18:	15-859BB: Quantum Computation and Information (4.96/4.75)
S18:	15-455: Undergraduate Complexity Theory (4.43/4.13)
F17:	15-855: Graduate Computational Complexity Theory (4.96/4.86)
S17:	15-455: Undergraduate Complexity Theory (4.98/4.74)
S17:	15-252: More Great ideas in Theoretical Computer Sci. (4.93/4.93)
F16:	15-859T: A Theorist's Toolkit (4.86/4.67)
S16:	15-251: Great Theoretical Ideas in Computer Sci. (4.75/4.65)
F15:	15-859BB: Quantum Computation and Information (4.85/4.77)
S15:	15-251: Great Theoretical Ideas in Computer Science (4.58/4.34)
F14:	CmpE 587: A Theorist's Toolkit (Bogaziçi University)
F13:	15-859T: A Theorist's Toolkit (4.92/4.75)
S13:	15-251: Great Theoretical Ideas in Computer Science (4.82/4.34)
F12:	15-859S / 21-801A: Analysis of Boolean Functions (4.9/4.9)
S12:	15-251: Great Theoretical Ideas in Computer Science (4.26/3.77)
F11:	15-859E: Linear and Semidefinite Programming (5.0/5.0)
S10:	15-859U: Theoretical Computer Science's Greatest Hits (4.85/4.77)
F09:	15-359: Probability and Computing (4.67/4.67)

S09: 15-855: Intensive Intro to Complexity (4.5/4.71)
F08: 15-359: Probability and Computing (4.74/4.63)
S08: 15-854B: Advanced Approximation Algorithms (4.8/4.9)
F07: 15-359: Probability and Computing (4.72/4.67)
S07: 15-859S: Analysis of Boolean Functions (4.83)
F05: CSE 533: The PCP Theorem (University of Washington) (5.0/4.8)

GRANTS,
AWARDS, AND
HONORS:

NSF Industry-University Cooperative Research Center

2024 – '29 for Quantum Computing and Information Technologies
Part of a team of ~10 CMU faculty, led by Elias Towe

Google Gift, Quantum Speedups for Statistical Problems 2023 (\$200,000)

US ARO Grant, Quantum Characterization of Intermed. Scale Systems

2021 – 2024, for “Scalable and Efficient Characterization of Noise
for Fault-Tolerant Quantum Computation” (\$400,000)

NSF Grant in Foundations of Emerging Technologies, 2019 – 2022

for “Foundations of Quantum State Learning & Testing” (\$470,000)

NSF Grant in Algorithmic Foundations, 2017 – 2020

for “The Complexity of Random CSPs” (\$450,000)

Herbert A. Simon Award for Teaching Excellence in Computer Science

School of Computer Science, Carnegie Mellon University, 2016

NSF Grant in Algorithmic Foundations, 2016 – 2019

for “Harmonic Analysis for Quantum Complexity” (\$450,000)

EU Marie Curie International Incoming Fellowship, 2014 (\$119,886)

NSF Grant in Algorithmic Foundations, 2013 – 2016

for “CSPs – Approximability versus Time” (\$426,376)

BSF US-Israel Grant, 2013 – 2017, with Guy Kindler

for “Influence of Fuzzy Boolean Functions” (\$97,600)

Microsoft Research–CMU Computational Thinking Grant, 2012 – 2013

for “Proof Complexity and Optimization” (\$81,081)

NSF Grant in Algorithmic Foundations, 2011 – 2014

for “Analysis of Boolean Functions” (\$476,388)

Microsoft Research–CMU Computational Thinking Grant, 2011 – 2012

for “Constraint Satisfaction Problems: Trichotomies” (\$65,263)

Microsoft Research–CMU Computational Thinking Grant, 2010 – 2011

for “The Dichotomy Conjecture” (\$62,292)

Von Neumann Fellowship (IAS School of Mathematics, 2010 – 2011)

NSF Grant in Algorithmic Foundations, 2009 – 2012, with Rocco Servedio

for “The Polynomial Method in Learning” (\$299,452)

Alfred P. Sloan Research Fellowship, 2009 (\$50,000)

Pazy Memorial Award, 2009 (best BSF math/CS grant) (\$5000)

BSF US-Israel Grant, 2008 – 2012, with Guy Kindler

for “Fourier-Analytic Methods for Boolean Functions” (\$34,000)

CyLab Grant for “Fault-Tolerant Voting”, 2008 – 2009 (\$75,000)
Okawa Foundation Research Grant, 2008 (\$10,000)
NSF Faculty Early Career Development (CAREER) Award, 2008 – 2013
for “Optimal Approximability” (\$450,313)
Best Paper Award, Conference on Computational Complexity, 2003
for the paper *Extremal properties of polynomial threshold functions*
Best Student Paper Award, Conf. on Computational Complexity, 2002
and Best Student Paper Award, MIT Mathematics Department, 2003
for the paper *Hardness amplification within NP*
NSERC (“Canadian NSF”) Graduate Fellowship, 1999 – 2001
Rosenblith Fellowship, MIT Mathematics Department, 1999 – 2000

SERVICE AND
EDITORIAL
WORK:

Simons Institute Scientific Advisory Board, 2023 –
ACM Trans. on Computation Theory, Editor-in-Chief, 2019 – 2023
STOC 2020 Keynotes and Tutorials committee organizer
MSRI (SLMath) Scientific Advisory Council, 2018 – 2022
Computational Complexity Conference (CCC)
Board of Trustees, budget chair, 2016 – 2019
SIGACT Committee for the Advancement of Theoretical Comp. Sci.,
member, 2015 – 2021
Theory of Computing, editor, 2006 – 2019
SIAM Journal on Discrete Mathematics, editor, 2012 – 2017
Electronic Colloquium on Computational Complexity,
scientific board 2009 – present
SIAM Journal of Computing, special issue editor 2005, 2010

CONFERENCE
COMMITTEES:

CCC 2005, 2009, 2013, 2017 (**Chair**), 2021; **STOC** 2005, 2007, 2021,
2024 (**Chair**); **FOCS** 2010, 2018, 2023; **SODA** 2012; **SOSA** 2023;
ICALP 2008; **RANDOM** 2012, 2016, 2020; **ITCS** 2015; **COLT** 2010;
ICML 2016; **NeurIPS** 2008

CONFERENCE
ORGANIZATION:

Park City Mathematics Institute (PCMI). Co-organizer, 2023 summer
graduate school on quantum computation.
Casa Matematica Oaxaca (BIRS). Co-organizer, 2022 workshop on
analytic techniques in theoretical computer science.
Simons Institute. Co-organizer, 2020 workshop, Comp. Phase Transitions
Casa Matematica Oaxaca (BIRS). Co-organizer, 2018 workshop on
analytic techniques in theoretical computer science.
Harvard. Co-organizer, 2017 workshop on additive combinatorics.

Simons Symposium. Co-organizer, 2016 symposium on
Analysis of Boolean Functions: new directions and applications.

2015 Canadian Discrete and Algorithmic Mathematics Conference
(CanaDAM), program committee member

Banff International Research Station. Co-organizer, 2014 workshop on
approximation algorithms and the hardness of approximation

Simons Symposium. Co-organizer, 2014 symposium on
Analysis of Boolean Functions: new directions and applications.

Simons Symposium. Co-organizer, 2012 symposium on
Analysis of Boolean Functions: new directions and applications.

Banff International Research Station. Co-organizer, 2011 workshop on
approximation algorithms and the hardness of approximation

Centre Emile Borel (Institute Henri Poincaré). Co-organizer, 2011 special
semester on metric geometry, algorithms, groups

Center for Computational Intractability. Co-organizer, 2010 workshop
on analysis and geometry of threshold functions.

REFEREING: ACM Transactions on Computation Theory; Annales de l'Institut Henri Poincaré; Annals of Mathematics; Annals of Probability; Combinatorica; Combinatorics, Probability and Computing; Computational Complexity; Discrete Applied Mathematics; Encyclopedia of Algorithms; European Congress of Mathematics, Information Processing Letters; Inventiones Mathematicae; Journal of the ACM; Journal of the AMS; Journal of Computer and System Sciences; Journal of Global Optimization; Journal of Machine Learning Research; Journal of Physics A: Mathematical and Theoretical; Journal of Theoretical Computer Science; Mathematics of Operations Research; Probability Theory and Related Fields; Quantum; SIAM Journal of Computing; SIAM Journal of Discrete Mathematics; Theory of Computing; Transactions on Information Theory.
Conferences: FOCS, STOC, SODA, CCC, ICALP, COLT, QIP, SOSA, NeurIPS, ICML, ITCS, RANDOM, STACS, LATIN, MFCS

GRANT National Science Foundation
REFEREING: Israel Science Foundation
European Research Council
Swiss National Science Foundation
Natural Sciences and Engineering Research Council (NSERC Canada)

INVITED
SYMPOSIUM
TALKS:

Schloss-Dagstuhl Seminar:
fall 2024 seminar on Algebraic Methods in Comp. Complexity

Oberwolfach Meeting on Complexity Theory: invited speaker, 2024

Isaac Newton Institute:
2024 Celebration of the mathematics of Timothy Gowers

University of Washington:
2023 Distinguished Seminar in Optimization & Data

Park City Mathematics Institute: 2023 Cross-Program seminar

Simons Institute: invited speaker at 2023 Simons Institute workshop on Rounding Schemes for Quantum Optimization

Simons Institute: invited speaker at 2023 Simons Institute workshop on Analysis and TCS: New Frontiers (Beyond the Boolean Cube)

Cambridge-Warwick Quantum Computing Colloquium: 2022

Harvard/MIT Current Developments in Mathematics 2021 seminar
Invited speaker, 2022

Schloss-Dagstuhl Seminar:
fall 2022 seminar on Algebraic Methods in Comp. Complexity

STEMS 2022 talk: Organized by Chennai Mathematical Institute

Oberwolfach Meeting on Complexity Theory: invited speaker, 2021

Oberwolfach Meeting on Geom. and Optimization in Quantum Info.:
invited speaker, 2021

Simons Foundation: 2021 conference on High-Dimensional Expanders

Simons Institute: invited speaker at 2021 workshop on Rigorous Evidence for Information-Computation Trade-offs

MIT Foundations of Data Science: 2020 workshop on Learning Under Complex Structure

TCS+: invited speaker, 2019

Simons Foundation: 2019 conference on High-Dimensional Expanders

Banff International Research Station (BIRS): 2019 workshop on Algebraic Techniques in Computational Complexity

Simons Institute: 2018 workshop on Beyond Randomized Rounding & The Probabilistic Method, invited speaker

Clay Mathematics Institute 20th Anniversary Conference:
invited speaker, 2018 Harmonic Analysis & Probability workshop

Clay Mathematics Institute: invited speaker,
Complexity Theory workshop, 2018

FOCS 2017 invited speaker: workshop on Frontiers in Distribution Testing

Simons Institute: invited speaker at 2017 workshop on Hierarchies, Extended Formulations, and Matrix-Analytic Techniques

American Institute for Mathematics (AIM) Research workshop

on Random Constraint Satisfaction Problems, summer 2017
67th Midwest Theory Day: invited speaker, 2017

Schloss-Dagstuhl Seminar:

fall 2016 seminar on Algebraic Methods in Comp. Complexity

St. Petersburg Low-Depth Complexity Workshop:

invited tutorial speaker, invited speaker, 2016

NUS Workshop on Semidefinite and Matrix Methods for Optimization:

invited speaker, 2016

TCS+: invited speaker, 2015

Charles River Lectures on Probability: invited speaker, 2015

Random Structures & Algorithms: invited speaker, 2015

Santa Fe Institute workshop on

Algebra, Geometry, Pseudorandomness, and Complexity 2015

Magic 77 (Manuel Blum Birthday Conference): invited speaker, 2015

International Congress of Mathematicians (ICM):

2014 invited section lecturer

Swedish Summer School in Computer Science 2014: lecturer

Bertinoro Workshop on Sublinear Algorithms 2014

Simons Institute: 2013 workshop on real analysis in testing, learning, and inapproximability

ELC Tokyo Complexity Workshop 2013

Bellairs Institute (Barbados) Workshop on Computational Complexity:

2012's invited speaker (10 lectures)

Mathematical Sciences Research Institute (MSRI):

fall 2011 workshop on Quantitative Geometry in Computer Science

4th Ann. Eastern Great Lakes (EaGL) Theory of Computation Workshop

Fields Institute: summer 2011 workshop on Approximability of CSPs

Isaac Newton Institute for Mathematical Sciences:

spring 2011 semester on discrete analysis

Centre Emile Borel (Institute Henri Poincaré):

spring 2011 trimester on approximation algorithms (4 lectures)

14th Semiannual New York Area Theory Day: fall 2010

China Theory Week 2010: Keynote talk

Institute for Advanced Study:

2010 workshop on Pseudorandomness in Mathematical Structures

Toyota Technological Institute – Chicago (TTI-C):

spring 2009 workshop on Approximation Algorithms and their Limitations

Mathematical Sciences Research Institute (MSRI):

fall 2008 workshop on Discrete Rigidity Phenomena in Additive Combinatorics

Banff International Research Station (BIRS):

summer 2008 workshop on Analytic Tools in
Computational Complexity

STOC 2008: Invited tutorial speaker

Cornell Workshop on Probability Theory and Computer Science:

spring 2008 workshop on discrete harmonic analysis
and its applications

American Institute for Mathematics (AIM) Research Workshop:

fall 2007 seminar on Algorithmic Convex Geometry

Schloss-Dagstuhl Seminar:

fall 2007 seminar on Algebraic Methods in Comp. Complexity

International Center for Mathematical Sciences (ICMS):

spring 2007 workshop on Geometry and Algorithms

Banff International Research Station (BIRS):

summer 2006 workshop on Recent Advances in
Computational Complexity

American Mathematical Society (AMS) Central Section Meeting:

fall 2005 special session on Randomness in Computation

2nd Annual Pacific Northwest Theory Day: spring 2005

Mathematical Sciences Research Institute (MSRI):

spring 2005 workshop on Phase Transitions in
Computation and Reconstruction

Yale Workshop on Discrete Mathematics and Theoretical Computer Sci.:

fall 2004 workshop on Harmonic Analysis of Boolean Functions

Schloss-Dagstuhl Seminar:

fall 2004 seminar on Algebraic Methods in Comp. Complexity

INVITED
ACADEMIC
TALKS:

University of Pennsylvania: Theory seminar 2023

Columbia University: Theory seminar 2022

Microsoft Quantum: Seminar 2021 (twice)

Amazon Research: Seminar 2020

Microsoft Quantum: Seminar 2020 (twice)

CWI: Quantum seminar 2020

University of Texas, Austin: Quantum seminar 2020

Texas A&M: Mathematics seminar 2020

MIT: Theory seminar 2020

University of Texas, Austin: Theory seminar 2019

University of British Columbia: Probability seminar 2019

University of British Columbia: Algorithms seminar 2019

Institute for Advanced Study: Theory seminar 2018

Princeton University: Theory seminar 2018

Carnegie Mellon: Theory seminar 2017

Center for Quantum Technologies, NUS: Colloquium 2016

Harvard University: Theory seminar 2015 (twice)
Columbia University: Theory seminar 2015
Kent State: Mathematics seminar 2015
Microsoft New England Research: Theory Colloquium 2013 (twice)
Cornell University: Probability seminar 2013
Purdue University: CS Theory seminar 2012
Istanbul Center for Mathematical Sciences (IMBM): Math seminar 2011
Microsoft Redmond Theory Group: CS Theory seminar 2011
Institute for Advanced Study: Discrete mathematics seminar 2011
Institute for Advanced Study: Discrete mathematics seminar 2010
Microsoft Redmond Theory Group: CS Theory seminar 2010
University of Washington: Probability seminar 2010
Microsoft Silicon Valley Theory Group: CS Theory seminar 2009
Institute for Advanced Study (IAS): CS Theory seminar 2009
Microsoft New England Theory Group: CS Theory seminar 2009
MIT: CS Theory colloquium 2009
SUNY Buffalo: CS Theory seminar 2008
University of Toronto: CS Theory seminar 2008
MIT: CS Theory colloquium 2007
Carnegie Mellon: ACO seminar 2007
Penn State: CS Theory seminar 2007
Carnegie Mellon: CS Theory seminar 2006 (twice)
UT Austin: CS Theory seminar 2006
MIT: Applied Mathematics seminar 2006
University of Pennsylvania: CS Theory seminar 2006
University of Chicago: CS Theory seminar 2006
Georgia Tech: CS Theory seminar 2006
Georgia Tech: CS Theory seminar 2006 (again)
Dartmouth College: Mathematics seminar 2006
University of British Columbia: Math Colloquium 2006
University of British Columbia: Discrete Math seminar 2006
UC Berkeley: CS Theory seminar 2005
UC Berkeley: CS Theory seminar 2005 (again)
Simon Fraser University: CS Theory seminar 2005
University of Washington: Probability seminar 2005
UC Berkeley: CS Theory seminar 2004
University of Washington: CS Theory seminar 2004 (twice)
Microsoft Redmond Theory Group: CS Theory seminar 2004
Columbia University: CS Theory seminar, 2004
Yale University: CS Theory seminar 2004
Institute for Advanced Study (IAS): CS Theory seminar 2004
Institute for Advanced Study (IAS): CS Theory seminar 2003 (twice)
University of Washington: CS Theory seminar 2002

Microsoft Redmond Theory Group: CS Theory seminar 2002
University of Toronto: CS Theory seminar 2002

CONFERENCE
TALKS:

QIP 2023 TQC 2021, ITCS 2017, FSTTCS 2014, ICALP 2009, STOC 2008,
FOCS 2006, LATIN 2006, FOCS 2005, STOC 2005, FOCS 2003, CCC 2003,
STOC 2003, FOCS 2002, STOC 2002, Math. and Comp. Sci. II 2003, SODA
2002.

JOURNAL
ARTICLES:

1. S. Flammia, R. O'Donnell.
Quantum chi-squared tomography and mutual information testing.
Quantum (2024), to appear. Previously in *QIP 2024*.
2. C. Bădescu, R. O'Donnell.
Improved quantum data analysis
TheoretCS, to appear. Previously in *STOC 2021*.
3. S. Flammia, R. O'Donnell.
Pauli error estimation via Population Recovery
Quantum 5, pp. 549 (2021).
Previously in *TQC 2021*.
4. R. O'Donnell, J. Wright.
Efficient quantum tomography.
Journal of the ACM, to appear. Previously in *STOC 2016*, *QIP 2016*.
5. S. Mohanty, R. O'Donnell, P. Paredes.
Explicit near-Ramanujan graphs of every degree.
SIAM Journal of Computing, special issue for *STOC 2020*.
6. R. O'Donnell, T. Schramm.
Sherali-Adams strikes back.
Theory of Computing 17(9), pp. 1-30 (2021).
Previously in *CCC 2019*.
7. A. De, R. O'Donnell, R. Servedio.
Sharp bounds for population recovery.
Theory of Computing 16(6), pp. 1-20 (2020).
8. A. De, R. O'Donnell, R. Servedio.
Optimal mean-based algorithms for trace reconstruction.
Annals of Applied Probability 29(2) pp. 851-874 (2019).
Previously in *STOC 2017*.
9. R. O'Donnell, A. C. C. Say
The weakness of CTC qubits and the power of approximate counting.
ACM Transactions on Computation Theory 10(2), no. 5 (2018).
10. R. O'Donnell, J. Wright.
A new point of NP-hardness for Unique Games.
Journal of the ACM, to appear.
Previously in *STOC 2012*.
11. G. Kindler, N. Kirshner, R. O'Donnell.
Gaussian noise sensitivity and Fourier tails.
Israel Journal of Mathematics 225(1), pp. 71-109 (2018).
Previously in *CCC 2012*.
12. I. Benjamini, S.-O. Chan, R. O'Donnell, O. Tamuz, L.-Y. Tan.
Convergence, unanimity and disagreement in majority dynamics on
unimodular graphs and random graphs.
Stochastic Processes and their Applications 126(9), pp. 2719-2733 (2016).

13. M. Kauers, R. O'Donnell, L.-Y. Tan, Y. Zhou.
Hypercontractive inequalities via SOS, and the Frankl-Rödl graph.
Discrete Analysis 4 (2016).
Previously in *SODA* 2014.
14. P. Austrin, R. O'Donnell, L.-Y. Tan, J. Wright.
New NP-hardness results for 3-Coloring and 2-to-1 Label Cover.
Transactions on Computation Theory 6(1), pp. 2:1-20 (2014).
Previously in *APPROX* 2012 under the title
"A new point of NP-hardness for 2-to-1 Label Cover"
15. R. O'Donnell, Y. Wu, Y. Zhou.
Optimal lower bounds for locality sensitive hashing
(except when q is tiny).
Transactions on Computation Theory 6(1), pp. 5:1-13 (2014).
Previously in *ITCS* 2011.
16. R. O'Donnell, K. Wimmer.
Sharpness of KKL on Schreier graphs.
Electronic Communications in Probability 18(8), pp. 1-12 (2013).
17. R. O'Donnell, K. Wimmer.
KKL, Kruskal-Katona, and monotone nets.
SIAM Journal on Computing 42(6), pp. 2375–2399 (2013).
Invited paper, special issue for *FOCS* 2009.
18. G. Kindler, R. O'Donnell, A. Rao, A. Wigderson.
Spherical cubes: optimal foams from computational hardness
amplification.
Communications of the ACM 55(10), pp. 90-97 (2012).
Previously in *FOCS* 2008 under the title
"Spherical cubes and rounding in high dimensions"
19. Joint with "D.H.J. Polymath" (a mathematical collective,
see <http://michaelnielsen.org/polymath1/>)
A new proof of the density Hales-Jewett theorem.
Annals of Mathematics 175(3), pp. 1283-1327 (2012).
20. R. O'Donnell, R. Servedio.
The Chow parameters problem.
SIAM Journal of Computing 40(1), pp. 165-199 (2011).
Previously in *STOC* 2008.
21. P. Gopalan, R. O'Donnell, R. Servedio, A. Shpilka, K. Wimmer.
Testing Fourier dimensionality and sparsity.
SIAM Journal on Computing 40(4), pp. 1075–1100 (2011).
Previously in *ICALP* 2009.
22. E. Blais, R. O'Donnell, K. Wimmer.
Polynomial regression under arbitrary product distributions.
Machine Learning 80(2-3), pp. 273–294 (2010).
Invited paper, special issue for *COLT* 2008.

23. R. O'Donnell, R. Servedio.
New degree bounds for polynomial threshold functions.
Combinatorica 30(3), pp. 327–358 (2010).
Previously in *STOC* 2003.
24. E. Mossel, R. O'Donnell, K. Oleszkiewicz.
Noise stability of functions with low influences: invariance and optimality
Annals of Mathematics 171(1), pp. 295–341 (2010).
Previously in *FOCS* 2005.
25. K. Matulef, R. O'Donnell, R. Rubinfeld, R. Servedio.
Testing halfspaces.
SIAM Journal of Computing 39(3), pp. 2004–2047 (2010).
Previously in *SODA* 2009.
26. S. Khot, R. O'Donnell.
SDP gaps and UGC-hardness for Max-Cut-Gain.
Theory of Computing 5, pp. 83–117 (2009).
Previously in *FOCS* 2006.
27. J. Feldman, R. O'Donnell, R. Servedio.
Learning mixtures of product distributions over discrete domains.
SIAM Journal of Computing 37(5), pp. 1536–1564 (2008).
Previously in *FOCS* 2005.
28. B. Bollobás, G. Kindler, I. Leader, R. O'Donnell.
Eliminating cycles in the discrete torus.
Algorithmica 50(4), pp. 446–454 (2008).
Invited paper, special issue for *LATIN* 2006.
29. R. O'Donnell, R. Servedio.
Extremal properties of polynomial threshold functions.
Journal of Computer and System Sciences 74(3), pp. 298–312 (2008).
Invited paper, special issue for *CCC* 2003.
30. R. O'Donnell, R. Servedio.
Learning monotone decision trees in polynomial time.
SIAM Journal of Computing 37(3), pp. 827–844 (2007).
Previously in *CCC* 2006.
31. I. Dinur, E. Friedgut, G. Kindler, R. O'Donnell.
On the Fourier tails of bounded functions over the discrete cube.
Israel Journal of Mathematics 160(1), pp. 389–412 (2007).
Previously in *STOC* 2006.
32. S. Khot, G. Kindler, E. Mossel, R. O'Donnell.
Optimal inapproximability results for MAX-CUT and other two-variable CSPs?
SIAM Journal of Computing 37(1), pp. 319–357 (2007).
Invited paper, special issue for *FOCS* 2004.

33. E. Mossel, R. O'Donnell, O. Regev, J. Steif, B. Sudakov.
Non-interactive correlation distillation, inhomogeneous Markov chains, and the reverse Bonami-Beckner inequality.
Israel Journal of Mathematics 154(1), pp. 299–336 (2006).
 34. N. Bshouty, E. Mossel, R. O'Donnell, R. Servedio.
Learning DNF from random walks.
Journal of Computer and System Sciences 71(3), pp. 250–265 (2005).
Invited paper, special issue for FOCS 2003.
 35. E. Mossel, R. O'Donnell.
Coin flipping from a cosmic source: On error correction of truly random bits.
Random Structures & Algorithms 26(4), pp. 418–436 (2005).
 36. E. Mossel, R. O'Donnell, R. Servedio.
Learning functions of k relevant variables.
Journal of Computer and System Sciences 69(3), pp. 421–434 (2004).
Invited paper, special issue for STOC 2003, previously titled
“Learning juntas”
 37. R. O'Donnell.
Hardness amplification within NP.
Journal of Computer and System Sciences 69(1) pp. 68–94 (2004).
Invited paper, special issue for STOC 2002.
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