

# Alexander A. Sherstov

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## RESEARCH INTERESTS

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My research is in theoretical computer science. I have broad interests that include complexity theory (in particular, communication complexity, circuit complexity, and analytic models of complexity), computational learning theory, and quantum computing.

## EDUCATION

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- University of Texas at Austin** 2003 – 2009  
Ph.D., Computer Science. GPA 4.00/4.00.  
Thesis title: “Lower Bounds in Communication Complexity and Learning Theory via Analytic Methods”  
Adviser: Adam R. Klivans
- Hope College**, Holland, Michigan 2000 – 2003  
B.S., Computer Science with a minor in Mathematics. GPA 4.00/4.00.  
Summa Cum Laude.
- American University in Bulgaria** 1999 – 2000  
Major in Computer Science. GPA 4.00/4.00.

## POSITIONS

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- Associate Professor**, University of California, Los Angeles July 2016 – present  
**Assistant Professor**, University of California, Los Angeles July 2011 – June 2016  
**Postdoctoral Researcher**, Microsoft Research New England 2009 – June 2011  
**Graduate Research Assistant**, University of Texas at Austin 2005 – 2009

## HONORS AND AWARDS

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- UCLA Campus-Wide Distinguished Teaching Award (UCLA’s highest honor for excellence in teaching) April 2021  
Northrop-Grumman Excellence in Teaching Award (the winner in UCLA’s School of Engineering) August 2014  
Alfred P. Sloan Foundation Research Fellowship February 2014  
NSF CAREER Award (highest-ranked proposal on the Algorithmic Foundations panel) November 2011  
Best Student Paper Award, 50th Annual IEEE Symposium on Foundations of Computer Science (FOCS) October 2009  
Best Student Paper Award, 23rd IEEE Conference on Computational Complexity (CCC) June 2008  
Best Student Paper Award, 22nd IEEE Conference on Computational Complexity (CCC) June 2007  
Best Student Paper Award, 19th Annual Conference on Learning Theory (COLT) June 2006  
Microelectronics and Computer Development (MCD) Fellowship, University of Texas at Austin Fall 2003  
Dean’s Excellence Award, College of Natural Sciences, University of Texas at Austin Fall 2003  
David Boundy Award for Outstanding Potential for Achievement in Computer Science, Hope College Spring 2003  
Gene Van Tamelen Prize for Creativity in the Sciences, Hope College Spring 2003  
Computing Research Association’s Outstanding Male Undergraduate Award, Finalist (top 6) December 2002  
Russell J. Kraay Award for Excellence in Computer Science, Hope College Spring 2002  
10-week fellowship for summer research in computer science, Hope College Summer 2001  
4-year Tanaka room and board scholarship, Hope College Spring 2000  
4-year full-tuition scholarship, Hope College Spring 2000

## CONFERENCE AND JOURNAL PUBLICATIONS

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The author order is alphabetical. Journal versions of articles are labeled with . Papers marked with a **special issue** tag have been invited to appear in special issues of journals, composed of the top papers from the corresponding conference.

- A. A. Sherstov. **The approximate degree of DNF and CNF formulas.** STOC '22  
54th Annual ACM Symposium on Theory of Computing, June 2022
- A. A. Sherstov, A. A. Storozhenko, P. Wu. **An optimal separation of randomized and quantum query complexity.** STOC '21  
53rd Annual ACM Symposium on Theory of Computing, June 2021
- A. A. Sherstov, J. Thaler. **Vanishing-error approximate degree and QMA complexity.**  
 To appear in *Chicago Journal of Theoretical Computer Science*, 2022
- A. Belovs, A. Castellanos, F. Le Gall, G. Malod, A. A. Sherstov.  
**Quantum communication complexity of distribution testing.**  
 *Quantum Information and Computation*, **21**(15&16): 1261–1273, 2021.
- A. A. Sherstov. **The hardest halfspace.**  
 *Computational Complexity*, **30**(2):11, 2021.
- A. A. Sherstov, P. Wu. **Near-optimal lower bounds on the threshold degree and sign-rank of  $AC^0$ .** STOC '19  
50th ACM Symposium on Theory of Computing (STOC), June 2019.  
 To appear in *SIAM Journal on Computing*, **special issue** for STOC '19.
- A. A. Sherstov. **Algorithmic polynomials.** STOC '18  
50th ACM Symposium on Theory of Computing (STOC), June 2018.  
 *SIAM Journal on Computing*, **49**(6):1173–1231, 2020.
- V. V. Podolskii, A. A. Sherstov. **Inner product and set disjointness: Beyond logarithmically many parties.**  
 *ACM Transactions on Computation Theory*, **12**(4): 26:1–26:28, 2020.
- A. A. Sherstov, P. Wu. **Optimal interactive coding for insertions, deletions, and substitutions.** FOCS '17  
58th Annual IEEE Symposium on Foundations of Computer Science (FOCS), October 2017.  
 *IEEE Transactions on Information Theory*, **65**(10):5971–6000, 2019.
- A. A. Sherstov. **On multiparty communication with large versus unbounded error.**  
 *Theory of Computing*, **14**(22):1–17, 2018.
- A. A. Sherstov. **Compressing interactive communication under product distributions.** FOCS '16  
57th Annual IEEE Symposium on Foundations of Computer Science (FOCS), October 2016.  
 *SIAM Journal on Computing*, **47**(2):367–419, 2018.
- V. Goyal, Y. Ishai, H. K. Maji, A. Sahai, A. A. Sherstov. **Bounded-communication leakage resilience via parity-resilient circuits** FOCS '16  
57th Annual IEEE Symposium on Foundations of Computer Science (FOCS), October 2016.
- A. A. Sherstov. **The power of asymmetry in constant-depth circuits.** FOCS '15  
56th Annual IEEE Symposium on Foundations of Computer Science (FOCS), October 2015.  
 *SIAM Journal on Computing*, **47**(6):2362–2434, 2018, **special issue** for FOCS '15.

- A. A. Sherstov. **Breaking the Minsky–Papert barrier for constant-depth circuits.** STOC '14  
 46th ACM Symposium on Theory of Computing (STOC), May–June 2014.  
 📄 *SIAM Journal on Computing*, **47**(5):1809–1857, 2018, **special issue** for STOC '14.
- A. A. Sherstov. **Communication complexity theory: Thirty-five years of set disjointness.** MFCS '14  
 39th International Symposium on Mathematical Foundations of Computer Science (MFCS), August 2014  
**Invited paper**
- A. A. Sherstov. **Approximating the AND-OR tree.**  
 📄 *Theory of Computing*, **9**(20):653–663, 2013.
- A. A. Sherstov. **Communication lower bounds using directional derivatives.** STOC '13  
 45th ACM Symposium on Theory of Computing (STOC), June 2013.  
 Invited to appear in *SIAM Journal on Computing* (SICOMP), **special issue** for STOC '13. (Declined in favor of *J. ACM*.)  
 📄 *Journal of the ACM*, **61**(6):1–71 (2014).
- A. A. Sherstov. **Making polynomials robust to noise.** STOC '12  
 44th ACM Symposium on Theory of Computing (STOC), May 2012.  
 📄 *Theory of Computing*, **9**(18):593–615, 2013. **Special issue** on Boolean function analysis.
- A. A. Sherstov. **The multiparty communication complexity of set disjointness.** STOC '12  
 44th ACM Symposium on Theory of Computing (STOC), May 2012.  
 📄 *SIAM Journal on Computing* (SICOMP), **45**(4): 1450–1489, 2016. **Special issue** for STOC '12.
- A. A. Sherstov. **The communication complexity of gap Hamming distance.**  
 📄 *Theory of Computing*, **8**(8):197–208, 2012.
- A. A. Sherstov. **Strong direct product theorems for quantum communication and query complexity.** STOC '11  
 43rd ACM Symposium on Theory of Computing (STOC), June 2011.  
 📄 *SIAM Journal on Computing*, **41**(5):1122–1165, 2012.
- D. Gavinsky and A. A. Sherstov. **A separation of NP and coNP in multiparty communication complexity.**  
 📄 *Theory of Computing*, **6**(10):227–245, 2010.
- A. A. Sherstov. **Optimal bounds for sign-representing the intersection of two halfspaces by polynomials.** STOC '10  
 42nd ACM Symposium on Theory of Computing (STOC), June 2010.  
 📄 *Combinatorica*, **33**(1):73–96, 2013.
- A. A. Sherstov. **On quantum-classical equivalence for composed communication problems.**  
 📄 *Quantum Information and Computation*, **10**(5-6):435–455, 2010.
- A. A. Sherstov. **The intersection of two halfspaces has high threshold degree.** FOCS '09  
 50th Annual IEEE Symposium on Foundations of Computer Science (FOCS), October 2009.  
 📄 *SIAM Journal on Computing* (SICOMP), **42**(6): 2329–2374, 2013. **Special issue** for FOCS '09.
- A. A. Razborov, A. A. Sherstov. **The sign-rank of  $AC^0$ .** FOCS '08  
 49th Annual IEEE Symposium on Foundations of Computer Science (FOCS), October 2008.  
 📄 *SIAM Journal on Computing*, **39**(5):1833–1855, 2010.
- A. A. Sherstov. **The unbounded-error communication complexity of symmetric functions.** FOCS '08  
 49th Annual IEEE Symposium on Foundations of Computer Science (FOCS), October 2008.  
 📄 *Combinatorica*, **31**(5):583–614, 2011.
- A. A. Sherstov. **Communication lower bounds using dual polynomials.**  
 📄 *Bulletin of the European Association for Theoretical Computer Science* (EATCS), **95**:59–93, 2008.  
**Invited survey**

- A. A. Sherstov. **The pattern matrix method for lower bounds on quantum communication.** STOC '08  
40th ACM Symposium on Theory of Computing (STOC), May 2008.  
📄 *SIAM Journal on Computing* (SICOMP), **40**(6):1969–2000, 2011. **Special issue** for STOC '08.
- A. A. Sherstov. **Communication complexity under product and nonproduct distributions.** CCC '08  
23rd IEEE Conference on Computational Complexity (CCC), June 2008.  
📄 *Computational Complexity*, **19**(1):135–150, 2010.
- A. A. Sherstov. **Approximate inclusion-exclusion for arbitrary symmetric functions.** CCC '08  
23rd IEEE Conference on Computational Complexity (CCC), June 2008.  
📄 *Computational Complexity*, **18**(2):219–247, 2009. **Special issue** for CCC '08.
- A. A. Sherstov. **Separating  $AC^0$  from depth-2 majority circuits.** STOC '07  
39th ACM Symposium on Theory of Computing (STOC), June 2007.  
📄 *SIAM Journal on Computing* (SICOMP), **38**(6):2113–2129, 2009.
- A. A. Sherstov. **Halfspace matrices.** CCC '07  
22nd IEEE Conference on Computational Complexity (CCC), June 2007.  
📄 *Computational Complexity*, **17**(2):149–178, 2008. **Special issue** for CCC '07.
- A. R. Klivans, A. A. Sherstov. **A lower bound for agnostically learning disjunctions.** COLT '07  
20th Annual Conference on Learning Theory (COLT), June 2007.  
📄 *Computational Complexity*, **19**(4):581–604, 2010.
- A. R. Klivans, A. A. Sherstov. **Cryptographic hardness for learning intersections of halfspaces.** FOCS '06  
47th Annual IEEE Symposium on Foundations of Computer Science (FOCS), October 2006.  
📄 *Journal of Computer and System Sciences*, **75**(1):2–12, 2009. **Special issue** on learning theory.
- A. R. Klivans, A. A. Sherstov. **Unconditional lower bounds for learning intersections of halfspaces.** COLT '06  
19th Annual Conference on Learning Theory (COLT), June 2006.  
📄 *Machine Learning*, **69**(2–3):97–114, 2007. **Special issue** for COLT '06.
- A. A. Sherstov. **Powering requires threshold depth 3.**  
📄 *Information Processing Letters*, **102**(2–3):104–107, 2007.
- A. A. Sherstov, P. Stone. **Improving action selection in MDP's via knowledge transfer.** AAAI '05  
20th National Conference on Artificial Intelligence (AAAI), July 2005.
- A. A. Sherstov, P. Stone. **Function approximation via tile coding: Automating parameter choice.** SARA '05  
6th Symposium on Abstraction, Reformulation, and Approximation (SARA), July 2005.
- A. A. Sherstov, P. Stone. **Three automated stock-trading agents: A comparative study.** AMEC '04  
6th AAMAS Workshop on Agent Mediated Electronic Commerce (AMEC), July 2004.

## RESEARCH FUNDING

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- National Science Foundation Award CCF-2220232**, award amount \$600,000 2022–2025  
Project title: “AF: Small: Polynomials, Communication, and Query Complexity”
- National Science Foundation Award CCF-1814947**, award amount \$500,000 2018–2022  
Project title: “AF: Small: Multiparty Communication, Polynomials, and Noise”
- Alfred P. Sloan Foundation**, award amount \$50,000 2014–2018  
Alfred P. Sloan Research Fellowship

**National Science Foundation Award CCF-1149018**, award amount \$499,995  
Project title: “CAREER: Limits of Communication”

2012–2018

## PROFESSIONAL SERVICE

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**Co-chaired the Workshops and Tutorials Committee at FOCS '21** (jointly with Vincent Cohen-Addad)

**Co-chaired the Workshops and Tutorials Committee at FOCS '20** (jointly with Nina Balcan)

**Program committee member**, STOC 2017, RANDOM 2016, CCC 2014, CSR 2011, ICML 2009

**Conference reviewer**, FOCS, STOC, CCC, COLT, CSR, ICS, ICALP, ICML, LATIN, RANDOM, STACS

**Journal reviewer**, *Journal of the ACM* (JACM), *SIAM Journal on Computing* (SICOMP), *Theory of Computing* (ToC), *Computational Complexity*, *Transactions on Computation Theory* (ToCT), *IEEE Transactions on Information Theory*, *Journal of Computer and System Sciences* (JCSS), *Quantum Information and Computation* (QIC), *Information Processing Letters* (IPL), and *Journal of Artificial Intelligence Research* (JAIR).

**Grant review panels**, Israel Science Foundation (2017, 2018), U.S.–Israel Binational Science Foundation (2014), National Science Foundation (2012)

**Guest Editor** of *Computational Complexity*, special issue for CCC '14

## ADVISING AND MENTORING

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**Ph.D. students**: Andrey Storozhenko (Ph.D. in progress), Pei Wu (Ph.D. 2021; winner of the 2020 Department-Wide Outstanding Graduate Student Research Award from UCLA Computer Science; winner of a 2020 Dissertation-Year Fellowship from the UCLA Graduate Division; now a postdoctoral fellow at the Institute for Advanced Study, Princeton, NJ)

**Undergraduate mentoring**: Glenn Sun (B.S. in progress), Kyle Hess (B.S. in progress), Justin Li (B.S. 2020, now a Ph.D. student at UIUC), Anton Lykov (B.S. 2020, now a Ph.D. student at the University of Washington), Nikola Samardzic (B.S. 2020, now a Ph.D. student at MIT), Ivy Wang (B.S. 2018, M.S. Stanford), Iris Cong (B.S. 2017, now a Ph.D. student at Harvard).

**Doctoral committees**: Yuan He (Computer Science), Eli Jaffe (Computer Science), Nathan Manohar (Computer Science), Ashutosh Kumar (Computer Science), Rex Fernando (Computer Science), Pan Xu (Computer Science), Hengjie Yang (Electrical & Computer Engineering), Aayush Jain (Computer Science), Prabhanjan Ananth (Computer Science), Saikrishna Badrinarayanan (Computer Science), Danh Luu (Mathematics), Divya Gupta (Computer Science), Dakshita Khurana (Computer Science), David Felber (Computer Science), Alan Roytman (Computer Science), Jad Hachem (Electrical Engineering), William Rosenbaum (Mathematics), Scott Garrabrant (Computer Science), Divya Gupta (Computer Science), Chen-kuei Lee (Computer Science), Samuel Miner (Mathematics), Joshua Lampkins (Mathematics), Vanishree Rao (Computer Science), Humberto Naves (Computer Science), Chongwon Cho (Computer Science)

**M.S. committees**: Alexis Korb (Computer Science), Aoxuan Li (Computer Science), Prashant Rajput (Computer Science), Manika Mittal (Computer Science), Joachim Valente (Computer Science)

## TEACHING

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### Teaching Awards:

UCLA Campus-Wide Distinguished Teaching Award (UCLA's highest honor for excellence in teaching)  
Northrop-Grumman Excellence in Teaching Award (the winner in UCLA's School of Engineering)

April 2021  
August 2014

### Courses taught at UCLA:

- **Spring 2022:** CS 181 “Formal Languages and Automata Theory.” Required undergraduate course for CS and CSE majors.
- **Winter 2022:** CS 281 “Computability and Complexity Theory.” Graduate course.
- **Winter 2021:** CS 289 “Current Topics in Computer Science Theory.” Advanced graduate course.
- **Fall 2020:** CS 281 “Computability and Complexity Theory.” Graduate course.
- **Winter 2020:** CS 181 “Formal Languages and Automata Theory.” Required undergraduate course for CS and CSE majors.
- **Fall 2019:** CS 181 “Formal Languages and Automata Theory.” Required undergraduate course for CS and CSE majors.
- **Spring 2019:** CS 289 “Current Topics in Computer Science Theory.” Advanced graduate course.
- **Winter 2019:** CS 281 “Computability and Complexity Theory.” Graduate course.
- **Fall 2018:** CS 181 “Formal Languages and Automata Theory.” Required undergraduate course for CS and CSE majors.
- **Spring 2018:** CS 289 “Current Topics in Computer Science Theory.” Advanced graduate course.
- **Winter 2018:** CS 281 “Computability and Complexity Theory.” Graduate course.
- **Fall 2017:** CS 181 “Formal Languages and Automata Theory.” Required undergraduate course for CS and CSE majors.
- **Spring 2017:** CS 281 “Computability and Complexity Theory.” Graduate course.
- **Fall 2016:** CS 181 “Formal Languages and Automata Theory.” Required undergraduate course for CS and CSE majors.
- **Spring 2016:** CS 289 “Current Topics in Computer Science Theory.” Advanced graduate course.
- **Winter 2016:** CS 281 “Computability and Complexity Theory.” Graduate course.
- **Fall 2015:** CS 181 “Formal Languages and Automata Theory.” Required undergraduate course for CS and CSE majors.
- **Spring 2015:** CS 181 “Formal Languages and Automata Theory.” Required undergraduate course for CS and CSE majors.
- **Fall 2014:** CS 289 “Current Topics in Computer Science Theory.” Advanced graduate course.
- **Spring 2014:** CS 181 “Formal Languages and Automata Theory.” Required undergraduate course for CS and CSE majors.
- **Winter 2014:** CS 281 “Computability and Complexity Theory.” Graduate course.
- **Fall 2013:** CS 289 “Current Topics in Computer Science Theory.” Advanced graduate course.
- **Spring 2013:** CS 181 “Formal Languages and Automata Theory.” Required undergraduate course for CS and CSE majors.
- **Winter 2013:** CS 281 “Computability and Complexity Theory.” Graduate course.
- **Spring 2012:** CS 281 “Computability and Complexity Theory.” Graduate course.
- **Winter 2012:** CS 289 “Current Topics in Computer Science Theory.” Advanced graduate course.

## INVITED TALKS

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- **Communication Complexity and Applications Workshop (Banff, Canada)** July 2022 (upcoming)  
Talk title: *The Approximate Degree of DNF and CNF formulas*
- **UCLA Electrical Engineering Department (at the invitation of UCLA’s Associate Dean Richard Wesel)** May 6, 2022  
Talk title: *Communication Complexity Theory: An Invitation*
- **Workshop on Algebraic Techniques in Theoretical Computer Science (Oaxaca, Mexico)** September 2021  
*Event canceled due to COVID-19 pandemic*

- **Algebraic Methods in Complexity Theory (St. Petersburg, Russia)** November 2021  
 Event canceled due to COVID-19 pandemic
- **Lower Bounds in Computational Complexity (Sochi Math Center, Russia)** August 2020/August 2021  
 Event canceled due to COVID-19 pandemic
- **University of Texas at Austin** September 25, 2020  
 Talk title: *An Optimal Separation of Randomized and Quantum Query Complexity*
- **Groups, Graphs, Growth, and Complexity Conference (Budapest, Hungary)** July 2020  
 On occasion of Laci Babai's 70th birthday  
 Event canceled due to COVID-19 pandemic
- **Information Theory and Applications Workshop (ITA)** February 3, 2020  
 Talk title: *Near-Optimal Lower Bounds on the Threshold Degree and Sign-Rank of  $AC^0$*
- **University of Texas at Austin** November 30, 2018  
 Talk title: *The Hardest Halfspace*
- **Interactive Complexity Workshop (Simons Institute for the Theory of Computing, Berkeley, CA)** October 15, 2018  
 Talk title: *The Hardest Halfspace*
- **Boolean Devices Workshop (Simons Institute for the Theory of Computing, Berkeley, CA)** September 11, 2018  
 Talk title: *Algorithmic Polynomials*
- **Workshop on Analytic Techniques in Theoretical Computer Science (Oaxaca, Mexico)** August 14, 2018  
*The Hardest Halfspace*
- **Information Theory and Applications Workshop (ITA)** February 13, 2018  
 Talk title: *Optimal interactive coding for insertions, deletions, and substitutions*
- **FOCS 17 Workshop on Hardness Escalation in Communication Complexity and Query Complexity** October 14, 2017  
 Talk title: *Lifting approximate degree to communication complexity*
- **Banff Workshop on Communication Complexity and Applications** March 21, 2017  
 Banff International Research Station (BIRS), Banff, Canada  
 Talk title: *Compressing Interactive Communication under Product Distributions*
- **Low-Depth Complexity Workshop** May 23, 2016  
 St. Petersburg, Russia  
 Talk title: *The Power of Asymmetry in Constant-Depth Circuits*
- **Information Theory and Applications Workshop (ITA)** February 4, 2016  
 University of California, San Diego  
 Talk title: *The Power of Asymmetry in Constant-Depth Circuits*
- **Southern California Theory Day** November 14, 2015  
 University of Southern California  
 Talk title: *The Power of Asymmetry in Constant-Depth Circuits*
- **UCSD** May 28, 2015  
 Talk title: *The Power of Asymmetry in Constant-Depth Circuits*
- **Caltech** February 13, 2015  
 Talk title: *Breaking the Minsky–Papert Barrier for Constant-Depth Circuits*
- **China Theory Week, Beijing, China** September 10, 2014  
 Keynote speaker  
 Talk title: *Communication Complexity Theory: Thirty-Five Years of Set Disjointness*

- **Mathematical Foundations of Computer Science (MFCS)**, Budapest, Hungary August 28, 2014  
 Invited plenary talk  
 Talk title: *Communication Complexity Theory: Thirty-Five Years of Set Disjointness*
- **Princeton University** April 11, 2014  
 Talk title: *Breaking the Minsky–Papert Barrier for Constant-Depth Circuits*
- **University of Washington** December 3, 2013  
 Talk title: *Communication Lower Bounds Using Directional Derivatives*
- **Banff Workshop on Computational Complexity** July 8, 2013  
 Banff International Research Station (BIRS), Banff, Canada  
 Talk title: *Communication Lower Bounds Using Directional Derivatives*
- **Annual UCLA Engineering Tech Forum** May 8, 2013  
 Talk title: *Limits of Communication*
- **TCS+ Online Seminar** April 24, 2013  
 Talk title: *Making Polynomials Robust to Noise*
- **Information Theory and Applications Workshop (ITA)** February 15, 2013  
 University of California, San Diego  
 Talk title: *The Multiparty Communication Complexity of Set Disjointness*
- **University of Southern California** November 29, 2012  
 Talk title: *Limits of Multiparty Communication*
- **University of California, Berkeley** February 3, 2012  
 Talk title: *The Multiparty Communication Complexity of Set Disjointness*
- **IBM Almaden** March 28, 2011  
 Talk title: *Limits of Communication*
- **Purdue University** March 24, 2011  
 Talk title: *Limits of Communication*
- **IBM Watson** March 7, 2011  
 Talk title: *Limits of Communication*
- **California Institute of Technology** March 3, 2011  
 Talk title: *Limits of Communication*
- **University of Southern California** February 28, 2011  
 Talk title: *Limits of Communication*
- **UCLA** February 10, 2011  
 Talk title: *Limits of Communication*
- **Rutgers University** February 7, 2011  
 Talk title: *Limits of Communication*
- **Center for Computational Intractability, Princeton, NJ** February 4, 2011  
 Talk title: *Strong Direct Product Theorems for Quantum Communication*
- **Massachusetts Institute of Technology** November 29, 2010  
 Talk title: *Direct Product Theorems for Communication and Query Complexity*
- **Moscow State University, Russia** October 4, 2010  
 Talk title: *Duality in Communication Complexity*

- **Indian Institute of Science, Bangalore, India** August 31, 2010  
 ICM 2010 Satellite Conf. on Algebraic and Probabilistic Aspects of Combinatorics and Computing  
 Talk title: *Duality in Communication Complexity*
- **Center for Computational Intractability, Princeton, NJ** August 29, 2010  
 Workshop on Barriers in Computational Complexity II  
 Talk title: *Quantum and Unbounded-Error Communication Complexity*  
 Invited survey talk
- **Banff Workshop on Computational Complexity** August 3, 2010  
 Banff International Research Station (BIRS), Banff, Canada  
 Talk title: *Symmetrization without Symmetries*
- **Princeton University** February 26, 2010  
 Talk title: *The Intersection of Two Halfspaces Has Maximum Threshold Degree*
- **Banff Workshop on Theory and Applications of Matrices Described by Patterns** February 3, 2010  
 Banff International Research Station (BIRS), Banff, Canada  
 Talk title: *Sign-Rank and the Polynomial Hierarchy in Communication Complexity*
- **IBM Almaden** January 12, 2010  
 Talk title: *The Intersection of Two Halfspaces Has Maximum Threshold Degree*
- **MIT/Microsoft Research Cryptography Seminar, Cambridge, MA** December 4, 2009  
 Talk title: *Cryptographic Hardness for Learning Intersections of Halfspaces*
- **Microsoft Research, Cambridge, MA** February 4, 2009  
 Talk title: *Lower Bounds on Communication Complexity Using Pattern Matrices*
- **Toyota Technological Institute at Chicago (TTIC)** February 2, 2009  
 Talk title: *Lower Bounds on Communication Complexity Using Pattern Matrices*
- **University of Chicago** January 30, 2009  
 Talk title: *Lower Bounds on Communication Complexity Using Pattern Matrices*
- **Massachusetts Institute of Technology** November 4, 2008  
 Talk title: *The Pattern Matrix Method for Communication Lower Bounds*
- **China Theory Week, Beijing, China** September 22, 2008  
 Talk title: *The Pattern Matrix Method for Communication Lower Bounds*
- **Dagstuhl Seminar on Computational Complexity of Discrete Problems, Germany** September 17, 2008  
 Talk title: *The Pattern Matrix Method for Lower Bounds on Bounded-Error Communication*
- **Banff Workshop on Analytic Tools in Computational Complexity** August 4, 2008  
 Banff International Research Station (BIRS), Banff, Canada  
 Talk title: *Sign-Rank*  
 Invited tutorial
- **Banff Workshop on Analytic Tools in Computational Complexity** August 5, 2008  
 Banff International Research Station (BIRS), Banff, Canada  
 Talk title: *The Sign-Rank of  $AC^0$*
- **University of Michigan at Ann Arbor** April 4, 2008  
 Talk title: *The Unbounded-Error Communication Complexity of Symmetric Functions*
- **Workshop on Discrete Harmonic Analysis and Its Applications** March 26, 2008  
 Cornell University  
 Talk title: *The Pattern Matrix Method for Lower Bounds on Quantum Communication*

- **Institute for Advanced Study, Princeton, NJ** October 2, 2007  
Talk title: *Unbounded-Error Communication Complexity of Symmetric Functions*
- **Institute for Advanced Study, Princeton, NJ** October 1, 2007  
Talk title: *The Pattern Matrix Method for Lower Bounds on Quantum Communication*
- **Columbia University** June 19, 2006  
Talk title: *Improved Lower Bounds for Learning Intersections of Halfspaces*