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INTERESTS
Algorithms for big data analysis, machine learning and data science, data privacy.

2014– **University of Pennsylvania**, Philadelphia, PA.
Postdoctoral Fellow at the **Warren Center for Network and Data Sciences**, hosted by the departments of **Computer and Information Sciences** and **Statistics at the Wharton Business School**. Mentors: Michael Kearns (CIS) and Elchanan Mossel (Stat).

2013–2014 **Brown University ICERM**, Providence, RI.
Institute Postdoctoral Fellow. Mentor: Philip Klein.

2010–2013 **Pennsylvania State University**, State College, PA (**Joined by invitation, didn't apply to any other Ph.D. programs**)
Ph.D., Thesis: "Efficient Combinatorial Techniques in Sparsification, Summarization and Testing of Large Datasets." Advisor: Sofya Raskhodnikova.

2008–2010 **Academic University of the Russian Academy of Sciences**, St. Petersburg, Russia
M.S. in Applied Mathematics and Physics.

2004–2008 **St. Petersburg State Polytechnic University**, St. Petersburg, Russia
B.S. in Physics and Technology.

RESEARCH INTERNSHIPS

Microsoft Research, Redmond, May 2013 – August 2013.
Theory group, mentored by Konstantin Makarychev.
- Approximation algorithms for correlation clustering (with S. Chawla, K. Makarychev, T. Schramm, STOC'15).

Microsoft Research, Silicon Valley, August 2012 – October 2012.
Theory group, mentored by Alexandr Andoni.
- MapReduce algorithms for large-scale geometric problems, including minimum-spanning trees, single-linkage clustering and bichromatic matching (with A. Andoni, A. Nikolov and K. Onak, STOC'14).

IBM Research, Almaden, May 2012 – July 2012.
Theory group, mentored by David P. Woodruff.
- Optimal bounds on one-way communication and space complexity of sketching multiple instances of data (with M. Molinaro and D. Woodruff, SODA'13).
- A protocol for computing the intersection of distributed databases with almost optimal round vs. communication tradeoffs (with D. Woodruff, PODC'14; U.S. patent pending).

AT&T Labs – Research, May 2011 — August 2011.
Database theory group, mentored by Graham Cormode, Cecilia M. Procopiuc, Divesh Srivastava and Howard Karloff.
- Design and implementation of efficient differentially private mechanisms for linear queries (with G. Cormode, M. Procopiuc and D. Srivastava, ICDE'13)

Achievements and awards

- **Warren Center Postdoctoral Fellowship** at University of Pennsylvania, 2014 —.
- **Institute Postdoctoral Fellowship** at Brown University, ICERM, 2013 — 2014.
- **Best Graduate Research Assistant at Computer Science and Engineering Department**, 2012.
- **TopCoder Open Algorithm Competition Finalist (Top 24 worldwide)**, 2010.
- **College of Engineering Fellowship**, 2010 — 2013.
- **University Graduate Fellowship**, 2010 — 2011.
- **Yandex personal research grant**, 2009 — 2010.

Conference Papers

Authors listed in alphabetical order unless otherwise specified:

- "Tight Bounds on Linear Sketches of Approximate Matchings", with S. Assadi, S. Khanna and Y. Li.

  SODA 2016 (27th Annual ACM-SIAM Symposium on Discrete Algorithms).

- "Amplification of One-Way Information Complexity via Codes and Noise Sensitivity", with M. Molinaro and D. Woodruff.

  ICALP 2015 (42nd International Colloquium on Automata, Languages and Programming).

- "Near Optimal LP Rounding Algorithm for Correlation Clustering on Complete and Complete k-partite Graphs", with S. Chawla, K. Makarychev and T. Schramm.

  STOC 2015 (47th ACM Symposium on the Theory of Computing).

- "Certifying Equality with Limited Interaction", with J. Brody, A. Chakrabarti, R. Kondapally and D. Woodruff.

  RANDOM 2014 (18th International Workshop on Randomization and Computation).

- "Beyond Set Disjointness: The Communication Complexity of Finding the Intersection", with J. Brody, A. Chakrabarti, R. Kondapally and D. Woodruff.

  PODC 2014 (33rd ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing).

- "Parallel Algorithms for Geometric Graph Problems", with A. Andoni, K. Onak and A. Nikolov.

  STOC 2014 (46th ACM Symposium on the Theory of Computing).

- "L_p-testing", with P. Berman and S. Raskhodnikova.

  STOC 2014 (46th ACM Symposium on the Theory of Computing).

- "Lower Bounds for Testing Properties of Functions over Hypergrid Domains", with E. Blais and S. Raskhodnikova.

  CCC 2014 (29th IEEE Conference on Computational Complexity).

- [1] "Accurate and Efficient Private Release of Datacubes and Contingency Tables". G. Yaroslavtsev, G. Cormode, C. Procopiuc and D. Srivastava.

  ICDE 2013 (29th IEEE International Conference on Data Engineering).

- "Beating the Direct Sum Theorem in Communication Complexity with Implications for Sketching", with Marco Molinaro and David Woodruff.

  SODA 2013 (24th Annual ACM-SIAM Symposium on Discrete Algorithms).

[1] This is the only paper with non-alphabetical ordering of authors

Invited to a special issue of "Algorithmica" on "Information Complexity and Applications".

- "Learning Pseudo-Boolean k-DNF and Submodular Functions", with S. Raskhodnikova.

  SODA 2013 (24th Annual ACM-SIAM Symposium on Discrete Algorithms).

- "Primal-dual algorithms for Node-Weighted Network Design in Planar Graphs", with . Berman.

  APPROX 2012 (15th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems).

- "Private Analysis of Graph Structure", with V. Karwa, S. Raskhodnikova and A. Smith.

  VLDB 2011 (37th International Conference on Very Large Data Bases), Research track.

- "Improved Approximation for the Directed Spanner Problem", with P. Berman, A. Bhattacharyya, K. Makarychev and S. Raskhodnikova.

  ICALP 2011 (38th International Colloquium on Automata, Languages and Programming).

  Runner-up for the Best Paper Award, invited to a special issue of a journal "Information and Computation".

- "Steiner Transitive-Closure Spanners of Low-Dimensional Posets", with P. Berman, A. Bhattacharrya, E. Grigorescu, S. Raskhodnikova and D. Woodruff.

  ICALP 2011 (38th International Colloquium on Automata, Languages and Programming).

- "Finding Efficient Circuits using SAT-solvers", with A. Kojevnikov and A. Kulikov.

  SAT 2009 (12th International Conference on Theory and Applications of Satisfiability Testing).

Journal Papers

Authors listed in alphabetical order:

- "Private Algorithms for the Protected in Social Network Search", with M. Kearns, A. Roth and S. Wu.

  PNAS (Proceedings of the National Academy of Sciences), via direct submission, 2016.

- "Certifying Equality with Limited Interaction", with J. Brody, A. Chakrabarti, R. Kondapally and D. Woodruff.

  Algorithmica, special issue on "Information Complexity and Applications", to appear.

- "Private Analysis of Graph Structure", with V. Karwa, S. Raskhodnikova and A. Smith.

  ACM Transactions on Database Systems, 2014.

- "Steiner Transitive-Closure Spanners of Low-Dimensional Posets", with P. Berman, A. Bhattacharyya, E. Grigorescu, S. Raskhodnikova and D. Woodruff.

  Combinatorica, 2014.

- "Approximation Algorithms for Spanner Problems and Directed Steiner Forest", with P. Berman, A. Bhattacharyya, K. Makarychev and S. Raskhodnikova.

  Information and Computation, special issue for ICALP'11, 2012.

- "New upper bounds on the Boolean Circuit Complexity of Symmetric Functions", with E. Demenkov, A. Kojevnikov and A. Kulikov.

  Information Processing Letters, 2010.