

Alexandr Andoni

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RESEARCH INTERESTS

Theoretical Computer Science, with a particular focus on: algorithmic foundations of massive data, sublinear algorithms, high-dimensional computational geometry, and theoretical machine learning.

EDUCATION

	Massachusetts Institute of Technology	Cambridge, MA
2005–'09	PhD in Computer Science. Research adviser: Piotr Indyk. Thesis title: <i>Nearest Neighbor Search: the Old, the New, and the Impossible</i> . Committee: Piotr Indyk, Robert Krauthgamer, and Ronitt Rubinfeld.	
2004–'05	Master of Engineering in Electrical Engineering and Computer Science. Thesis title: <i>Approximate Nearest Neighbor Problem in High Dimensions</i> . Supervised by Piotr Indyk.	
2001–'04	Bachelor of Science degree in Computer Science and Engineering, and Bachelor of Science degree in Mathematics. Departmental GPA: 5.0/5.0. Overall GPA: 4.9/5.0.	
	Politehnica University of Bucharest	Bucharest, Romania
1999–'01	Department of Computer Science and Automated Control. GPA: 9.89/10.0. Transferred to MIT.	

CAREER HISTORY

	Columbia University, Dept. of Computer Science	New York, NY
2015–	Associate Professor. Member of the Data Science Institute.	
	UCB/Simons Institute for the Theory of Computing	Berkeley, CA
2014–'15	Visiting scientist. Long-term participant in: Theoretical Foundations of Big Data Analysis (Fall'13), Algorithmic Spectral Graph Theory (Fall'14), Information Theory (Spring'15).	
	Microsoft Research Silicon Valley	Mountain View, CA
2010–'14	Researcher.	
	Princeton U/Center for Computational Intractability	Princeton, NJ
2009–'10	Postdoctoral researcher. Hosts: Sanjeev Arora (Princeton) and Assaf Naor (NYU).	
	Microsoft Research Silicon Valley	Mountain View, CA
Summer'08	Research intern.	
	IBM Almaden Research Center	San Jose, CA
Summer'07, '06	Research intern.	
	Google Inc.	Mountain View, CA
Summer'05	Summer Intern (software engineer).	
	Palo Alto Research Center, Computer Science Lab	Palo Alto, CA
Summer'04	Research intern.	

Microsoft Corporation

Redmond, WA

- Summer'03 Software Design Engineer intern in the Security Group.
- 2001–'02 Undergraduate researcher for Martin Rinard (co-supervised by Darko Marinov and Sarfraz Khurshid).

TEACHING

- Columbia University, Dept. of Computer Science** **New York, NY**
- Spring'25 COMS 4232 *Advanced Algorithms*. Enrollment: 35+1.
- Fall'24 COMS 4231 *Analysis of Algorithms*. Enrollment: 113+11.
- Spring'24 COMS 4232 *Advanced Algorithms*. Enrollment: 44+2.
- Fall'23 COMS 6998-15 *Algorithms for Massive Data*. Enrollment: 12+5.
- Spring'23 COMS 4232 *Advanced Algorithms*. Enrollment: 41+4.
- Fall'22 On sabbatical
- Summer A'22 COMS 4231 *Analysis of Algorithms*. Enrollment: 39+20.
- Spring'22 COMS 4232 *Advanced Algorithms*. Enrollment: 52+3.
- Fall'21 COMS 4231 *Analysis of Algorithms*. Enrollment: 110.
- Spring'21 COMS 4995-8 *Advanced Algorithms*. Enrollment: 41.
- Fall'20 CSOR 4231-2 *Analysis of Algorithms*. Enrollment: 87.
- Spring'20 COMS 4995-2 *Advanced Algorithms*. Enrollment: 51.
- January'20 Taught lectures on high-dimensional computational geometry at the *Columbia Year of Statistical Machine Learning Bootcamp*.
- Fall'19 CSOR 4231 *Analysis of Algorithms*. Enrollment: 112 (002 section) and 47 (H02+V02 section).
- Spring'19 COMS E6998-9 *Algorithms for Massive Data*. Enrollment: 42.
- August'18 Taught lectures on sublinear algorithmic tools at the *TRIPODS Bootcamp Lectures* (as co-organizer).
- Spring'18 CSOR 4231 *Analysis of Algorithms*. Enrollment: 119 (001 section) and 26 (H01 section).
- Fall'17 COMS E6998-5 *Algorithms through Geometric Lens*. Enrollment: 22.
- Spring'17 COMS W4995-3 *Advanced Algorithms*. Enrollment: 43.
- Fall'16 CSOR 4231 *Analysis of Algorithms*. Enrollment: 104.
- Fall'15 COMS 6998-9 *Algorithmic Techniques for Massive Data*. Enrollment: 20.
- MADALGO Center for Massive Data Algorithmics** **Aarhus, Denmark**
- August'15 Taught lectures on sketching and nearest neighbor search during the *MADALGO Summer School on Streaming*. (By invitation.)
- International school of Mathematics "Guido Stampacchia"** **Erice, Italy**
- September'14 Taught lectures on "Sampling in Graphs" at the *Graph Theory, Algorithms and Applications (3rd edition)* summer school. (By invitation.)
- University of Copenhagen** **Copenhagen, Denmark**

July'14	Taught lectures on high dimensional geometry at the <i>Summer School on Hashing: Theory and Practice</i> . (By invitation.) Moscow State University Moscow, Russia
August'13	Taught lectures on “Sketching, Sampling, and other Sublinear Algorithms” at the <i>School on Algorithms for MASSive DATA (ALMADA)</i> . (By invitation.) MADALGO Center for Massive Data Algorithmics Aarhus, Denmark
August'11	Taught lectures on “Embedding and Sketching” during the <i>MADALGO & CTIC Summer School on High-Dimensional Geometric Computing</i> . (By invitation.) MIT, EECS Department Cambridge, MA
Fall'07	Teaching Assistant (Head TA) for 6.046, <i>Introduction to Algorithms</i> , taught by Ronitt Rubinfeld and Madhu Sudan.
Fall'04	Teaching Assistant for 6.854, <i>Advanced Algorithms</i> , taught by David Karger.
Oct'04–Sep'06	Coach of MIT's team for the ACM International Collegiate Programming Contest (in a committee of 2–4 coaches). National Center for Information Technology (CNTI) Chişinău, Moldova
Oct'98–Feb'99, Aug'99, Aug'00	Coach of Moldova's team for International Olympiads in Informatics (usually in a committee of 2-3 coaches). Gave lectures and organized training contests.

ORGANIZATIONAL ACTIVITIES

- Local co-organizer of ITCS'25 at Columbia University. New York, NY. Jan'25.
- Co-organizer of the DIMACS Workshop on Efficient Algorithms for High Dimensional Metrics: New Tools. Rutgers, NJ. May'24.
- Co-organizer of the New York Area Theory Day (a day-long workshop twice a year), New York. December'15–December'19.
- Co-organizer of the Columbia DSI/TRIPODS Deep Learning Workshop, New York, NY. Mar'19.
- Co-organizer of the “Fast Iterative Methods in Optimization” workshop in the “Bridging Continuous and Discrete Optimization” semester-long program at the Simons Institute for the Theory of Computing, Berkeley, CA. Oct'17.
- Organizer of the Simons Collaboration on Algorithms & Geometry Meeting (day-long workshop) on “Dimension reduction and sketching”, New York. Sep'17.
- Organizer of the Simons Collaboration on Algorithms & Geometry Meeting (day-long workshop) on “Graph Algorithms and Continuous Optimization”, New York. Mar'17.
- Co-organizer of the FOCS'16 Workshop/Tutorial Day, New Brunswick, NJ. Oct'16.
- Co-organizer of the STOC'16 Workshop/Tutorial Day, Boston, MA. Jun'16.
- Co-organizer of the DIMACS Workshop on “Big Data through the Lens of Sublinear Algorithms”, Rutgers, NJ. Aug'15.
- Co-organizer of the “Bertinoro Workshop on Sublinear Algorithms 2014”, Italy. May'14.
- Co-organizer of the “Data Structures (in memory of Mihai Pătraşcu)” workshop at FOCS'12, New Brunswick, NJ. Oct'12.
- Co-organizer of the Workshop on Embeddings as part of the Discrete Analysis programme at the Isaac Newton Institute for Mathematical Sciences, Cambridge, UK. Jan'11.

SERVICE

Outside Service:

- Program Committee member of: SODA'26, FOCS'25, SODA'25, COLT'24 (AC), ITCS'23, SODA'23, SOSA'22, NeurIPS'21 (area chair), FOCS'21, COLT'21 (senior PC), SODA'20, FOCS'19, COLT'19, SoCG'19, COLT'18, ICALP'18, FSTTCS'17, STOC'16, ESA'16, RANDOM'15, SODA'15, FOCS'13, MASSIVE'12, APPROX'12, ESA'12 (experimental track), CPM'11, STOC'11, RANDOM'10.
- *SIAM Journal of Computing (SICOMP)* guest editor for STOC'16 special issue.
- *Transactions on Algorithms (TALG)* guest editor for SODA'15 special issue.
- *Theory of Computing (Toc)* guest editor for APPROX/RANDOM'12 special issue.
- Panelist for: National Science Foundation (NSF), 7 panels.
- Reviewer for National Science Foundation (NSF), US-Israel Binational Science Foundation (BSF), ISF, Swiss National Science Foundation (SNSF).
- Participant at the SIGACT Committee for the Advancement of Theoretical Computer Science “Visioning Workshop”, Jul'20.
- Reviewer for: STOC, FOCS, SODA, NIPS, ICML, AAI, SoCG, CCC, COLT, ICALP, PODS, DISC, SWAT, RANDOM, ALENEX, ESA, CPM, CIKM, RSA-CT; J. ACM, SICOMP, JoCG, TALG, Information & Computation, IEEE Info. Theory, IPL, Algorithmica, IEEE Trans. on Computers, TPAMI, Random Structures and Algorithms.

Public outreach:

- ICPC talk series. July'21.
- Simons Foundation Lecture at the Simons Foundation, New York. May'17.

SELECTED INVITED TALKS

- Keynote talk at International Conference on Similarity Search and Applications (SISAP), Tokyo, Japan. October 2016.
- Invited talk at the *Highlights of Algorithms* conference, Paris, France. June 2016.
- “Big Data Boot Camp” lectures on “Algorithmic High-Dimensional Geometry”, at the Simons Institute for the Theory of Computing, Berkeley, CA. September 2013.
- Keynote talk at International Symposium on Mathematical Foundations of Computer Science, Warsaw, Poland. August 2011.

STUDENTS AND POSTDOCS SUPERVISED

Students:

- Styopa Zharkov (started Fall'2024, co-supervised);
- Jingwen Liu (started Fall'2023, co-supervised);
- Hantao Yu (started Fall'2022, co-supervised);
- Hengjie Zhang (started Fall'2019, co-supervised);
- Shunhua Jiang (started Fall'2019, co-supervised);
- Negev Shekel-Nosatzki (started Spring'18, co-supervised).
- Kiran Vodrahalli (2017-'22, Google Research).
- Sandip Sinha (2016-'22, Walmart Research);
- Peilin Zhong (2016-'21, Google Research NYC);

Postdocs:

- Jarosław Błasiok (2019–2023, faculty at Bocconi University, Italy);
- Arnold Filtser (2019–2021, faculty at Bar Ilan U, Israel);
- Ben Cousins (2018–2019);
- Sepideh Mahabadi (2017–2018; then research assistant professor at TTI Chicago, senior researcher at MSR Redmond);
- Ilya Razensheyn (Fall 2017; then MSR Redmond);

Past interns (mentored at MSR Silicon Valley, 2011–2014):

- Ilya Razenshteyn, 2014 (junior fellow of the Simons Society of Fellows; now at Microsoft Research);
- Amirali Abdullah, 2013 (postdoc at U. Michigan, now at Qualtrics);
- Grigory Yaroslavtsev, 2012 (now faculty at University of Indiana);
- Huy L Nguyen, 2011 (now faculty at Northeastern University).

PUBLICATIONS: BOOK CHAPTERS & SURVEYS

B4. **Approximate Nearest Neighbor Search in High Dimensions**

by Alexandr Andoni, Piotr Indyk, Ilya Razenshteyn.
In Proceedings of the *International Congress of Mathematicians*, 2018.

B3. **Nearest neighbors in high-dimensional spaces**

by Alexandr Andoni, Piotr Indyk.
Book chapter in *Handbook of Discrete and Computational Geometry (3rd edition)*, Jacob E. Goodman, Joseph O’Rourke, and Csaba D. Tóth (eds), CRC Press LLC, 2017.

B2. **High-dimensional computational geometry**

by Alexandr Andoni.
Book chapter in *Handbook on Big Data*, Peter Buhlmann, Petros Drineas, Michael Kane, Mark van der Laan (eds.), CRC Press, 2016.

B1. **Locality-sensitive hashing using stable distributions**

Alexandr Andoni, Mayur Datar, Nicole Immorlica, Piotr Indyk, Vahab Mirrokni.
Book chapter in *Nearest Neighbor Methods in Learning and Vision: Theory and Practice*, T. Darrell and P. Indyk and G. Shakhnarovich (eds.), MIT Press, 2006.

PUBLICATIONS: CONFERENCE PROCEEDINGS

C67. **Fast attention mechanisms: a tale of parallelism**

by Jingwen Liu, Hantao Yu, Clayton Sanford, Alexandr Andoni, Daniel Hsu.
In **NeurIPS** (*Conference on Neural Information Processing Systems*), 2025.

C66. **A Framework for Building Data Structures from Communication Protocols**

by Alexandr Andoni, Shunhua Jiang, Omri Weinstein.
In **STOC** (*Symposium on Theory of Computation*), 2025.

C65. **Faster Algorithms for Average-Case Orthogonal Vectors and Closest Pair Problems**

by Josh Alman, Alexandr Andoni, Hengjie Zhang.
In **SOSA** (*Symposium on Simplicity in Algorithms*), 2025.

C64. **Statistical-Computational Trade-offs for Density Estimation**

by Anders Aamand, Alexandr Andoni, Justin Y. Chen, Piotr Indyk, Shyam Narayanan, Sandeep Silwal, Haike Xu.
In **NeurIPS** (*Conference on Neural Information Processing Systems*), 2024.

C63. **Differentially Private Approximate Near Neighbor Counting in High Dimensions**

by Alexandr Andoni, Piotr Indyk, Sepideh Mahabadi, Shyam Narayanan.
In **NeurIPS** (*Conference on Neural Information Processing Systems*), 2023.

- C62. **Sub-quadratic $(1 + \epsilon)$ -approximate Euclidean Spanners, with Applications**
 by Alexandr Andoni, Hengjie Zhang.
 In **FOCS** (*Symposium on Foundations of Computer Science*), 2023.
- C61. **Data Structures for Density Estimation**
 by Anders Aamand, Alexandr Andoni, Justin Y. Chen, Piotr Indyk, Shyam Narayanan, Sandeep Silwal.
 In **ICML** (*International Conference on Machine Learning*), 2023.
- C60. **Massively Parallel Tree Embeddings for High Dimensional Spaces**
 by AmirMohsen Ahanchi, Alexandr Andoni, MohammadTaghi Hajiaghayi, Marina Knittel, Peilin Zhong.
 In **SPAA** (*ACM Symposium on Parallelism in Algorithms and Architectures*), 2023.
- C59. **Communication Complexity of Inner Product in Symmetric Normed Spaces**
 by Alexandr Andoni, Arnold Filtser, Jarosław Błasiok.
 In **ITCS** (*Innovations in Theoretical Computer Science*), 2023.
- C58. **Estimating the Longest Increasing Subsequence in Nearly Optimal Time**
 by Alexandr Andoni, Negev Shekel Nosatzki, Sandip Sinha, Clifford Stein.
 In **FOCS** (*Symposium on Foundations of Computer Science*), 2022.
- C57. **Learning to Hash Robustly, Guaranteed**
 by Alexandr Andoni, Daniel Beaglehole.
 In **ICML** (*International Conference on Machine Learning*), 2022.
- C56. **Approximate Nearest Neighbors Beyond Space Partitions**
 by Alexandr Andoni, Aleksandar Nikolov, Ilya Razenshteyn, Erik Waingarten.
 In **SODA** (*Symposium on Discrete Algorithms*), 2021.
- C55. **Edit Distance in Near-Linear Time: it’s a Constant Factor**
 by Alexandr Andoni, Negev Shekel Nosatzki.
 In **FOCS** (*Symposium on Foundations of Computer Science*), 2020. Invited to **SICOMP** special issue (in submission).
- C54. **Streaming Complexity of SVMs**
 by Alexandr Andoni, Collin Burns, Yi Li, Sepideh Mahabadi, David P. Woodruff.
 In **APPROX** (*International Conference on Approximation Algorithms for Combinatorial Optimization Problems*), 2020.
- C53. **Parallel Approximate Undirected Shortest Paths Via Low Hop Emulators**
 by Alexandr Andoni, Cliff Stein, Peilin Zhong.
 In **STOC** (*Symposium on Theory of Computation*), 2020.
- C52. **Two Party Distribution Testing: Communication and Security**
 by Alexandr Andoni, Tal Malkin, Negev Shekel Nosatzki.
 In **ICALP** (*International Colloquium on Automata, Languages and Programming*), 2019.
- C51. **Log Diameter Rounds Algorithms for 2-Vertex and 2-Edge Connectivity**
 by Alexandr Andoni, Cliff Stein, Peilin Zhong.
 In **ICALP** (*International Colloquium on Automata, Languages and Programming*), 2019.
- C50. **Attribute-efficient learning of monomials over highly-correlated variables**
 by Alexandr Andoni, Rishabh Dudeja, Daniel Hsu, Kiran Vodrahalli.
 In **ALT** (*International Conference on Algorithmic Learning Theory*), 2019.
- C49. **On Solving Linear Systems in Sublinear Time**
 by Alexandr Andoni, Robert Krauthgamer, Yosef Pogrow.
 In **ITCS** (*Innovations in Theoretical Computer Science*), 2019.
- C48. **Parallel Graph Connectivity in Log Diameter Rounds**
 by Alexandr Andoni, Zhao Song, Clifford Stein, Zhengyu Wang, Peilin Zhong.
 In **FOCS** (*Symposium on Foundations of Computer Science*), 2018.

- C47. **Holder Homeomorphisms and Approximate Nearest Neighbors**
by Alexandr Andoni, Assaf Naor, Aleksandar Nikolov, Ilya Razenshteyn, Erik Waingarten.
In **FOCS** (*Symposium on Foundations of Computer Science*), 2018.
- C46. **Subspace Embedding and Linear Regression with Orlicz Norm**
by Alexandr Andoni, Chengyu Lin, Ying Sheng, Peilin Zhong, Ruiqi Zhong.
In **ICML** (*International Conference on Machine Learning*), 2018.
- C45. **Data-Dependent Hashing via Nonlinear Spectral Gaps**
by Alexandr Andoni, Assaf Naor, Aleksandar Nikolov, Ilya Razenshteyn, Erik Waingarten.
In **STOC** (*Symposium on Theory of Computation*), 2018.
- C44. **Correspondence retrieval**
by Alexandr Andoni, Daniel Hsu, Kevin Shi, and Xiaorui Sun.
In **COLT** (*Conference On Learning Theory*), 2017.
- C43. **Approximate Near Neighbors for General Symmetric Norms**
by Alexandr Andoni, Huy L. Nguyen, Aleksandar Nikolov, Ilya Razenshteyn, Erik Waingarten.
In **STOC** (*Symposium on Theory of Computation*), 2017.
- C42. **High Frequency Moments via Max-Stability**
by Alexandr Andoni.
In **ICASSP** (*International Conference on Acoustics, Speech, and Signal Processing*), special session on *Random Embeddings and Geometry-Preserving Dimensionality Reduction*, 2017.
- C41. **Optimal Hashing-based Time-Space Trade-offs for Approximate Near Neighbors**
by Alexandr Andoni, Thijs Laarhoven, Ilya Razenshteyn, Erik Waingarten.
In **SODA** (*Symposium on Discrete Algorithms*), 2017.
Invited to **T.Alg.** special issue.
- C40. **LSH Forest: Practical Algorithms Made Theoretical**
by Alexandr Andoni, Ilya Razenshteyn, Negev Shekel–Nosatzki.
In **SODA** (*Symposium on Discrete Algorithms*), 2017.
- C39. **Impossibility of Sketching of the 3D Transportation Metric with Quadratic Cost**
by Alexandr Andoni, Assaf Naor, Ofer Neiman.
In **ICALP** (*International Colloquium on Automata, Languages and Programming*), 2016.
- C38. **Tight Lower Bounds for Data-Dependent Locality-Sensitive Hashing**
by Alexandr Andoni, Ilya Razenshteyn.
In **SoCG** (*International Symposium on Computational Geometry*), 2016.
- C37. **On Sketching Quadratic Forms**
by Alexandr Andoni, Jiecao Chen, Robert Krauthgamer, Bo Qin, David P. Woodruff, and Qin Zhang.
In **ITCS** (*Innovations in Theoretical Computer Science*), 2016.
- C36. **Interacting with Large Distributed Datasets Using Sketch**
by Mihai Badiu, Rebecca Isaacs, Derek Murray, Gordon Plotkin, Paul Barham, Samer Al-Kiswany, Yazan Boshmaf, Qingzhou Luo, Alexandr Andoni.
In Eurographics Symposium on Parallel Graphics and Visualization, 2016.
- C35. **Practical and Optimal LSH for Angular Distance**
by Alexandr Andoni, Piotr Indyk, Thijs Laarhoven, Ilya Razenshteyn, and Ludwig Schmidt.
In **NeurIPS** (*Conference on Neural Information Processing Systems*), 2015.
- C34. **Optimal Data-Dependent Hashing for Approximate Near Neighbors**
by Alexandr Andoni, Ilya Razenshteyn.
In **STOC** (*Symposium on Theory of Computation*), 2015.
- C33. **Sketching and Embedding are Equivalent for Norms**
by Alexandr Andoni, Robert Krauthgamer and Ilya Razenshteyn.
In **STOC** (*Symposium on Theory of Computation*), 2015.
Invited to **SICOMP** special issue.

- C32. **Spectral Approaches to Nearest Neighbor Search**
by Amirali Abdullah, Alexandr Andoni, Ravi Kannan, Robert Krauthgamer.
In **FOCS** (*Symposium on Foundations of Computer Science*), 2014.
- C31. **Learning Polynomials with Neural Networks**
by Alexandr Andoni, Rina Panigrahy, Gregory Valiant, Li Zhang.
In **ICML** (*International Conference on Machine Learning*), 2014.
- C30. **Parallel Algorithms for Geometric Graph Problems**
by Alexandr Andoni, Aleksandar Nikolov, Krzysztof Onak, Grigory Yaroslavtsev.
In **STOC** (*Symposium on Theory of Computation*), 2014.
- C29. **Beyond Locality Sensitive Hashing**
by Alexandr Andoni, Piotr Indyk, Huy L. Nguyen, Ilya Razenshteyn.
In **SODA** (*Symposium on Discrete Algorithms*), 2014.
- C28. **Towards $(1 + \epsilon)$ -Approximate Flow Sparsifiers**
by Alexandr Andoni, Robert Krauthgamer, Anupam Gupta.
In **SODA** (*Symposium on Discrete Algorithms*), 2014.
- C27. **Learning Sparse Polynomial Functions**
by Alexandr Andoni, Rina Panigrahy, Gregory Valiant, Li Zhang.
In **SODA** (*Symposium on Discrete Algorithms*), 2014.
- C26. **Tight Lower Bound for Linear Sketches of Moments**
by Alexandr Andoni, Huy L. Nguyen, Yury Polyanskiy, Yihong Wu.
In **ICALP** (*International Colloquium on Automata, Languages and Programming*), 2013.
- C25. **Homomorphic Fingerprints under Misalignments: Sketching Edit and Shift Distances**
by Alexandr Andoni, Assaf Goldberger, Andrew McGregor, Ely Porat.
In **STOC** (*Symposium on Theory of Computation*), 2013.
- C24. **Shift Finding in Sub-linear Time**
by Alexandr Andoni, Haitham Hassanieh, Piotr Indyk, Dina Katabi.
In **SODA** (*Symposium on Discrete Algorithms*), 2013.
- C23. **Eigenvalues of a Matrix in the Streaming Model**
by Alexandr Andoni, Huy L. Nguyen.
In **SODA** (*Symposium on Discrete Algorithms*), 2013.
- C22. **Width of Points in the Streaming Model**
by Alexandr Andoni, Huy L. Nguyen.
In **SODA** (*Symposium on Discrete Algorithms*), 2012.
Invited to **T.Alg.** special issue (appears as J6).
- C21. **Streaming Algorithms via Precision Sampling**
by Alexandr Andoni, Robert Krauthgamer, Krzysztof Onak.
In **FOCS** (*Symposium on Foundations of Computer Science*), 2011.
- C20. **Near Linear Lower Bounds for Dimension Reduction in L1**
by Alexandr Andoni, Moses Charikar, Ofer Neiman, Huy L. Nguyen.
In **FOCS** (*Symposium on Foundations of Computer Science*), 2011.
- C19. **Polylogarithmic Approximation to Edit Distance and Asymmetric Query Complexity**
by Alexandr Andoni, Robert Krauthgamer, Krzysztof Onak.
In **FOCS** (*Symposium on Foundations of Computer Science*), 2010.
Invited to **SIAM J. Comp.** special issue (declined); full version as arxiv.org/abs/1005.4033.
- C18. **Global Alignment of Molecular Sequences via Ancestral State Reconstruction**
by Alexandr Andoni, Constantinos Daskalakis, Avinatan Hassidim, Sebastien Roch.
In **ICS** (*Innovations in Computer Science*), 2010.

- C17. **Lower bounds for Edit Distance and Product Metrics via Poincare-Type Inequalities**
 by Alexandr Andoni, T.S. Jayram, Mihai Pătraşcu.
 In **SODA** (*Symposium on Discrete Algorithms*), 2010.
- C16. **Near-optimal Sublinear Time Algorithms for Ulam Distance**
 by Alexandr Andoni, Huy L. Nguyen.
 In **SODA** (*Symposium on Discrete Algorithms*), 2010.
- C15. **Efficient sketches for Earth-Mover Distance, with applications**
 by Alexandr Andoni, Khanh Do Ba, Piotr Indyk, David Woodruff.
 In **FOCS** (*Symposium on Foundations of Computer Science*), 2009.
- C14. **External Sampling**
 by Alexandr Andoni, Piotr Indyk, Krzysztof Onak, Ronitt Rubinfeld.
 In **ICALP** (*International Colloquium on Automata, Languages and Programming*), 2009.
- C13. **Approximating Edit Distance in Near-Linear Time**
 by Alexandr Andoni, Krzysztof Onak.
 In **STOC** (*Symposium on Theory of Computation*), 2009.
 Invited to **SIAM J. Comp.** special issue (appears as J5).
- C12. **Approximate Line Nearest Neighbor in High Dimensions**
 by Alexandr Andoni, Piotr Indyk, Robert Krauthgamer, Huy L. Nguyen.
 In **SODA** (*Symposium on Discrete Algorithms*), 2009.
- C11. **Overcoming the L1 Non-Embeddability Barrier: Algorithms for Product Metrics**
 by Alexandr Andoni, Piotr Indyk, Robert Krauthgamer.
 In **SODA** (*Symposium on Discrete Algorithms*), 2009.
- C10. **Hardness of Nearest Neighbor under ℓ_∞**
 by Alexandr Andoni, Dorian Croitoru, Mihai Pătraşcu.
 In **FOCS** (*Symposium on Foundations of Computer Science*), 2008.
 Invited to **Discrete & Computational Geometry** (declined).
- C9. **The Smoothed Complexity of Edit Distance**
 by Alexandr Andoni, Robert Krauthgamer.
 In **ICALP** (*International Colloquium on Automata, Languages and Programming*), 2008.
 Journal version appears as J4.
- C8. **Earth Mover Distance over High-Dimensional Spaces**
 by Alexandr Andoni, Piotr Indyk, Robert Krauthgamer.
 In **SODA** (*Symposium on Discrete Algorithms*), 2008.
- C7. **The Computational Hardness of Estimating Edit Distance**
 by Alexandr Andoni, Robert Krauthgamer.
 In **FOCS** (*Symposium on Foundations of Computer Science*), 2007.
 Invited to **SIAM J. Comp.** special issue (appears as J2).
- C6. **Testing k -wise and Almost k -wise Independence**
 by Noga Alon, Alexandr Andoni, Tali Kaufman, Kevin Matulef, Ronitt Rubinfeld, Ning Xie.
 In **STOC** (*Symposium on Theory of Computation*), 2007.
- C5. **Near-optimal Hashing Algorithms for Approximate Nearest Neighbor in High Dimensions**
 by Alexandr Andoni, Piotr Indyk.
 In **FOCS** (*Symposium on Foundations of Computer Science*), 2006.
 Invited to **C.ACM Research Highlights** (appears as J1).
- C4. **On Optimality of the Dimensionality Reduction Method**
 by Alexandr Andoni, Piotr Indyk, Mihai Pătraşcu.
 In **FOCS** (*Symposium on Foundations of Computer Science*), 2006.

- C3. **Efficient Algorithms for Substring Near Neighbor Problem**
by Alexandr Andoni, Piotr Indyk.
In **SODA** (*Symposium on Discrete Algorithms*), 2006.
- C2. **Graceful Service Degradation (or, How to Know your Payment is Late)**
by Alexandr Andoni, Jessica Staddon.
In **EC** (*Conference on Electronic Commerce*), 2005.
- C1. **Lower Bounds for Embedding of Edit Distance into Normed Spaces**
by Alexandr Andoni, Michel Deza, Anupam Gupta, Piotr Indyk, Sofya Raskhodnikova.
In **SODA** (*Symposium on Discrete Algorithms*), 2003.

PUBLICATIONS: JOURNALS

- J7. **Universalité des espaces de Wasserstein à floconnage près (Eng. Snowflake Universality of Wasserstein Spaces)**
by Alexandr Andoni, Assaf Naor, Ofer Neiman.
Annales scientifiques de l'ENS (Eng. Scientific Annals of ENS), accepted, 2017.
- J6. **Width of Points in the Streaming Model**
by Alexandr Andoni, Huy L. Nguyen.
T.Alg. (ACM Transactions on Algorithms, SODA special issue), 12(1):5, 2016.
- J5. **Approximating Edit Distance in Near-Linear Time**
by Alexandr Andoni, Krzysztof Onak.
SICOMP (SIAM J. Comp., STOC special issue), 41(6):1635–1648, 2012.
- J4. **The Smoothed Complexity of Edit Distance**
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