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Mikhail Belkin — Curriculum Vitae

Research Interests

- Mathematical, statistical and computational foundations and limitations of learning from data.
- Machine learning, statistical analysis of natural data and applications.
- Spectral, manifold and kernel methods for machine learning.
- Semi-supervised learning and clustering.
- Scalable implementations.

Academic Experience

- Ohio State University, Professor,
Department of Computer Science and Engineering,
Department of Statistics (courtesy appointment), 2017 – present.
- Simons Institute for the Theory of Computing, Berkeley,
Visiting Faculty, Jan 2017 – May 2017.
- Ohio State University, Associate Professor,
Department of Computer Science and Engineering,
Department of Statistics (courtesy appointment), Sept 2011 – 2017.
- The Institute of Science and Technology (IST Austria),
Visiting Professor, Sept 2012 – May 2013.
- Ohio State University, Assistant Professor,
Department of Computer Science and Engineering,
Department of Statistics (courtesy appointment), Feb 2009 – 2011.
- Statistical and Applied Mathematical Sciences Institute (SAMSI),
Research Fellow, Jan 2007 – March 2007.
- University of Chicago, Department of Computer Science,
Postdoctoral Researcher, Dec 2003 – Aug 2005.
- Institute for Pure and Applied Mathematics, UCLA,
Multiscale Geometry and Analysis in High Dimensions, Fall 2014.
- University of California, Berkeley, Department of Statistics,
Visiting Research Fellow, Feb – Mar 2004.
- Max Planck Institute for Biological Cybernetics, Tübingen,
Research Scientist, Aug – Dec 2003.

Degrees and Education

- The University of Chicago, Ph.D. in Mathematics, 2003.
Thesis: Problems of Learning on Manifolds.
Thesis adviser: Partha Niyogi.
- The University of Chicago, M.Sc. in Mathematics, 1997.
- The University of Toronto, Hon.B.Sc. with High Distinction,
Major in Mathematics, 1995.

Grants, Awards and Scholarships

- NSF: Collaborative research: NCS-FO: Learning efficient visual representations from realistic environments across time scales (co-I), 2016-2020.
- NSF IIS:EAGER:The exploration of geometric and non-geometric structure in data (PI), 2015-2017.
- NSF CCF: Small: Geometry and High-dimensional Inference (co-PI), 2014-2017.
- NSF RI: Small: Algebraic and Spectral Structure of Data in High Dimension (single PI), 2011-2015.
- Lumley Research Award, College of Engineering, Ohio State University, 2011.
- NSF EAGER, Integration of Computational Geometry and Statistical Learning for Modern Data Analysis (co-PI), 2010 – 2012.
- AFOSR, Networks of Memories (co-PI), 2009 – 2012.
- NSF Conference Grant, 2009 Machine Summer School on Computational Learning (single PI), 2009.
- NSF Early Career Award: Geometry and High-dimensional Inference, 2007 – 2012.
- NSF/DARPA Computational and Algorithmic Representation of Geometric Objects incubationary grant (Senior Personnel), 2003 – 2004.
- University Fellowship, University of Chicago, 1996 – 1997.
- National Science and Eng. Research Council of Canada Postgraduate Scholarship, 1995 – 1997.
- Several merit-based undergraduate scholarships and awards, including Galois Award in Mathematics, Ted Mossman Scholarship, Alfred T. Delury Scholarship in Mathematics, Samuel Beatty Award.
- Moscow Mathematical Olympiad, second prize, 1990.

Industry Experience

- University Community Healthcare, Chicago.
 - Senior Software Engineer, 1998 – 2000.

Publications: Journal Papers

- *Unperturbed: spectral analysis beyond Davis-Kahan*, Justin Eldridge, Mikhail Belkin, Yusu Wang, preprint, 2017.
- *Polynomial learning of distribution families*, Mikhail Belkin, Kaushik Sinha, SIAM Journal on Computing (SICOMP),44(4), 889-911, 2015.

- *Robust features for the automatic identification of autism spectrum disorder in children*, Justin Eldridge, Alison E Lane, Mikhail Belkin, Simon Dennis, Journal of Neurodevelopmental Disorders, 2014.
- *The Geometry and Dynamics of Lifelogs: Discovering the Organizational Principles of Human Experience*, Vishnu Sreekumar, Simon Dennis, Isidoros Doxas, Yuwen Zhuang, Mikhail Belkin, PLOS One, 2014.
- *Heat flow and a faster algorithm to compute the surface area of a convex body*, M. Belkin, H. Narayanan, P. Niyogi, Random Structures & Algorithms, 43: 407428, 2013.
- *Laplacian Support Vector Machines Trained in the Primal*, S. Melacci, M. Belkin, The Journal of Machine Learning Research, 12:1149–1184, 2011.
- *On Learning with Integral Operators*, L. Rosasco, M. Belkin, E. de Vito, The Journal of Machine Learning Research, 11(Feb):905934, 2010.
- *Data Spectroscopy: Eigenspaces of Convolution Operators and Clustering*, Tao Shi, Mikhail Belkin, Bin Yu, The Annals of Statistics, vol. 37, Number 6B (2009), 3960-3984.
- *Towards a Theoretical Foundation for Laplacian-Based Manifold Methods*, M. Belkin, P. Niyogi, Journal of Computer and System Sciences, Volume 74 , Issue 8 (December 2008), pp. 1289-1308 Special Issue on Learning Theory, invited.
- *Consistency of Spectral Clustering*, U. von Luxburg, M. Belkin, O. Bousquet, The Annals of Statistics, 2008, Vol. 36, No. 2, 555-586.
- *Manifold Regularization: a Geometric Framework for Learning from Examples*, M. Belkin, P. Niyogi, V. Sindhwani, Journal of Machine Learning Research, 7(Nov):2399–2434, 2006.
- *Semi-supervised Learning on Riemannian Manifolds*, M. Belkin, P. Niyogi, Machine Learning, 56, 209-239, 2004. Special issue on clustering, invited.
- *Laplacian Eigenmaps for Dimensionality Reduction and Data Representation*, M. Belkin, P. Niyogi, Neural Computation, June 2003; 15 (6):1373-1396.

Refereed Conference Proceedings

- *Diving into the shallows: a computational perspective on large-scale shallow learning*, Siyuan Ma, Mikhail Belkin, Neural Information Processing Systems (NIPS), 2017 (spotlight presentation, 5% of submissions).

- *Graphons, mergeons, and so on!*
Justin Eldridge, Mikhail Belkin, Yusu Wang,
Neural Information Processing Systems (NIPS), 2016 (oral presentation, 2% of submissions).
- *Clustering with Bregman Divergences: an Asymptotic Analysis,*
Chaoyue Liu, Mikhail Belkin,
Neural Information Processing Systems (NIPS), 2016.
- *Learning a Hidden Basis Through Imperfect Measurements: An Algorithmic Primitive,*
M. Belkin, L. Rademacher, J. Voss
The 29th Conference on Learning Theory (COLT), 2016.
- *Learning Privately from Multiparty Data,*
J. Hamm, P. Cao, and M. Belkin,
International Conference on Machine Learning (ICML), 2016
- *Back to the Future: Radial Basis Networks Revisited,*
Qichao Que, Mikhail Belkin,
The 19th International Conference on Artificial Intelligence and Statistics (AISTATS), 2016.
- *The Hidden Convexity of Spectral Clustering,*
James Voss, Mikhail Belkin, Luis Rademacher,
Thirtieth AAAI Conference on Artificial Intelligence (AAAI-16), 2016, oral presentation.
- *Beyond Hartigan Consistency: Merge Distortion Metric for Hierarchical Clustering,*
Justin Eldridge, Mikhail Belkin, Yusu Wang,
The 28th Conference on Learning Theory (COLT), 2015, **Mark Fulk award** (best student paper).
- *A Pseudo-Euclidean Iteration for Optimal Recovery in Noisy ICA,*
James Voss, Mikhail Belkin, Luis Rademacher,
Neural Information Processing Systems (NIPS), 2015.
- *Crowd-ML: A Learning Framework For A Crowd of Smart Devices,*
J. Hamm, A. Champion, G. Chen, M. Belkin, and D. Xuan,
IEEE International Conference on Distributed Computing Systems (ICDCS), 2015.
- *Learning with Fredholm Kernels,*
Qichao Que, Mikhail Belkin, Yusu Wang
Neural Information Processing Systems (NIPS), 2014.
- *The More, the Merrier: the Blessing of Dimensionality for Learning Large Gaussian Mixtures,*
Joseph Anderson, Mikhail Belkin, Navin Goyal, Luis Rademacher, James Voss,
The 27th Conference on Learning Theory (COLT 2014).
- *Inverse Density as an Inverse Problem: The Fredholm Equation Approach,*
Qichao Que, Mikhail Belkin,
Neural Information Processing Systems (NIPS), spotlight presentation, 2013.
- *Fast Algorithms for Gaussian Noise Invariant Independent Component Analysis,*
James Voss, Luis Rademacher, Mikhail Belkin,
Neural Information Processing Systems (NIPS), 2013.

- *Blind Signal Separation in the Presence of Gaussian Noise*,
Mikhail Belkin, Luis Rademacher, James Voss,
The 26th Conference on Learning Theory (COLT 2013).
- *Toward understanding complex spaces: graph Laplacians on manifolds with singularities and boundaries*,
M. Belkin, Q. Que, Y. Wang, X. Zhou,
The 25th Conference on Learning Theory (COLT 2012).
- *Recognizing Daily Contexts from Multisensory Data: A Codebook Approach*,
J. Hamm, B. Stone, M. Belkin, S. Dennis,
Fourth Int. Conference on Mobile Computing, Applications and Services (MOBICASE), 2012
- *Data Skeletonization via Reeb Graphs*,
X. Ge, I. Safa, M. Belkin, Y. Wang,
Twenty-Fifth Annual Conference on Neural Information Processing Systems (NIPS), 2011.
- *An Iterated Graph Laplacian Approach for Ranking on Manifolds*,
X. Zhou, M. Belkin, N. Srebro,
17th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 2011.
- *Semi-supervised Learning by Higher Order Regularization* ,
X. Zhou, M. Belkin,
14th International Conference on Artificial Intelligence and Statistics (AISTATS), 2011.
- *Polynomial Learning of Distribution Families*,
M. Belkin, K. Sinha,
51st Annual IEEE Symposium on Foundations of Computer Science (FOCS), 2010.
- *Toward Learning Gaussian Mixtures with Arbitrary Separation*,
M. Belkin, K. Sinha,
The 23rd Annual Conference on Learning Theory (COLT), 2010.
- *Learning speaker normalization using semisupervised manifold alignment*,
A. Plummer, M. Beckman, M. Belkin, E. Fosler-Lussier, and B. Munson,
Proc. Interspeech, 2010.
- *Semi-supervised Learning Using Sparse Eigenfunction Bases*,
K. Sinha, M. Belkin,
Twenty-Third Annual Conference on Neural Information Processing Systems (NIPS), 2009.
- *A Note on Learning with Integral Operators*,
L. Rosasco, M. Belkin, E. de Vito,
The 22nd Annual Conference on Learning Theory (COLT), 2009.
- *Constructing Laplace Operator from Point Clouds in \mathbf{R}^d*
M. Belkin, J. Sun, Y. Wang,
ACM-SIAM Symposium on Discrete Algorithms (SODA), 2009.
- *Data Spectroscopy: Learning Mixture Models using Eigenspaces of Convolution Operators*,
T. Shi, M. Belkin, B. Yu,
The 25th International Conference on Machine Learning (ICML), 2008.

- *Component Based Shape Retrieval Using Differential Profiles*,
L. Ding, M. Belkin,
ACM International Conference on Multimedia Information Retrieval (MIR), 2008.
- *Probabilistic Mixtures of Differential Profiles for Shape Recognition*,
L. Ding, M. Belkin,
The 19th International Conference on Pattern Recognition (ICPR), 2008.
- *Discrete Laplace Operator for Meshed Surfaces*,
M. Belkin, J. Sun, Y. Wang,
The 24th Annual Symposium on Computational Geometry (SOCG), 2008.
- *The Value of Labeled and Unlabeled Examples when the Model is Imperfect*,
K. Sinha, M. Belkin, 21st Annual Conference on Neural Information Processing Systems (NIPS),
spotlight presentation, 2007.
- *Convergence of Laplacian Eigenmaps*,
M. Belkin, P. Niyogi,
Twentieth Annual Conference on Neural Information Processing Systems (NIPS), 2006.
- *On the Relation Between Low Density Separation, Spectral Clustering and Graph Cuts*,
H. Narayanan, M. Belkin, P. Niyogi,
Twentieth Annual Conference on Neural Information Processing Systems (NIPS), 2006.
- *Heat Flow and a Faster Algorithm to Compute the Surface Area of a Convex Body*,
M. Belkin, H. Narayanan, P. Niyogi,
47th Annual IEEE Symposium on Foundations of Computer Science (FOCS), 2006.
- *Maximum Margin Semi-Supervised Learning for Structured Variables*,
Y. Altun, D. McAllester, M. Belkin,
Nineteenth Annual Conference on Neural Information Processing Systems (NIPS), 2005.
- *Beyond the Point Cloud: from Transductive to Semi-supervised Learning* ,
V. Sindhwani, P. Niyogi, M. Belkin,
The 22nd International Conference on Machine Learning (ICML) 2005.
- *Towards a Theoretical Foundation for Laplacian-based Manifold Methods*
M. Belkin, P. Niyogi, The Eighteenth Annual Conference on Learning Theory (COLT), 2005.
- *On Manifold Regularization*,
M. Belkin, P. Niyogi, V. Sindhwani,
The Tenth International Workshop on Artificial Intelligence and Statistics (AISTATS), 2005.
- *Limits of Spectral Clustering*,
U. von Luxburg, O. Bousquet, M. Belkin,
Neural Information Processing Systems (NIPS), 2004, **outstanding student paper award**.
- *Regularization and Semi-Supervised Learning on Large Graphs*,
M. Belkin, I. Matveeva, P. Niyogi,
The Seventeenth Annual Conference on Learning Theory (COLT), 2004.

- *On the Convergence of Spectral Clustering on Random Samples: the Normalized Case*, U. von Luxburg, O. Bousquet, M. Belkin, The Seventeenth Annual Conference on Learning Theory (COLT), 2004.
- *Tikhonov Regularization and Semi-Supervised Learning on Large Graphs* (Invited), M. Belkin, I. Matveeva, P. Niyogi, 2004 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2004), Special Session: Manifolds and Geometry and Signal Processing, 2004.
- *Using Manifold Structure for Partially Labeled Classification*, M. Belkin, P. Niyogi, Sixteenth Annual Conference on Neural Information Processing Systems (NIPS), 2002.
- *Using Eigenvectors of the Bigram Graph to Infer Morpheme Identity*, M. Belkin, J. Goldsmith, Proceedings of the Morphology/Phonology Learning Workshop of ACL-02, Association for Computational Linguistics, 2002.
- *Laplacian Eigenmaps and Spectral Techniques for Embedding and Clustering*, M. Belkin, P. Niyogi, Fifteenth Annual Conference on Neural Information Processing Systems (NIPS), 2001.

Book Chapters

- *Semi-Supervised Learning*, Xueyuan Zhou, Mikhail Belkin, Academic Press Library in Signal Processing: Signal Processing Theory and Machine Learning, 2013.
- *The Geometric Basis of Semi-supervised Learning*, V. Sindhwani, M. Belkin, P. Niyogi, Semi-supervised Learning (Chapelle, Schoelkopf, Zien: editors), MIT Press, 2006.

Ph.D. Thesis

- *Problems of Learning on Manifolds*, University of Chicago, Department of Mathematics, 2003. Thesis adviser: Partha Niyogi.

Conference (co-)organizer

- Midwest ML Symposium, University of Chicago/TTIC, 2017.
- Information Modeling and Control of Complex Systems Workshop, Ohio State University, 2016, 2017.
- Simons Institute Workshop on Spectral Algorithms: From Theory to Practice (co-chair), 2014.
- Partha Niyogi Memorial Conference, The University of Chicago, 2011.
- 2010 SDM (Siam Int. Conference on Data Mining) Workshop on Clustering: Theory and applications.
- 2009 AAAI Fall Symposium on Manifold Learning.
- 2009 Machine Learning Summer School/Workshop on Theory and Practice of Comput. Learning.
- Workshop on Geometry, Random Matrices, and Statistical Inference, SAMSI, Jan 2007.
- 2005 Chicago Machine Learning Summer School.

Recent Editorial and Program Committee Service

- COLT 2018.
- The Journal of Machine Learning Research, Action Editor, 2011 – present.
- IEEE Transactions on Pattern Recognition and Machine Intelligence, Associate Editor, 2011 – 2016.
- Area Chair for ICML 2017.
- AAAI 2017 (SPC).
- COLT 2016.
- AI and Statistics 2015 (SPC).
- Area chair for NIPS 2014.
- AAAI 2014.
- Area chair for ICML 2014.
- COLT 2013.
- Area chair for NIPS 2011.
- Area chair for NIPS 2010.
- Local chair for SDM 2010.
- COLT 2010.
- Area chair for ICML 2010.
- AI and Statistics 2010.

Refereed and served on panels/program committees for:

- The Annals of Statistics, Science, IEEE Transactions on Pattern Analysis and Machine Intelligence, Bernoulli, ACM Transactions on Sensor Networks, IEEE Transactions on Image Processing, PNAS, IEEE Transactions on Signal Processing, International Journal of Computer Vision, Machine Learning Journal, Journal of Machine Learning Research, Journal of the American Statistical Association (JASA), Pattern Recognition, FOCS, NIPS, ICML, COLT, AISTATS, AAAI, ICCV, AFOSR, NSF, RGC Hong Kong, US-Israel Binational Science Foundation.

Invited Talks and Tutorials

- ENSAE, CREST, Paris, France, June 2017.
- Workshop on Statistical aspects of geometric and topological data analysis, Banyuls, France, June 2017.
- Neymann Seminar, Statistics, University of California Berkeley, May 2017.
- Simons Institute, Berkeley, Apr 2017.
- UCLA CS Colloquium, Apr 2017.
- Oberwolfach workshop on Statistical Recovery of Discrete, Geometric and Invariant Structures, Apr 2017.
- Information Theory and Application Workshop, San Diego, Feb 2017.
- Workshop on Computational Brain Research at IIT Madras, Chennai, India, Jan 2017.
- IDSS Statistics and Stochastics Seminar, MIT, Oct 2016.

- Data Science Initiative (DSI) Colloquium, Boston University, 2016.
- ICML 2016 Workshop on Geometry in Machine Learning, June 2016.
- Simons Institute for Data Analysis, NYC, June 2016.
- Wilks Statistics Seminar, ORFE, Princeton University, March 2016.
- Shape Analysis and Learning by Geometry and Machine, IPAM, UCLA, Feb 2016.
- Information Theory and Application Workshop, San Diego, Feb 2016.
- Workshop on Computational Brain Research at IIT Madras, Chennai, India, Jan 2016.
- Penn State Statistics Colloquium, Oct 2015.
- Conference on Geometry and Data Analysis, University of Chicago, June 2015.
- Groups and interactions in data, networks and biology, Carnegie Mellon University, May 2015.
- Information Theory, Learning and Big Data, Simons Institute, Berkeley, Mar 2015.
- Neymann Seminar, Statistics, University of California Berkeley, Mar 2015.
- Information Theory and Applications Workshop, San Diego, Feb 2015.
- Foundations of Computational Mathematics (FOCM 2014), Workshop on Learning Theory, Uruguay, Montevideo, Dec 2014.
- CIRM Meeting on Mathematical Statistics, Luminy, Dec 2014.
- MADALGO Summer School on Learning at Scale, Aarhus University, Denmark, Aug 2014.
- Duke University, Computer Science, May 2014.
- SAMSI LDHD Transition workshop, May 2014.
- Ohio State University, Mathematics, Topology, Geometry and Data Seminar, March 2014.
- Information Theory and Application, San Diego, Feb 2014.
- Conference on Numerical Analysis and Scientific Computing, Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany, Jan 2014.
- NIPS Workshop on Modern Nonparametrics, NIPS 2013, Dec 2013.
- Workshop on Learning Data Representation: Hierarchies and Invariance, MIT, Nov 2013.
- Workshop on Modern Applications of Homology and Cohomology, IMA, Minneapolis, Oct 2013.
- International conference on Geometry, Topology, and Applications, Yaroslavl, Russia, Sept 2013.
- Case Western University, CS Department, Sept 2013.
- ICML Workshop on Spectral Learning, Atlanta, June 2013.
- Ohio Innovation Sensor Summit, Workshop on Machine Learning and Emerging Applications, Dayton, June 2013.
- International Conference on Approximation Theory and Applications, Hong Kong, May 2013.
- Italian Institute of Technology, Genova, Italy, May 2013.
- Radon Institute, Linz, Austria, Apr 2013.
- Max Planck Institute for Intelligent Systems, Tübingen, Germany, Feb 2013.
- AMS Sectional Meeting, Special Session on Applied Topology, Akron, Oct 2012.
- BIRS Workshop on Topological Data Analysis and Machine Learning Theory, Banff, Oct 2012.
- Workshop on Algebraic Statistics, ISTA, Austria, Sept 2012.

- INRIA, Saclay, France Sept 2012.
- Yaroslavl International Conference on Discrete Geometry, Yaroslavl, Russia, Aug 2012.
- Summer School on Neuroinformatics, Marine Biological Laboratory, Woods Hole, Aug 2012.
- Mathematical Sciences Center, Tsinghua University, July 2012.
- International Conference on Geometry/Imaging, Kunming, China, July 2012.
- Oberwolfach workshop on Learning Theory and Approximation, June 2012.
- The University of Chicago Statistics Colloquium, Apr 2012.
- Oberwolfach mini-workshop on Mathematics of Machine Learning, Aug 2011.
- Summer School on Neuroinformatics, Marine Biological Laboratory, Woods Hole, Aug 2011.
- Dagstuhl Workshop on Mathematical and Computational Foundations of Learning Theory, July 2011.
- The Fourth International Conference on Computational Harmonic Analysis, Hong Kong, May 2011.
- MIT Brains and Machines Seminar, Apr 2011.
- Ohio State University, ECE IPS Seminar, Feb 2011.
- Purdue University, Computer Science, Nov 2010.
- Oregon State University, Mathematics/Computer Science Colloquium, Oct 2010.
- Laboratoire J.-V.Poncelet Seminar, Moscow, Sept 2010.
- Summer School on Neuroinformatics, Marine Biological Laboratory, Woods Hole, Aug 2010.
- COGFEST 2010, Ohio State University, Columbus, May 2010.
- 13th International Conference on Approximation Theory, San Antonio, March 2010.
- Information Theory and Applications Workshop, University of California, San Diego, Feb 2010.
- NIPS Workshop on Manifolds, Sparsity, and Structured models, Whistler, Canada, Dec 2009.
- Center for Imaging Science, John Hopkins University, Nov 2009.
- Forum on Geometric Aspects of Machine Learning and Visual Analytics: Recent Developments and Future Challenges, Atlantic City, Oct 2009.
- Summer School on Neuroinformatics, Marine Biological Laboratory, Woods Hole, Aug 2009.
- Summer School on Manifold Learning in Image and Signal Analysis, Ven, Denmark, Aug 2009.
- 1st Sino-USA Summer School in Vision, Learning and Pattern Recognition, Beijing, July 2009.
- Seoul National University, Seoul, July 2009.
- Microsoft Research Asia, Beijing, June 2009.
- Zhejiang University, Computer Science, July 2009.
- Peking University, Department of Statistics, June 2009.
- LANL Seminar, Los Alamos, Apr 2009.
- Information Theory and Applications Workshop, University of California, San Diego, Feb 2009.
- Carnegie Mellon University, Department of Statistics, Nov 2008.
- IMA workshop on Multi-Manifold Data Modeling and Applications, Minneapolis, Oct 2008.
- BIRS workshop on Understanding the New Statistics: Expanding Core Statistical Theory, Banff, Sept 2008.
- 2nd LANL/OSU Workshop, Columbus, Sept 2008.

- 2008 Beijing International Conference on Machine Learning and Data Mining, Beijing, June 2008.
- FOCM Workshop on Learning Theory, Hong Kong, June 2008.
- Ohio State University, Department of Mathematics, May 2008.
- OSU Cognitive Science Center Colloquium, March 2008.
- Workshop on Geometric and Topological Approaches to Data Analysis, University of Chicago, Oct 2007.
- 56th Session of the International Statistical Institute (ISI), Lisbon, August 2007.
- 6th International Congress on Industrial & Applied Mathematics, Zurich, July 2007.
- PASCAL Workshop on Graph Theory and Machine Learning (keynote talk), Bled, June 2007.
- Conference on Applied Inverse Problems (AIP) 2007, Vancouver, June 2007.
- SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 2007.
- The North Carolina State University, EECS, March 2007.
- Duke University, Computer Science, Feb 2007.
- Information Theory and Applications Workshop, University of California, San Diego, Feb 2007.
- University of California, Davis, Department of Mathematics, Oct 2006.
- AMS Sectional Meeting, Cincinnati, Oct 2006.
- Ohio State University, Department of Statistics, Oct 2006.
- JSM (Joint Statistical Meeting), Seattle, Aug 2006.
- IMS (Institute of Mathematical Statistics) Annual Meeting, Rio de Janeiro, July 2006.
- EURO 2006, Reykjavik, July 2006.
- WNAR/IMS meeting, Flagstaff, June 2006.
- Workshop on New Perspectives in Geometric Analysis, The University of Toledo, May 2006.
- The Ohio State University, Department of Computer Science, Oct 2005.
- University of Genoa, Department of Computer Science, June 2005.
- SAMSI workshop on Random Graphs and Stochastic Computation, June 2005.
- Interface/CSNA, Session on Graph Theoretic Methods in Pattern Recognition, June 2005.
- The University of Andes, Colombia, Minicourse on Spectral Methods in Learning, Department of Mathematics, March 2005.
- IPAM Program on Multiscale Geometry and Analysis in High Dimensions, Culminating Conference, Lake Arrowhead, Dec 2004.
- University of California, San Diego, Computer Science, Oct 2004.
- Moscow State University, Faculty of Mathematics, Kolmogorov Complexity Seminar, Sept 2004.
- Max Planck Institute for Biological Cybernetics, Tübingen, Aug 2004.
- MIT CSAIL, Brains and Machines seminar series, July 2004.
- ICASSP 2004, Workshop on Manifolds and Geometry in Signal Processing, Montreal, May 2004.
- University of Montreal, Department of Informatics, May 2004.
- University of Wisconsin, Madison, Electrical and Computer Engineering, Mar 2004.
- University of California, Berkeley, Statistics Colloquium, Mar 2004.

- Brown University, Applied Mathematics, Feb 2004.
- Toyota Technological Institute at Chicago, Jan 2004.
- University College London, Department of Computer Science, Nov 2003.
- University of Birmingham, Department of Computer Science, Nov 2003.
- Max Planck Institute for Biological Cybernetics, Tübingen, Oct 2003.
- University of Toronto, Department of Statistics, Apr 2003.
- University of Amsterdam, The Netherlands, Department of Computer Science, Feb 2003.
- EURANDOM, The Netherlands, Feb 2003.
- NIPS 2002, Workshop on Spectral Methods, Dec 2002.
- University of Chicago, Department of Computer Science, Feb 2002.