

# Petros Drineas

Associate Professor  
Computer Science Department  
Purdue University  
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West Lafayette IN 47907  
USA

## EDUCATION

**Yale University**, New Haven CT  
*Ph.D. in Computer Science* (advisor: Ravi Kannan), May 2003.  
**Yale University**, New Haven CT  
*M.Phil. in Computer Science*, May 1999.  
**Yale University**, New Haven CT  
*M.Sc. in Computer Science*, May 1998.  
**University of Patras**, Greece  
*BS and M.Sc. in Computer Engineering*, (advisor: Athanasios Tsakalidis), Jun 1997.

## APPOINTMENTS

**Associate Professor**  
*Purdue University*, Aug 2016 - now

**Associate Professor**  
*Rensselaer Polytechnic Institute*, Jan 2009 - Jun 2016

**Adjunct Faculty**  
*Department of Mathematics, North Carolina State University*, Nov 2012 - now

**Long-term visitor**  
*Simons Institute for the Theory of Computing, University of California, Berkeley*, Fall 2013

**Program Director**  
*National Science Foundation, Information and Intelligent Systems (IIS) Division and Computing and Communication Foundations (CCF) Division*, Oct 2010 - Nov 2011

**Assistant Professor**  
*Rensselaer Polytechnic Institute*, Jan 2003 - Dec 2008

**Visiting Assistant Professor**  
*Institute of Pure & Applied Mathematics, University of California, Los Angeles*, Sep 2007 - Dec 2007

**Visiting Research Scientist**  
*Yahoo! Research*, Jul 2006 - Sep 2006

**Visiting Assistant Professor**  
*Sandia National Laboratories*, Aug 2005 - Dec 2005

**Visiting Researcher**  
*Microsoft Research Silicon Valley*, Jul 2002

**Summer Intern**  
*Verity Inc., Silicon Valley CA*, May 2001 - Aug 2001

**Research Assistant**  
*Yale University*, Sep 1998 - Dec 2002

**Teaching Assistant**  
*Yale University*, Sep 1998 - Dec 2002

RESEARCH  
INTERESTS

**Theory:** The design and analysis of **Randomized Numerical Linear Algebra** algorithms (**RandNLA**).

**Applications:** Data mining, in particular the analysis of population genetics data.

HONORS

*Tensor sparsification via a bound on the spectral norm of random tensors*, which appeared in the *Information and Inference: A Journal of the IMA* in 2015, was a runner up for the journal's best paper prize for articles published since 2015.

*Near-Optimal Column-Based Matrix Reconstruction*, which appeared in the 52nd IEEE Symposium on Foundations of Computer Science (FOCS), was invited to the special issue of the *SIAM Journal on Computing* for the top papers from FOCS 2011.

European Molecular Biology Organization (EMBO) Fellowship, 2010.

*Best paper award*, MobiOpp 2010.

*Senior Member*, Association for Computing Machinery, 2009.

European Molecular Biology Organization (EMBO) Fellowship, 2009.

*Mentoring Excellence Award*, Rensselaer Polytechnic Institute, 2009.

*Outstanding Early Research Award*, School of Science, Rensselaer Polytechnic Institute, 2007.

NSF CAREER Award, 2006.

J. Tinsley Oden Visiting Faculty Fellowship, *University of Texas at Austin*, 2005.

PUBLICATIONS IMPACT

- Total citations (according to Google Scholar): > 7,000.
- h-index (according to Google Scholar): 39.
- i10-index (according to Google Scholar): 78.

BOOKS

1. P. Buhlmann, P. Drineas, M. Kane, and M. van der Laan, *Handbook of Big Data*, Chapman and Hall/CRC Press, 2016.

PUBLICATIONS (UNDER REVIEW, AVAILABLE IN ARXIV/BIORXIV)

2. J. Yang, A. Chowdhury, and P. Drineas, *Coreset Construction via Randomized Matrix Multiplication*, arXiv:1705.10102 [stat.ML], 2017.
3. A. Bose, D. E. Platt, L. Parida, P. Paschou, and P. Drineas, *Dissecting Population Substructure in India via Correlation Optimization of Genetics and Geodemographics*, <https://doi.org/10.1101/164640>, BioRxiv, 2017.
4. P. Drineas, I. Ipsen, E. Kontopoulou, and M. Magdon-Ismail, *Structural Convergence Results for Approximations of Dominant Subspaces from Block Krylov Spaces*, arXiv:1609.00671 [cs.NA], 2017.

JOURNAL PUBLICATIONS

5. A. Kundu, P. Drineas, and M. Magdon-Ismail, *Recovering PCA via Hybrid- $(\ell_1, \ell_2)$  Sparse Sampling of Data Elements*, *Journal of Machine Learning Research*, to appear, 2017.
6. C. Boutsidis, P. Drineas, P. Kambadur, E. Kontopoulou, and A. Zouzias, *A Randomized Algorithm for Approximating the Log Determinant of a Symmetric Positive Definite Matrix*, *Linear Algebra and its Applications*, 533, pp. 95-119, 2017.
7. J. Alexander, D. Mantzaris, M. Georgitsi, P. Drineas, and P. Paschou, *Variant Ranker: a web-tool to rank genomic data according to functional significance*, *BMC Bioinformatics*, 18:341, 2017.

8. G. Stamatoyannopoulos, A. Bose, A. Teodosiadis, F. Tsetsos, A. Plantinga, N. Psatha, N. Zogas, E. Yannaki, P. Zalloua, K. K. Kidd, B. L. Browning, J. Stamatoyannopoulos, P. Paschou, and Petros Drineas, Genetics of the Peloponnesian Populations and the Theory of Extinction of the Medieval Peloponnesian Greeks, *European Journal of Human Genetics (EJHG)*, 25(5), pp. 637-645, 2017.
9. K. Fountoulakis, A. Kundu, E. Kontopoulou, and P. Drineas, A Randomized Rounding Algorithm for Sparse PCA, *ACM Transactions on Knowledge Discovery from Data (TKDD)*, 11(3), pp. 1-26, 2017.
10. C. Iyer, H. Avron, G. Kollias, Y. Ineichen, C. Carothers, and P. Drineas, A Randomized Least Squares Solver for Terabyte-sized Dense Overdetermined Systems, *Journal of Computational Science*, *Journal of Computational Science*, <http://dx.doi.org/10.1016/j.jocs.2016.09.007>, 2016.
11. N. J. Forde, A. S. Kanaan, J. Widomska, S. S. Padmanabhuni, E. Nespoli, J. Alexander, J. Rodriguez Arranz, S. Fan, R. Houssari, M. S. Nawaz, N. R. Zilhao, L. Pagliaroli, F. Rizzo, T. Aranyi, C. Barta, T. M. Boeckers, D. I. Boomsma, W. R. Buisman, J. K. Buitelaar, D. Cath, A. Dietrich, N. Driessen, P. Drineas, M. Dunlap, S. Gerasch, J. Glennon, B. Hengerer, O. A. van den Heuvel, C.e Jespersgaard, H. E. Moller, K. R. Miller-Vahl, T. Openner, G. Poelmans, P. J. W. Pouwels, J. M. Scharf, H. Stefansson, Z. Tumer, D. Veltman, Y. D van der Werf, P. J. Hoekstra, A. Ludolph, and P. Paschou, TS-EUROTRAIN: A European-wide investigation and training network on the aetiology and pathophysiology of Gilles de la Tourette Syndrome, *Frontiers in Neuroscience*, 10, article 384, 2016.
12. F. Tsetsos, S. S. Padmanabhuni, J. Alexander, I. Karagiannidis, M. Tsifintaris, A. Topaloudi, D. Mantzaris, M. Georgitsi, P. Drineas, and P. Paschou, Meta-analysis of Tourette Syndrome and Attention Deficit Hyperactivity Disorder provides support for a shared genetic basis, *Frontiers in Neuroscience*, 10, article 340, 2016.
13. K. Clarkson, P. Drineas, M. Magdon-Ismail, M. W. Mahoney, X. Meng, and D. P. Woodruff, *Faster Robust Linear Regression*, *SIAM Journal on Computing*, 45(3), pp. 763-810, 2016.
14. S. Paul, M. Magdon-Ismail, and P. Drineas, *Feature Selection for Linear SVMs with Provable Guarantees*, *Pattern Recognition*, 60, pp. 205-214, 2016.
15. M. W. Mahoney and P. Drineas, *RandNLA: Randomized Numerical Linear Algebra*, *Communications of the ACM (CACM)*, 59 (6), pp. 80-90, 2016.
16. J. Alexander, O. Kalev, S. Mehrabian, L. Traykov, M. Raycheva, D. Kanakis, P. Drineas, M. I. Lutz, T. Strbel, T. Penz, M. Schuster, C. Bock, I. Ferrer, P. Paschou, and G. G. Kovacs, *Familial early-onset dementia with complex neuropathological phenotype and genomic background*, *Neurobiology of Aging*, 42, pp. 199-204, 2016.
17. S. Paul and P. Drineas, *Feature Selection for Ridge Regression with Provable Guarantees*, *Neural Computation*, MIT Press Journals, 28, pp. 716-742, 2016.
18. M. W. Mahoney and P. Drineas, *Structural Properties Underlying high-quality Randomized Numerical Linear Algebra algorithms*, *CRC Handbook on Big Data*, pp. 137-154, 2016.
19. N. Nguyen, P. Drineas, and T. Tran, *Tensor sparsification via a bound on the spectral norm of random tensors*, *Information and Inference: A Journal of the IMA*, 4(3), pp. 195-229, 2015.
20. C. Boutsidis, A. Zouzias, M. W. Mahoney, and P. Drineas, *Randomized Dimensionality Reduction for K-means Clustering*, *IEEE Transactions on Information Theory*, 62(2), pp. 1045-1062, 2015.

21. P. Paschou, P. Drineas<sup>1</sup>, E. Yannaki, A. Razou, K. Kanaki, F. Tsetsos, S. Padmanabhuni, M. Michalodimitrakis, M. Renda, S. Pavlovic, A. Anagnostopoulos, J. Stamatoyannopoulos, K. K. Kidd, and G. Stamatoyannopoulos, *Maritime route of colonization of Europe*, Proceedings of the National Academy of Sciences, doi:10.1073/pnas.1320811111, 2014.
22. P. Saurabh, C. Boutsidis, M. Magdon-Ismail, and P. Drineas, *Random Projections for Support Vector Machines*, ACM Transactions on Knowledge Discovery from Data (TKDD), 8(4):22, 2014.
23. C. Boutsidis, P. Drineas, and M. Magdon-Ismail, *Near-Optimal Column-Based Matrix Reconstruction*, SIAM Journal on Computing, 43(2), pp. 687-717, 2014.
24. C. Boutsidis, P. Drineas, and M. Magdon-Ismail, *Near-Optimal Coresets for Least-Squares Regression*, IEEE Transactions on Information Theory, 59(10), 6880 - 6892, 2013.
25. J. R. Hughey, P. Paschou, P. Drineas, D. Mastropaolo, D. M. Lotakis, P. A. Navas, M. Michalodimitrakis, J. A. Stamatoyannopoulos, and G. Stamatoyannopoulos, *A European Population in Minoan Bronze Age Crete*, Nature Communications, (4)1861 doi:10.1038/ncomms2871, 2013.
26. P. Drineas, M. Magdon-Ismail, M. W. Mahoney, and D. Woodruff, *Fast Approximation of Matrix Coherence and Statistical Leverage*, Journal of Machine Learning Research, 13, pp. 3475-3506, 2012.
27. V. Stathias, G. Sotiris, I. Karagiannidis, G. Bourikas, G. Martinis, G. Papazoglou, A. Tavridou, N. Papanas, E. Maltezos, M. Theodoridis, V. Vargemezis, V. Manolopoulos, W. C. Speed, J. R. Kidd, K. K. Kidd, P. Drineas, P. Paschou, *Exploring genomic structure differences and similarities between the Greek and European HapMap populations; implications for association studies*, Annals of Human Genetics, 76(6), pp. 472-483, 2012.
28. N. Kupp, H. Huang, P. Drineas, and Y. Makris, *Improving Analog and RF Device Yield through Performance Calibration*, IEEE Design and Test of Computers, 28(3), pp. 64-75, 2011.
29. A. Javed, P. Drineas, M.W. Mahoney, and P. Paschou, *Reconstructing the genome with PCA-correlated tSNPs*, Annals of Human Genetics, 75(6), pp. 707-722, 2011.
30. J. Lewis, Z. Abas, C. Dadousis, D. Lykidis, P. Paschou, and P. Drineas, *Tracing Cattle Breeds With Principal Components Analysis Ancestry Informative SNPs*, PLoS ONE, 6(4): e18007, 2011.
31. U. Acer, P. Drineas, and A. Abouzeid, *Connectivity in Time-Graphs*, Pervasive and Mobile Computing, 7, pp. 160-171, 2011.
32. N. G. Sgourakis, M. Merced-Serrano, C. Boutsidis, P. Drineas, Z. Du, C. Wang, and A. E. Garcia, *Atomic-level characterization of the ensemble of the  $A\beta(1-42)$  monomer in water using unbiased molecular dynamics simulations and spectral algorithms*, Journal of Molecular Biology, 405(2), pp.570-583, 2011.
33. C. Tsourakakis, P. Drineas, E. Michelakis, I. Koutis, and C. Faloutsos, *Spectral Counting of Triangles via Element-Wise Sparsification and Triangle-Based Link Recommendation*, Journal of Social Network Analysis and Mining (SNAM), 1(2), pp. 75-81, 2011.
34. P. Drineas, M. W. Mahoney, S. Muthukrishnan, and T. Sarlos, *Faster least squares approximation*, Numerische Mathematik, 117(2), pp. 217-249, 2011.
35. P. Drineas and A. Zouzias, *A note on element-wise matrix sparsification via a matrix-valued Bernstein inequality*, Information Processing Letters, 111, pp. 385-389, 2011.

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<sup>1</sup>Equal contribution with the first author.

36. P. Paschou, J. Lewis, A. Javed, and P. Drineas, *Ancestry Informative Markers for Fine-Scale Individual Assignment to Worldwide Populations*, Journal of Medical Genetics, doi:10.1136/jmg.2010.078212, 2010.
37. P. Drineas, J. Lewis, and P. Paschou, *Inferring Geographic Coordinates of Origin for Europeans using Small Panels of Ancestry Informative Markers*, PLoS ONE 5(8): e11892, 2010.
38. H-G. D. Stratigopoulos, P. Drineas, M. Slamani, and Y. Makris, *RF specification test compaction using learning machines*, IEEE Transactions on VLSI Systems, 18(6), pp. 1002–1006, 2010.
39. N. Kupp, P. Drineas, M. Slamani, and Y. Makris, *On Boosting the Accuracy of Non-RF to RF Correlation-Based Specification Test Compaction*, Journal of Electronic Testing Theory and Applications, 25(6), pp. 309-321, 2009.
40. C. Boutsidis and P. Drineas, *Random projections for the nonnegative least-squares problem*, Linear Algebra and its Applications, 431, pp. 760–771, 2009.
41. A. Dasgupta, P. Drineas, B. Harb, R. Kumar, and M. W. Mahoney, *Sampling algorithms and coresets for  $\ell_p$  regression*, SIAM Journal on Computing, 38(5), pp. 2060–2078, 2009.
42. M. W. Mahoney and P. Drineas, *CUR matrix decompositions for improved data analysis*, Proceedings of the National Academy of Sciences, 106(3), pp. 697–702, 2009.
43. M. W. Mahoney, M. Maggioni, and P. Drineas, *Tensor-CUR decompositions for tensor-based data*, SIAM Journal on Matrix Analysis and Applications, 30(2), pp. 957–987, 2008.
44. P. Drineas, M.W. Mahoney, and S. Muthukrishnan, *Relative-error CUR matrix decompositions*, SIAM Journal on Matrix Analysis and Applications, 30(2), pp. 844–881, 2008.
45. P. Paschou, P. Drineas<sup>2</sup>, J. Lewis, C. Nievergelt, D. Nickerson, J. Smith, P. Ridker, D. Chasman, R. Krauss, and E. Ziv, *Tracing sub-structure in the European American population with PCA-informative markers*, PLoS Genetics, 4(7), pp. 1–13, 2008.
46. P. Paschou, E. Ziv, E. Burchard, S. Choudhry, W. Rodriguez-Cintron, M. W. Mahoney, and P. Drineas, *PCA-correlated SNPs for structure identification in worldwide human populations*, PLoS Genetics, 3(9), pp. 1672-1686, 2007.
47. P. Paschou, M. W. Mahoney, A. Javed, J. Kidd, A. Pakstis, S. Gu, K. Kidd, and P. Drineas, *Intra- and inter-population genotype reconstruction from tagging SNPs*, Genome Research, 17(1), pp. 96-107, 2007.
48. P. Drineas and M. W. Mahoney, *A randomized algorithm for a tensor-based generalization of the SVD*, Linear Algebra and its Applications, 420, pp. 553-571, 2007.
49. P. Drineas, M. W. Mahoney, and R. Kannan, *Sampling sub-problems of heterogeneous max-cut problems and approximation algorithms*, Random Structures and Algorithms, 32(3), pp. 307 – 333, 2007.
50. P. Drineas, R. Kannan, and M. W. Mahoney, *Fast monte carlo algorithms for matrices I: approximating matrix multiplication*, SIAM Journal on Computing, 36(1), pp. 132-157, 2006.
51. P. Drineas, R. Kannan, and M. W. Mahoney, *Fast monte carlo algorithms for matrices II: computing a low rank approximation to a matrix*, SIAM Journal on Computing, 36(1), pp. 158-183, 2006.
52. P. Drineas, R. Kannan, and M. W. Mahoney, *Fast monte carlo algorithms for matrices III: computing a compressed approximate matrix decomposition*, SIAM Journal on Computing, 36(1), pp. 184-206, 2006.

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<sup>2</sup>Equal contribution with the first author.

53. S. Almkhaizim, P. Drineas, and Y. Makris, *Entropy-driven parity tree selection for low-overhead concurrent error detection in finite state machines*, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 25(8), pp. 1547-1554, 2006.
54. P. Drineas and M. W. Mahoney, *On the Nystrom method for approximating a Gram matrix for improved kernel-based learning*, Journal of Machine Learning Research, 6, pp. 2153-2175, 2005.
55. S. Almkhaizim, P. Drineas, and Y. Makris, *Compaction-based concurrent error detection for digital circuits*, Microelectronics Journal, 36(9), pp. 856-862, Elsevier, 2005.
56. P. Drineas, R. Kannan, A. Frieze, S. Vempala, and V. Vinay, *Clustering of large graphs via the singular value decomposition*, Machine Learning (56), pp. 9-33, 2004.
57. K. Akcoglu, P. Drineas, and M. Kao, *Fast universalization of investment strategies*, SIAM Journal on Computing 34(1), pp. 1-22, 2004.
58. P. Drineas and Y. Makris, *SPaRe: selective partial replication for concurrent fault detection in FSMs*, IEEE Transactions on Instrumentation and Measurement, 52(6), pp. 1729-1737, 2003.
59. P. Drineas, E. Drinea, and P. Huggins, *An experimental evaluation of a monte carlo algorithm for singular value decomposition*, Y. Manolopoulos et. al. (Eds.): Revised Selected Papers from the 8th Panhellenic Conference on Informatics, Lecture Notes in Computer Science 2563, pp. 279-296, 2003.

#### CONFERENCE PUBLICATIONS

60. C. Iyer, C. Carothers, and P. Drineas, *Randomized Sketching for Large-Scale Sparse Ridge Regression Problems*, Workshop on Latest Advances in Scalable Algorithms for Large-Scale Systems (ScalA16), held in conjunction with the 2016 International Conference on High Performance Computing, Networking, Storage and Analysis (SC16), 2016.
61. C. Iyer, H. Avron, G. Kollias, Y. Ineichen, C. Carothers, and P. Drineas, *A Scalable Randomized Least Squares Solver for Dense Overdetermined Systems*, Workshop on Latest Advances in Scalable Algorithms for Large-Scale Systems (ScalA15), held in conjunction with the 2015 International Conference on High Performance Computing, Networking, Storage and Analysis (SC15), 2015.
62. A. Kundu, P. Drineas, and M. Magdon-Ismail, *Approximating Sparse PCA from Incomplete Data*, Proc. of Neural Information Processing Systems (NIPS), 2015.
63. S. Paul, M. Magdon-Ismail, and P. Drineas, *Column Selection via Adaptive Sampling*, Proc. of Neural Information Processing Systems (NIPS), 2015.
64. S. Paul, M. Magdon-Ismail, and P. Drineas, *Feature Selection for Linear SVM with Provable Guarantees*, Proc. of the 16th International Conference on Artificial Intelligence and Statistics (AISTATS) and Journal of Machine Learning Research: Workshops and Conference Proceedings 38, pp. 735-743, 2015.
65. S. Paul and P. Drineas, *Deterministic Feature Selection for Regularized Least Squares Classification*, European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), LNCS 8725, pp. 533-548, 2014.
66. S. Paul, C. Boutsidis, M. Magdon-Ismail, and P. Drineas, *Random Projections and Support Vector Machines*, Proc. of the 16th International Conference on Artificial Intelligence and Statistics (AISTATS), 2013.
67. K. L. Clarkson, P. Drineas, M. Magdon-Ismail, M. W. Mahoney, X. Meng, and D. P. Woodruff, *The Fast Cauchy Transform and Faster Robust Linear Regression*, Proc. of the 24th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2013.

68. P. Drineas, M. Magdon-Ismail, M. W. Mahoney, and D. Woodruff, *Fast Approximation of Matrix Coherence and Statistical Leverage*, Proc. of the International Conference on Machine Learning (ICML), 2012.
69. C. Boutsidis, P. Drineas, and M. Magdon-Ismail, *Sparse Features for PCA-like Linear Regression*, Proc. of Neural Information Processing Systems (NIPS), 2011.
70. C. Boutsidis, P. Drineas, and M. Magdon-Ismail, *Near-Optimal Column-Based Matrix Reconstruction*, Proc. of the 52nd IEEE Symposium on Foundations of Computer Science (FOCS), 2011.
71. N. Kupp, H. Stratigopoulos, P. Drineas, and Y. Makris, *On Proving the Efficiency of Alternative RF Tests*, International Conference on Computer-Aided Design (ICCAD), 2011.
72. C. Boutsidis, A. Zouzias, and P. Drineas, *Random Projections for k-means Clustering*, Proc. of Neural Information Processing Systems (NIPS), 2010.
73. N. Kupp, H. Huang, P. Drineas, and Y. Makris, *Post-Production Performance Calibration in Analog/RF Devices*, IEEE International Test Conference (ITC), 8.3.1-8.3.10, 2010.
74. U. Acer, P. Drineas, and A. Abouzeid, *Random walks in time-graphs*, Proceedings of the Second International Workshop on Mobile Opportunistic Networking (MobiOpp), pp. 93–100, 2010.
75. C. Boutsidis, M. W. Mahoney, and P. Drineas, *Unsupervised Feature Selection for the k-means Clustering Problem*, Proc. of Neural Information Processing Systems (NIPS), 2009.
76. C. Tsourakakis, P. Drineas, E. Michelakis, I. Koutis, and C. Faloutsos, *Spectral Counting of Triangles in Power-Law Networks via the Element-wise Sparsification*, Proc. of the International Conference on Advances in Social Network Analysis and Mining (ASONAM), pp. 66–72, 2009.
77. C. Boutsidis, M.W. Mahoney, and P. Drineas, *An improved approximation algorithm for the column subset selection problem*, Proc. of the 20th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), pp. 968–977, 2009.
78. C. Boutsidis, M.W. Mahoney, and P. Drineas, *Unsupervised feature selection for Principal Components Analysis*, Proc. of the 14th Annual ACM Conference on Knowledge Discovery and Data Mining (KDD), pp. 61–69, 2008.
79. N. Kupp, P. Drineas, M. Slamani, and Y. Makris, *Confidence Estimation in Non-RF to RF Correlation-Based Specification Test Compaction*, Proc. of the 13th European Test Symposium (ETS), pp. 35–40, 2008.
80. A. Dasgupta, P. Drineas, B. Harb, R. Kumar, and M. W. Mahoney, *Sampling algorithms and coresets for  $\ell_p$  regression*, Proc. of the 19th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), pp. 932–941, 2008.
81. A. Dasgupta, P. Drineas, B. Harb, V. Josifovski, and M. Mahoney, *Feature selection methods for text classification*, Proc. of the 13th Annual ACM Conference on Knowledge Discovery and Data Mining (KDD), pp. 230–239, 2007.
82. H-G. D. Stratigopoulos, P. Drineas, M. Slamani, and Y. Makris, *Non-RF to RF test correlation using learning machines: a case study*, Proc. of the 25th IEEE VLSI Test Symposium (VTS), pp. 9–14, 2007.
83. P. Drineas, M. W. Mahoney, and S. Muthukrishnan, *Subspace sampling and relative error matrix approximation: column-based methods*, Proc. of APPROX-RANDOM, pp. 316–326, 2006.
84. P. Drineas, M. W. Mahoney, and S. Muthukrishnan, *Subspace sampling and relative error matrix approximation: column-row-based methods*, Proc. of the 14th Annual European Symposium on Algorithms (ESA), pp. 304–314, 2006.

85. P. Drineas, A. Javed, M. Magdon-Ismail, G. Pandurangan, R. Virrankoski, and A. Savvides, *Distance matrix reconstruction from incomplete distance information for sensor network localization*, Proc. of the 3rd Annual IEEE Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON), pp. 536-544, 2006.
86. P. Drineas and M. W. Mahoney, *Randomized algorithms for matrices and massive data sets*, Proc. of the 32nd Annual Conference on Very Large Data Bases (VLDB), p. 1269, 2006.
87. M. W. Mahoney, M. Maggioni, and P. Drineas, *Tensor-CUR decompositions for tensor-based data*, Proc. of the 12th Annual ACM Conference on Knowledge Discovery and Data Mining (KDD), pp. 327-336, 2006.
88. P. Drineas, M. W. Mahoney, and S. Muthukrishnan, *Sampling algorithms for  $\ell_2$  regression and applications*, Proc. of the 17th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), pp. 1127-1136, 2006.
89. D. Freedman and P. Drineas, *Energy minimization via graph cuts: settling what is possible*, Proc. of the IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), pp. 939-946, 2005.
90. P. Drineas and M. W. Mahoney, *Approximating a Gram matrix for improved kernel-based learning*, Proc. of the 18th Annual Symposium on Computational Learning Theory (COLT), pp. 323-337, 2005.
91. P. Drineas, R. Kannan, and M. W. Mahoney, *Sampling sub-problems of heterogeneous max-cut problems and approximation algorithms*, Proc. of the 22nd Annual Symposium on Theoretical Aspects of Computer Science (STACS), Lecture Notes in Computer Science 3404, pp. 57-68, 2005.
92. P. Drineas, M. Krishnamoorthy, D. Sofka, and B. Yener, *Studying E-mail graphs for intelligence monitoring and analysis in the absence of semantic information*, Proc. of the Symposium on Intelligence and Security Informatics, Lecture Notes in Computer Science 3073, pp. 297-306, 2004.
93. S. Almukhaizim, P. Drineas, and Y. Makris, *Cost-driven selection of parity trees*, Proc. of the IEEE VLSI Test Symposium (VTS), pp. 319-324, 2004.
94. S. Almukhaizim, P. Drineas, and Y. Makris, *Concurrent error detection for combinational and sequential logic via output compaction*, Proc. of the IEEE International Symposium on Quality Electronic Design (ISQED), pp. 459-464, 2004.
95. S. Almukhaizim, P. Drineas, and Y. Makris, *On concurrent error detection with bounded latency in FSMs*, Proc. of the IEEE Design Automation and Test in Europe Conference (DATE), pp. 596-601, 2004.
96. P. Drineas and R. Kannan, *Pass Efficient Algorithms for Approximating Large Matrices*, Proc. of the 14th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), pp. 223-232, 2003.
97. S. Almukhaizim, P. Drineas, and Y. Makris, *On Compaction-based concurrent error detection*, On compaction-based concurrent error detection, Proc. of the IEEE On-Line Test Symposium, pp. 157-161, 2003.
98. P. Drineas and Y. Makris, *On the compaction of independent test sequences for sequential circuits*, Proc. of the IEEE International Conference on Computer Design (ICCD), pp. 380-386, 2003.
99. P. Drineas and Y. Makris, *Non-intrusive concurrent error detection in FSMs through State/Output compaction and monitoring via parity trees*, Proc. of the Design Automation and Test in Europe Conference (DATE), pp. 1164-1165, 2003.
100. P. Drineas and Y. Makris, *SPaRe: selective partial replication for concurrent fault detection in FSMs*, Proc. of the IEEE International Conference on VLSI Design, pp. 84-91, 2003.



101. P. Drineas and Y. Makris, *On the Compaction of Independent Test Sequences for Sequential Circuits*, IEEE European Test Workshop (ETS), Maastricht, Netherlands, 2003.
102. P. Drineas and Y. Makris, *Concurrent fault detection in random combinational logic*, Proc. of the IEEE International Symposium on Quality Electronic Design (ISQED), pp. 425-430, 2003.
103. P. Drineas, I. Kerenidis, and P. Raghavan, *Competitive recommendation systems*, Proc. of the 34th ACM Symposium on Theory of Computing (STOC), pp. 82-90, 2002.
104. K. Akcoglu, P. Drineas, and M. Kao, *Fast universalization of investment strategies with provably good relative returns*, Proc. of the 29th International Colloquium on Automata, Languages and Programming (ICALP), pp. 888-900, 2002.
105. P. Drineas and Y. Makris, *Non-intrusive design of concurrently self-testable FSMs*, Proc. of the IEEE Asian Test Symposium (ATS), pp. 33-38, 2002.
106. P. Drineas and Y. Makris, *Non-intrusive design of concurrently self-testable FSMs*, IEEE North Atlantic Test Workshop (NATW), Montauk NY, USA, 2002.
107. E. Drinea, P. Drineas, and P. Huggins, *A randomized singular value decomposition algorithm for image processing applications*, Proc. of the 8th Panhellenic Conference on Informatics, pp. 278-288, 2001.
108. P. Drineas and R. Kannan, *Fast monte carlo algorithms for approximate matrix multiplication*, Proc. of the 42nd IEEE Symposium on Foundations of Computer Science (FOCS), pp. 452-459, 2001.
109. P. Drineas, R. Kannan, A. Frieze, S. Vempala, and V. Vinay, *Clustering in large graphs and matrices*, Proc. of the 10th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), pp. 291-299, 1999.

ABSTRACTS (PEER REVIEWED ONLY)

110. A. Bose, E. Kontopoulou, V. Kalantzis, M. Elkadi, P. Paschou, and P. Drineas, *TeraPCA: A fast and scalable method to study genetic variation in tera-scale genotypes*, Annual Meeting of the American Society of Human Genetics, 2017.
111. A. Bose, D. E. Platt, L. Parida, P. Paschou, and P. Drineas, *Genetic Variation reveals migrations into the Indian subcontinent and its influence on the Indian society*, Annual Meeting of the American Society of Human Genetics, 2016. **Selected for platform presentation.**
112. A. Plantinga, F. Tsetsos, P. Paschou, P. Drineas, B. Browning, and G. Stamatoyannopoulos, *Identity by descent analysis reveals fine-scale population structure in Crete*, Annual Meeting of the American Society of Human Genetics, 2015.
113. P. Paschou, I. Karagiannidis, A. Tsirigoti, A. Stampoliou, V. Papadopoulou, V. G. Manolopoulos, J. R. Kidd, K. K. Kidd, and P. Drineas, *Evaluation of the HapMap dataset as reference for the Greek population*, Annual Meeting of the American Society of Human Genetics, 2010.
114. J. Lewis, Z. Abas, C. Dadousis, D. Lykidis, P. Paschou, and P. Drineas, *Tracing The Origin Of Cattle Breeds With PCA-based Ancestry Informative SNPs*, World Congress on Genetics Applied to Livestock Production, 2010. **Selected for platform presentation.**
115. P. Paschou, J. Lewis, and P. Drineas, *Accurate inference of individual ancestry geographic coordinates within Europe using small panels of genetic markers*, Annual Meeting of the American Society of Human Genetics, 2009.
116. P. Paschou, J. Lewis, A. Javed, and P. Drineas, *Using principal components analysis to identify candidate genes for natural selection*, Annual Meeting of the American Society of Human Genetics, 2008.

117. P. Paschou, E. Ziv, E. G. Burchard, M. W. Mahoney, and P. Drineas, *PCA-correlated SNPs for structure identification in worldwide human populations*, Annual Meeting of the American Society of Human Genetics, 2007.
118. P. Paschou, M. W. Mahoney, A. Javed, J. R. Kidd, A. J. Pakstis, S. Gu, K. K. Kidd, and P. Drineas, *Intra- and inter-population genotype reconstruction from tagging SNPs*, Annual Meeting of the American Society of Human Genetics, 2006. **Selected for platform presentation.**

NEWS  
ARTICLES

1. E. Gallopoulos, P. Drineas, I. Ipsen, and M. W. Mahoney, *RandNLA, Pythons, and the CUR for your Data problems*, SIAM News, p. 7, February 2016.
2. A brief interview including my thoughts on Linear Algebra appeared in Kuldeep Singh's book "Linear Algebra: Step by Step." A link to the interview is available at <http://drineas.org>.
3. Numerous news articles have covered my June 2014 paper in the Proceedings of the National Academy of Sciences on a "Maritime Route Of Colonization of Europe" (including National Geographic, Science, Science Daily, etc.). A partial list of links to the relevant articles is available at <http://drineas.org>.
4. Harnessing the Petabyte: Data Science Research Center at Rensselaer Polytechnic Institute Explores Cloud Computing and Supercomputing To Analyze Big Data *by Mary L. Martialay*, RPI Press Release, Sep 2013.  
(Available at <http://news.rpi.edu/content/2013/09/06/harnessing-petabyte-data-science-research-center-explores-cloud-computing-and?destination=node/40180>)
5. DNA Analysis Unearths Origins of Minoans, the First Major European Civilization *by Mary L. Martialay*, RPI Press Release, May 2013.  
(Available at <http://news.rpi.edu/luwakkey/3181>)
6. Study Helps Pinpoint Genetic Variations in European Americans (*by Gabrielle DeMarco*), RPI Press Release, Aug 2008.  
(Available at <http://news.rpi.edu/update.do?artcenterkey=2479>)
7. Computer Program Reveals Anyone's Ancestry (*by Gabrielle DeMarco*), featured at *Yahoo! News* and *LIVESCIENCE*, Apr 2008.  
(Available at <http://www.livescience.com/health/080404-bts-drineas.html>)
8. Tracing Your Ancestry: Computer Program Accurately Analyzes Anonymous DNA Samples, featured at *SCIENCEDAILY*, Sep 2007.  
(Available at <http://www.sciencedaily.com/releases/2007/09/070921071744.htm>)
9. DNA Markers and Computer Science Methodology Can be Used to Trace Individual Ancestry, featured at *SCITIZEN*, Sep 2007.  
(Available at <http://scitizen.com/stories/Biotechnology/2007/10/DNA-Markers-and-Computer-Science-Methodology-Can-be-Used-to-Trace-Individual-Ancestry/>)
10. G.H. Golub, M.W. Mahoney, P. Drineas, and L.-H. Lim, *MMDS 2006: bridging the gap between numerical linear algebra, theoretical computer science, and data applications*, SIAM News, Oct 2006.

## TEACHING

(The last column reflects the summary evaluation group median score for the instructor from the student responses. The maximum score is five.)

Date		Number	Title	Enrol.	IDEA
2003	Spring	CSCI-1200	Computer Science II	140	3.8
2003	Fall	CSCI-6962	Randomized Algorithms	12	4.3
2004	Spring	CSCI-1200	Computer Science II	206	4.0
2004	Spring	CSCI-4961	Network Flows & Linear Programming	18	4.1
2005	Spring	CSCI-2400	Models of Computations	99	4.0
2006	Spring	CSCI-2400	Models of Computations	63	4.1
2006	Spring	CSCI-6962	Randomized Algorithms	15	4.6
2007	Spring	CSCI-2400	Models of Computations	69	4.1
2007	Spring	CSCI-6962	Randomized Algorithms	11	4.4
2008	Spring	CSCI-2400	Models of Computations	102	4.4
2008	Spring	CSCI-6962	Randomized Algorithms	6	5
2009	Spring	CSCI-2400	Models of Computations	78	4.4
2009	Spring	CSCI-6962	Randomized Algorithms	8	4.9
2010	Spring	CSCI-2400	Models of Computations	79	4.5
2010	Spring	CSCI-6962	Randomized Algorithms	10	5
2012	Spring	CSCI-2400	Models of Computations	77	4.4
2012	Spring	CSCI-6962	Randomized Algorithms	12	5
2013	Spring	CSCI-2200	Foundations of Computer Science	95	4.3
2013	Spring	CSCI-2400	Models of Computations	54	4.1
2013	Spring	CSCI-6962	Randomized Algorithms	14	4.6
2015	Spring	CSCI-4966/6967	Foundations of Data Science	23	4.7
2016	Spring	CSCI-2200	Foundations of Computer Science	198	4.4
2016	Spring	CSCI-6962	Randomized Algorithms	31	4.9
2016	Fall	CS-59000	Randomized Algorithms in NLA	11	4.9
2017	Spring	CS-182	Foundations of Computer Science	342	4.5
2017	Fall	CS-59000	Randomized Algorithms in NLA	8	TBA

PHD  
STUDENTS

## GRADUATED PH.D. STUDENTS

Asif Javed,	graduated December 2008
Utku Gunay Acer,	graduated August 2009
Jamey Lewis,	graduated September 2010
Christos Boutsidis,	graduated May 2011 (awarded the 2011 Robert McNaughton Prize)
Saurabh Paul,	graduated May 2015
Abhisek Kundu,	graduated Dec 2015
Nivas Nambirajan,	graduated Dec 2015

## CURRENT PH.D. STUDENTS

Chander Iyer (at RPI),	joined Sep 2012
Aritra Bose (at Purdue),	joined Sep 2016
Eugenia Kontopoulou (at Purdue),	joined Sep 2016
Agniva Chowdhury (at Purdue),	joined Jan 2017
Myson Burch (at Purdue),	joined Sep 2017

#### PH.D. COMMITTEE MEMBERSHIPS

Sudhir Kylasa	(advisor: Ananth Grama, Purdue University)
Akash Kumar	(advisor: Elena Grigorescu, Purdue University)
Negin Karisani	(advisor: Saugata Basu, Purdue University)
Peng Zhang	(advisor: Richard Peng, Georgia Tech)
Kevin Cheng	(advisor: Ravi Kannan, Yale University)
John Holodnak	(advisor: Ilse Ipsen, North Carolina State University)
Thomas Wentworth	(advisor: Ilse Ipsen, North Carolina State University)
John Aleander	(advisor: Peristera Paschou, Democritus University of Thrace, Greece)
Fotios Tsetsos	(advisor: Peristera Paschou, Democritus University of Thrace, Greece)
Shanmukha Sampath	(advisor: Peristera Paschou, Democritus University of Thrace, Greece)
Aviv Rotbart	(advisor: Amir Averbuch, University of Tel Aviv)
Chris Stuetzle	(advisor: Barbara Cutler, RPI)
Nabhendra Bisnik	(advisor: Alhussein Abouzeid, RPI)
Evrin Acar	(advisor: Bulent Yener, RPI)
Utku Gunay Acer	(advisor: Alhussein Abouzeid, RPI)
Victor Boyarshinov	(advisor: Malik Magdon-Ismail, RPI)
Bugra Caskurlu	(advisor: Malik Magdon-Ismail, RPI)
Ali Civril	(advisor: Malik Magdon-Ismail, RPI)
Karlton Sequeira	(advisor: Mohammed Zaki, RPI)

#### TUTORIALS & KEYNOTES

(*Keynote talks and tutorials.*)

1. **Summer School (lecturer):** RandNLA: Randomization in Numerical Linear Algebra, *Institute for Advanced Study (IAS) and the Park City Mathematics Institute (PCMI) Graduate Summer School 2016: The Mathematics of Data*, Midway, Utah, Jul 2016.
2. **Invited Tutorial:** RandNLA: Randomization in Numerical Linear Algebra, *SIAM Conference on Applied Linear Algebra*, Atlanta, Georgia, Oct 2015.
3. **Summer School (organizer and lecturer):** RandNLA: Randomization in Numerical Linear Algebra, *Gene Golub SIAM Summer School (G2S3)*, Delphi, Greece, Jun 2015.
4. **Keynote Speaker:** RandNLA: Randomization in Numerical Linear Algebra, *SIAM Workshop on Combinatorial Scientific Computing (CSC)*, Jul 2014.
5. **Tutorial:** Past, Present and Future of Randomized Numerical Linear Algebra, *Big Data Bootcamp, Simons Institute for the Theory of Computing, University of California, Berkeley*, Sep 2013.
6. **Tutorial:** Mining Massive Datasets: a (Randomized) Linear Algebraic Approach, *Opening workshop of the Statistical and Applied Mathematical Sciences Institute (SAMSI) "Massive Datasets" 2012-2013 program*, Sep 2012.
7. **Keynote Speaker:** Randomized Algorithms in Linear Algebra, *SIAM Conference on Applied Linear Algebra*, Valencia, Spain, Jun 2012.
8. **Keynote Speaker:** Randomized Algorithms in Data Mining: a Linear Algebraic Approach, *From Data to Knowledge Workshop, University of California, Berkeley*, May 2012.
9. **Keynote Speaker:** Randomized Algorithms for Low-Rank Approximations and Data Applications, *Workshop on Low-rank Methods for Large-scale Machine Learning, help in conjunction with the Neural Information Processing Systems Conference*, 2010.
10. **Tutorial:** Randomized Algorithms in Linear Algebra and Applications, *Workshop on Algorithms for Modern Massive Datasets, Stanford University*, Jun 2010.
11. **Keynote Speaker:** Randomized algorithms for the least-squares approximation problem, *Midwest Theory day, University of Michigan, Ann Arbor*, May 2008.

12. **Tutorial:** Information retrieval and data mining: a linear algebraic perspective, *Mathematics of Knowledge and Search Engines, Institute for Pure and Applied Mathematics, University of California Los Angeles*, Sep 2007.
13. **Tutorial:** Randomized algorithms for matrices and massive datasets, *VLDB*, Sep 2006.
14. **Tutorial:** Randomized algorithms for matrices and massive datasets, *SIAM Conference on Data Mining (SDM)*, Apr 2006.
15. **Tutorial:** Randomized algorithms for matrices and massive datasets, *ACM International Conference on Knowledge Discovery and Data Mining (KDD)*, Aug 2005.

INVITED  
TALKS

(Invited presentations only; contributed conference presentations are not included.)

16. Randomized Algorithms for Sparse PCA and Determinant Estimation, *Center for Computational and Applied Mathematics Seminar, Purdue University*, Sep 2017.
17. Leverage Scores, *Department of Applied Mathematics Colloquium, National Technical University of Athens*, May 2017.
18. Dimensionality reduction in the analysis of human genetics data, *Math-Bio Seminar, University of Pennsylvania*, Oct 2016.
19. Leverage Scores, *Statistics Colloquium, University of Chicago*, Oct 2016.
20. An approximation algorithm for Sparse PCA, *Theory Seminar, Purdue University*, Sep 2016.
21. **RandNLA:** Randomization in Numerical Linear Algebra, *Computer Science Colloquium, Washington University St. Louis*, Sep 2016.
22. **RandNLA:** Randomization in Numerical Linear Algebra, *Machine Learning Day, Google Research*, Mar 2016.
23. Leverage Scores in Data Analysis, *Mathematical Institute, Oxford University*, May 2015.
24. **RandNLA:** Randomization in Numerical Linear Algebra, *Workshop on Optimization and Matrix Methods in Big Data, Fields Institute*, Feb 2015.
25. **RandNLA:** Randomization in Numerical Linear Algebra, *Computer Science Colloquium, Purdue University*, Nov 2014.
26. Identifying Influential Entries in a Matrix, *Yahoo Labs New York*, Nov 2014.
27. **RandNLA:** Randomization in Numerical Linear Algebra, *Computational Math Colloquium, University of Waterloo*, Nov 2014.
28. Identifying Influential Entries in a Matrix, *Householder Symposium XIX, Spa, Belgium*, Jun 2014.
29. Leverage scores, *School of Mathematics, University of Edinburgh*, Apr 2014.
30. **RandNLA:** Randomization in Numerical Linear Algebra, *Computer Science Department, University of Edinburgh*, Apr 2014.
31. Leverage Scores in Data Analysis, *International Computer Science Institute (ICSI), University of California Berkeley*, Feb 2014.
32. **RandNLA:** Randomization in Numerical Linear Algebra, *SKYTREE, The Machine Learning Company*, Feb 2014.
33. Leverage Scores in Data Analysis, *Neyman Seminar, Department of Statistics, University of California Berkeley*, Nov 2013.
34. **RandNLA:** Randomization in Numerical Linear Algebra, *Workshop on Succinct Data Representations and Applications, Simons Institute for the Theory of Computing, University of California, Berkeley*, Sep 2013.

35. **RandNLA:** Randomization in Numerical Linear Algebra, *Simons Foundation Workshop on Computer Science Issues in Big Data*, Apr 2013.
36. **RandNLA:** Randomization in Numerical Linear Algebra, *Workshop celebrating Ravi Kannan's 60th birthday, Carnegie-Mellon University*, May 2013.
37. Randomized Algorithms in Numerical Linear Algebra, *NSF workshop on Big Data: From Signal Processing to Systems Engineering*, Mar 2013.
38. **RandNLA:** Randomization in Numerical Linear Algebra, *DARPA Workshop on Big Data and Large-Scale Analytics*, Mar 2013.
39. Leverage Scores, *Numerical Analysis Seminar, North Carolina State University*, Nov 2012.
40. Randomized Algorithms in Linear Algebra and Applications in Data Analysis, *Computer Science and Artificial Intelligence Laboratory (CSAIL), MIT*, Sep 2012.
41. Leverage Scores, *Scientific Computing and Numerics (SCAN) Seminar, Cornell University*, Sep 2012.
42. Randomized Algorithms in Linear Algebra and the Column Subset Selection Problem, *Theory Seminar, Carnegie Mellon University*, Apr 2012.
43. Dimensionality reduction in the analysis of human genetics data, *Bioinformatics Seminar, MIT*, Apr 2011.
44. Randomized matrix algorithms, *Theory Colloquium, University of Maryland College Park*, Feb 2011.
45. Randomized matrix algorithms and their applications, *Special Session on Random Matrix Theory and Applications in 2010 Spring Western Sectional Meeting of the American Mathematical Society*, Apr 2010.
46. Sampling algorithms for  $\ell_2$  regression, *Theory Seminar, University of Toronto*, Nov 2009.
47. Randomized Algorithms in Linear Algebra, *SIAM Conference on Applied Linear Algebra*, Oct 2009.
48. Dimensionality Reduction in the Analysis of Human Genetics Data, *DIMACS Workshop on Algorithmics in Human Population-Genomics*, Apr 2009.
49. Randomized Algorithms for Matrix Computations and Applications to Data Mining, *Numerical Analysis and Scientific Computing Seminar, Courant Institute of Mathematical Sciences, New York University*, Apr 2009.
50. Approximating a tensor as a sum of rank-one components, *NSF Workshop on Future Directions in Tensor-Based Computation and Modeling*, Feb 2009.
51. Randomized Algorithms for Matrix Computations and Applications to Data Mining, *RPI Brown Bag Lunch Lecture Series*, Feb 2009.
52. Randomized Algorithms for Linear Algebraic Computations and Applications to Network Analysis, *Workshop on New Mathematical Frontiers in Network Multi-Resolution Analysis, Institute for Pure and Applied Mathematics, University of California Los Angeles*, Nov 2008.
53. The Column Subset Selection Problem: Theory and Applications, *Computer Science Department, University of Pennsylvania*, Nov 2008.
54. Randomized Algorithms for Matrix Computations and Applications to Data Mining, *IBM T.J. Watson Research Center*, Sep 2008.
55. The Column Subset Selection Problem, *Householder Symposium XVII, Zeuthen, Germany*, Jun 2008.
56. Randomized Algorithms for Matrix Computations and Applications to Data Mining, *Colloquium, Computer Science Department, Johns Hopkins University*, May 2008.

57. Randomized Algorithms for Matrix Computations and Applications to Data Mining, *Colloquium, Computer Science Department, Northeastern University*, Feb 2008.
58. Identifying ancestry informative markers via Principal Components Analysis, *Workshop on Search and Knowledge Building for Biological Datasets, Institute for Pure and Applied Mathematics, University of California Los Angeles*, Nov 2007.
59. Sampling algorithms for  $\ell_2$  regression and the column subset selection problem, *Applied Mathematics Seminar, University of California Davis*, Nov 2007.
60. Deterministic and randomized algorithms for column subset selection, *NumAn2007 Conference in Numerical Analysis, Kalamata, Greece*, Sep 2007.
61. From the singular value decomposition of matrices to CUR-type decompositions, *Colloquium, Max Planck Institute for Informatics*, Aug 2007.
62. Fast randomized algorithms for least squares approximations, *Theory colloquium, Max Planck Institute for Informatics*, Aug 2007.
63. Fast randomized algorithms for least squares approximations, *International Congress on Industrial and Applied Mathematics, ETH Zurich*, Jul 2007.
64. From the singular value decomposition of matrices to CUR-type decompositions: algorithms and applications, *Colloquium, Computer Science Department, Dartmouth University*, Apr 2007.
65. Sampling algorithms and coresets for  $\ell_2$  regression and applications, *Princeton Theory Lunch*, Mar 2007.
66. From the singular value decomposition of matrices to CUR-type decompositions, *New England Complex Systems Institute*, Dec 2006.
67. From the singular value decomposition of matrices to CUR-type decompositions, *General Electric Research Division, Niskayuna*, Nov 2006.
68. Subspace sampling and relative error matrix approximation, *Workshop on Algorithms for Modern Massive Datasets, Stanford University*, Jun 2006.
69. Subspace sampling: coresets for  $\ell_2$  regression problems, *Bertinoro workshop on space-conscious algorithms*, Jun 2006.
70. From the singular value decomposition of matrices to CUR-type decompositions: algorithms and applications, *Bioinformatics Colloquium, Rensselaer Polytechnic Institute*, Apr 2006.
71. Approximating a matrix with submatrices: algorithms and applications, *Theory Colloquium, Computer Science Department, Yale University*, Apr 2006.
72. A relative-error CUR decomposition for matrices and its data applications, *Theory Colloquium, Computer Science Department, University of Pennsylvania*, Mar 2006.
73. A relative-error CUR decomposition for matrices and its data applications, *Theory Colloquium, Computer Science Department, Columbia University*, Feb 2006.
74. CUR matrix decompositions for improved data analysis, *Yahoo! Research*, Oct 2005.
75. Randomized algorithms for matrices and applications, *Sandia National Laboratories*, Aug 2005.
76. Sampling algorithms for  $\ell_2$  regression and applications, *Dagstuhl Seminar on Sublinear Algorithms*, Jul 2005.
77. Randomized algorithms for matrices and applications, *IBM Research, Almaden*, May 2005.
78. Monte-carlo algorithms for matrices and massive datasets, *Theory Colloquium, Computer Science Department, Stanford University*, May 2005.

79. The CUR matrix decomposition and its applications to algorithm design and massive data sets, *Colloquium, Computer Science Department, Rutgers University and DIMACS*, Nov 2004.
80. A Novel matrix decomposition with applications to algorithm design and massive data sets, *Theory Colloquium, Computer Science Department, University of Michigan at Ann Arbor*, Sep 2004.
81. Fast monte-carlo algorithms for common matrix operations, *Colloquium, Computer Science Department, Purdue University*, Sep 2004.
82. Randomized algorithms for matrix operations, *Colloquium, Computer Engineering and Informatics Department, University of Patras*, Jun 2004.
83. Pass-efficient algorithms for approximating large matrices, *Mathematisches Forschungsinstitut Oberwolfach (MFO) Workshop on Approximation Algorithms for NP-Hard Problems*, Jun 2004.
84. Computing sketches of matrices efficiently and privacy preserving data mining, *DIMACS Workshop on Privacy Preserving Data Mining*, Mar 2004.
85. Randomized algorithms for matrix operations, *Colloquium, Department of Mathematics, Rensselaer Polytechnic Institute*, Feb 2004.
86. Pass efficient algorithms for matrix operations and max-2-CSP problems, *NEC Research, Princeton*, Jul 2003.
87. Pass efficient algorithms for matrix approximations, *Colloquium, Department of Computer Science, Brown University*, Mar 2002.
88. Pass efficient algorithms for matrix approximations, *Colloquium, Department of Computer Science, Rensselaer Polytechnic Institute*, Feb 2002.
89. Pass efficient algorithms for matrix approximations, *Theory Colloquium, Department of Engineering and Applied Sciences, Harvard University*, Feb 2002.
90. Randomized algorithms for approximate matrix multiplication and the Singular Value Decomposition, *Theory Colloquium, Department of Computer Science, Brown University*, Dec 2001.
91. Fast monte carlo algorithms for matrix multiplication, *DIMACS Workshop on Sublinear Algorithms*, Sep 2000.
92. A fast Monte Carlo Singular Value Decomposition algorithm, *Theory Colloquium, Department of Computer Science, Yale University*, Apr 1999.

GRANTS  
(AWARDED)

1. **(PI P. Drineas, co-PI P. Paschou)** “III:Small:Novel Approaches for Sparse PCA, Matrix Completion, and kernel Discriminant Analysis for Mining Human Genetics Datasets”, *National Science Foundation (NSF)*, \$499,984, 2017-2020.
2. **(PI: Huo, co-PI Drineas)** “Workshop on Theoretical Foundations of Data Science (TFoDS)”, *National Science Foundation (NSF)*, \$99,997, 2016.
3. **(PI: Ipsen, co-PI Drineas)** “RandNLA: Randomization in Numerical Linear Algebra”, *National Science Foundation (NSF)*, \$25,000, 2015.
4. **(co-PIs: Drineas, Gallopoulos, Ipsen, Mahoney)** “RandNLA: Randomization in Numerical Linear Algebra”, *Society for Industrial and Applied Mathematics (SIAM)*, \$85,000, 2015.
5. **(PI Mahoney, co-PI Drineas)**, “BIGDATA:F:DKA:Collaborative Research: Randomized Numerical Linear Algebra (RandNLA) for multi-linear and non-linear data”, *National Science Foundation (NSF)*, \$800,000, 2014 – 2017.



6. **(PI Drineas)**, “III: Small: Fast and Efficient Algorithms for Matrix Decompositions and Applications to Human Genetics”, *National Science Foundation (NSF)*, \$329,455, 2013 – 2016.
7. **(PI Drineas, co-PIs Carothers, Garcia, Yener, and Zaki)**, “III: Medium: Mining petabytes of data using cloud computing and a massively parallel cyberinstrument”, *National Science Foundation (NSF)*, \$1,000,000, 2013 – 2017.
8. **(PI Drineas)**, “Intergovernmental Mobility Assignment”, *National Science Foundation (NSF)*, \$225,000, 2010-2011.
9. **(PI Drineas, co-PI Saunders)**, “Randomized Algorithms in Linear Algebra and Numerical Evaluations on Massive Datasets”, *National Science Foundation (NSF)*, \$450,000, 2010 – 2013.
10. **(PI Drineas)**, “Fast and Efficient Randomized Algorithms for Solving Laplacian Systems of Linear Equations and Sparse Least Squares Problems”, *National Science Foundation (NSF)*, \$323,000, 2010 – 2013.
11. **(PI Drineas)**, *European Molecular Biology Organization (EMBO) short term fellowship*, \$12,000, Jun - Aug 2010.
12. **(PI Makris, co-PI Drineas)**, “Collaborative Research: Correlation Mining and its Applications in Test Cost Reduction, Yield Enhancement, and Performance Calibration in Analog/RF Circuits”, *National Science Foundation (NSF)*, \$450,000, 2009 – 2012.
13. **(PI Drineas)**, *European Molecular Biology Organization (EMBO) short term fellowship*, \$12,000, Jun - Aug 2009.
14. **(PI Drineas)**, “Extracting PCA-correlated SNPs from the Human Genome Diversity Panel data”, *National Science Foundation (NSF)*, \$30,844, 2009 – 2011.
15. **(PI Isler, co-PI Drineas, co-PI Trinkle)**, “Research/Education Infrastructure Based on Modular Miniature Robot Teams”, *National Science Foundation (NSF)*, \$350,000, 2007 – 2010.
16. **(PI Makris, co-PI Drineas)**, “Statistical Analysis of Parametric Measurements and its Applications in Analog/RF Test”, *Semiconductor Research Corporation (SRC)*, \$150,000, 2007 – 2010.
17. **(PI Drineas, co-PI Abouzeid)**, “NeTS-NBD: Towards a Disconnection-Tolerant, Opportunistic Internet”, *National Science Foundation (NSF)*, \$460,000, 2006 – 2009.
18. **(PI Drineas)**, *Yahoo! Research Gift*, \$18,000, 2006.
19. **(PI Drineas)**, “Research Experience for Undergraduates (REU) Supplement: Implementing Algorithms for tSNP selection in MatLab”, *National Science Foundation (NSF)*, \$12,000, 2006 – 2011.
20. **(PI Drineas)**, “CAREER: A Framework for Mining Multimode, Non-Homogeneous Tensor Data Sets With Linear and Non-Linear Degrees of Freedom”, *National Science Foundation (NSF)*, \$400,000, 2006 – 2011.
21. **(PI Golub, co-PIs Drineas, Mahoney, and Lim)**, “Workshop on Algorithms for Modern Massive Datasets”, *National Science Foundation (NSF)*, \$15,000, 2005 – 2006.

## BOARDS

1. Member, *Gene Golub SIAM Summer School Committee*, Jan 2018 – now.
2. Editorial Board Member, *SIAM Journal on Scientific Computing*, Jan 2017 – now.
3. Editorial Board Member, *Applied and Computational Harmonic Analysis*, Jan 2017 – now.
4. Editor, *Handbook of Big Data*, *CRC Press, Taylor & Francis Group*, 2016.

5. Editorial Board Member, *SIAM Journal on Matrix Analysis and Applications*, Jan 2015 – now.
6. Editorial Board Member, *SIAM Journal on Scientific Computing, Special Issue for Software and Big Data*, 2015.
7. Editorial Board Member, *Information and Inference: A Journal of the IMA*, Feb 2014 – now.
8. Editorial Board Member, *PLoS ONE*, May 2013 – now.
9. Member, *Committee for the Advancement of Theoretical Computer Science (CATCS)*, Sep 2012 – Jun 2016.

COMMITTEE  
SERVICE

1. Chair, *Workshop on Randomized Numerical Linear Algebra and Applications, Simons Institute for the Theory of Computing, University of California, Berkeley*, Sep 2018.
2. Program Committee Member, *SIAM Workshop on Combinatorial Scientific Computing (CSC)*, Jun 2018.
3. Primary Program Committee Member, *IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, May 2018.
4. Senior Program Committee Member, *ACM Conference on Information and Knowledge Management*, Nov 2017.
5. Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2017.
6. Program Committee Member, *16th IEEE International Workshop on High Performance Computational Biology*, held in conjunction with IEEE IPDPS, May 2017.
7. Program Committee Member, *Neural Information Processing Systems Conference*, Dec 2016.
8. Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2016.
9. Organizing Committee Member, *5th Workshop on Algorithms for Modern Massive Datasets (MMDS)*, Jun 2016.
10. Chair, *Workshop on Theoretical Foundations of Data Science (TFoDS)*, Apr 2016.
11. Organizing Committee Member, *Gene Golub SIAM Summer School (G2S3)*, Jun 2015.
12. Program Committee Member, *IEEE International Conference on Data Mining (ICDM)*, Dec 2015.
13. Program Committee Member, *International Conference on Parallel Processing (ICPP)*, Sep 2015.
14. Organizing Committee Member, *SIAM Conference on Applied Linear Algebra (ALA)*, Oct 2015.
15. Organizing Committee Member, *Workshop on Optimization and Matrix Methods in Big Data, Fields Institute*, Feb 2015.
16. Program Committee Member, *IEEE International Conference on Data Mining (ICDM)*, Dec 2013.
17. Program Committee Member, *International Conference on Parallel Processing (ICPP)*, Sep 2014.
18. Organizing Committee Member, *5th Workshop on Algorithms for Modern Massive Datasets (MMDS)*, Jun 2014.
19. Program Committee Member, *ACM Symposium on Theory of Computing (STOC)*, Jun 2014.

20. Program Committee Member, *ACM-SIAM Symposium on Discrete Algorithms (SODA)*, Jan 2014.
21. Program Committee Member, *Neural Information Processing Systems Conference*, Dec 2013.
22. Chair, *Workshop on Succinct Data Representations and Applications, Simons Institute for the Theory of Computing, University of California, Berkeley*, Sep 2013.
23. Vice Chair, *IEEE International Conference on Data Mining (ICDM)*, Dec 2013.
24. Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2013.
25. Program Committee Member, *International Conference on Pattern Recognition Applications and Methods*, Feb 2013.
26. Organizing Committee Member, *Randomized Numerical Linear Algebra: Theory and Practice*, one-day workshop held in conjunction with the 53rd Annual IEEE Symposium on Foundations of Computer Science (FOCS), Oct 2012.
27. Program Committee Member, *Neural Information Processing Systems Conference*, Dec 2012.
28. Program Committee Member, *ACM International Conference on Information and Knowledge Management*, Nov 2012.
29. Program Committee Member, *International Conference on Data Technologies and Applications*, Jul 2012.
30. Organizing Committee Member, *Workshop on Algorithms for Modern Massive Datasets (MMDS) IV*, Jul 2012.
31. Program Committee Member, *Workshop on Large-scale Data Mining: Theory and Applications*, to be held in conjunction with the ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Jul 2011.
32. Program Committee Member, *International Conference on Pattern Recognition Applications and Methods*, Feb 2012.
33. Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2011.
34. Program Committee Member, *Neural Information Processing Systems Conference*, Dec 2010.
35. Program Committee Member, *Workshop on Large-scale Data Mining: Theory and Applications*, to be held in conjunction with the ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Jul 2010.
36. Organizing Committee Member, *Workshop on Algorithms for Modern Massive Datasets (MMDS) III*, Jun 2010.
37. Program Committee Member, *ACM Transactions on Knowledge Discovery from Data: Special Issue on Large-Scale Data Mining: Theory and Applications*, Mar 2010.
38. Program Committee Member, *Workshop on Feature Selection in Data Mining*, to be held in conjunction with the Pacific-Asia Conference on Knowledge Discovery and Data Mining, Jun 2010.
39. Program Committee Member, *21st Annual Symposium on Combinatorial Pattern Matching*, Jun 2010.
40. Program Committee Member, *Pacific-Asia Conference on Knowledge Discovery and Data Mining*, Jun 2010.
41. Program Committee Member, *ICDM Workshop on Large-scale Data Mining: Theory and Application*, Dec 2009.

42. Program Committee Member, *Neural Information Processing Systems Conference*, Dec 2009.
43. Co-organizer (with I. Ipsen), *Randomized Algorithms in Linear Algebra*, minisymposium in the SIAM Conference on Applied Linear Algebra, Oct 2009.
44. Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2009.
45. Program Committee Member, *International Conference on Artificial Intelligence and Statistics*, Apr 2009.
46. Program Committee Member, *Pacific-Asia Conference on Knowledge Discovery and Data Mining*, Apr 2009.
47. Program Committee Member, *Neural Information Processing Systems Conference*, Dec 2008.
48. Co-organizer (with S. Das and M. Zaki), *RPI Computer Science Day: Data Mining and Machine Learning*, Sep 2008.
49. Technical Program Committee Member, *NumAn 2008 Conference in Numerical Analysis*, Sep 2008.
50. Co-chair, *Data-Centric Computing Group for the Visions for Theoretical Computer Science Workshop*, University of Washington in Seattle, May 2008.
51. Technical Program Committee Member, *Workshop on Data Mining Using Matrices and Tensors*, held in conjunction with ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, Aug 2008.
52. Organizing Committee Member, *Workshop on Algorithms for Modern Massive Datasets (MMDS) II*, Jun 2008.
53. Organizing Committee Member, *Workshop on Data Mining for Biomedical Informatics*, held in conjunction with the SIAM Conference on Data Mining, Apr 2008.
54. Technical Program Committee Member, *SIAM Conference on Data Mining*, Apr 2008.
55. Technical Program Committee Member, *NumAn 2007 Conference in Numerical Analysis*, Sep 2007.
56. Technical Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2007.
57. Organizing Committee Member, *Workshop on Data Mining for Biomedical Informatics*, held in conjunction with the SIAM Conference on Data Mining, Apr 2007.
58. Co-organizer (with D. Freedman), *RPI Computer Science Day: Aspects of Geometric Computing*, Oct 2006.
59. Organizing Committee Member, *Workshop on Algorithms for Modern Massive Datasets (MMDS)*, Jun 2006.
60. Program Committee Member, *International Workshop on architectures, models and infrastructures to generate semantics in Peer to Peer and Hypermedia Systems*, in conjunction with the 17th ACM Conference on Hypertext and Hypermedia, 2006.
61. Technical Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2006.
62. Technical Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2005.
63. Technical Program Committee Member, *Workshop on Peer to Peer and Service-Oriented Hypermedia: Techniques and Systems*, ACM Hypertext 2005.
64. Technical Program Committee Member, *NSF-RPI Workshop on Pervasive Computing*, Apr 2004.

REVIEW  
PANELS

1. NSF CCF Review Panel, 2017.
2. NSF IIS Review Panel, 2016.
3. European Commission Programme: Horizon 2020 Review Panel, 2016.
4. NSF CCF Review Panel, 2015.
5. NSF DMS Review Panel, 2014.
6. NSF CCF Review Panel, 2014.
7. NSF IIS Review Panel, 2013.
8. European Commission Programme: FP7 Review Panel, 2012.
9. NSF CCF Review Panel, 2012.
10. NSF IIS Review Panel, 2012.
11. NSF IIS Review Panel, 2009.
12. NSF CDI Review Panel, 2009.
13. NSF CCF review panel, 2006.

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