Petros Drineas

Associate Professor
Computer Science Department
Rensselaer Polytechnic Institute
http://www.cs.rpi.edu/~drinep/

Lally Hall
110 8th Street
Troy, NY 12180
U.S.A.

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

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

Associate Professor
Rensselaer Polytechnic Institute, Jan 2009 - present

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

Design and analysis of randomized and approximation algorithms for linear algebraic problems and their applications to data mining, with a particular emphasis to the analysis of *(i)* population genetics data, *(ii)* internet data, and *(iii)* electronic circuit testing data.

Awards

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

Journal Publications (Accepted)

1. A. Javed, P. Drineas, M.W. Mahoney, and P. Paschou, *Reconstructing the genome with PCA-correlated tSNPs*, in press, Annals of Human Genetics, 2011.
2. N. Kupp, H. Huang, P. Drineas, and Y. Makris, *Cost-Benefit Analysis of Post-Production Performance Calibration in Analog/RF Devices*, IEEE Design and Test of Computers, in press, 2011.
3. 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.
4. U. Acer, P. Drineas, and A. Abouzeid, *Connectivity in Time-Graphs*, Pervasive and Mobile Computing, 7, pp. 160–171, 2011.
5. 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.
6. 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.
7. P. Drineas, M. W. Mahoney, S. Muthukrishnan, and T. Sarlos, *Faster least squares approximation*, Numerische Mathematik, 117(2), pp. 217–249, 2011.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.
13. C. Boutsidis and P. Drineas, *Random projections for the nonnegative least-squares problem*, Linear Algebra and its Applications, 431, pp. 760–771, 2009.
14. A. Dasgupta, P. Drineas, B. Harb, R. Kumar, and M. W. Mahoney, *Sampling algorithms and coresets for ℓ_p regression*, SIAM Journal on Computing, 38(5), pp. 2060–2078, 2009.
15. 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.

16. 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.
17. 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.
18. P. Paschou, P. Drineas[1], 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.
19. 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.
20. 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.
21. 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.
22. 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.
23. 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.
24. 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.
25. 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.
26. S. Almukhaizim, 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.
27. 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.
28. S. Almukhaizim, P. Drineas, and Y. Makris, *Compaction-based concurrent error detection for digital circuits*, Microelectronics Journal, 36(9), pp. 856-862, Elsevier, 2005.
29. 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.
30. K. Akcoglu, P. Drineas, and M. Kao, *Fast universalization of investment strategies*, SIAM Journal on Computing 34(1), pp. 1-22, 2004.
31. 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.
32. 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.

[1]Equal contribution with the first author.

Journal Publications (Submitted)

33. N. Nguyen, P. Drineas, and T. Tran, *Tensor sparsification via a bound on the spectral norm of random tensors*, under review, 2010.
34. P. Drineas and M. W. Mahoney, *Effective Resistances, Statistical Leverage, and Applications to Linear Equation Solving*, under review, 2010.

Conference Publications

35. C. Boutsidis, P. Drineas, and M. Magdon-Ismail, *Sparse Features for PCA-like Linear Regression*, Proc. of Neural Information Processing Systems (NIPS), 2011.
36. 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), to appear, 2011.
37. N. Kupp, H. Stratigopoulos, P. Drineas, and Y. Makris, *On Proving the Efficiency of Alternative RF Tests*, International Conference on Computer-Aided Design (ICCAD), to appear, 2011.
38. C. Boutsidis, A. Zouzias, and P. Drineas, *Random Projections for k-means Clustering*, Proc. of Neural Information Processing Systems (NIPS), 2010.
39. 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.
40. 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.
41. 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.
42. 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.
43. 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.
44. 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.
45. 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.
46. A. Dasgupta, P. Drineas, B. Harb, R. Kumar, and M. W. Mahoney, *Sampling algorithms and coresets for ℓ_p regression*, Proc. of the 19th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), pp. 932–941, 2008.
47. 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.
48. 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.

49. 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.

50. 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.

51. 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.

52. 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.

53. 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.

54. P. Drineas, M. W. Mahoney, and S. Muthukrishnan, *Sampling algorithms for ℓ_2 regression and applications*, Proc. of the 17th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), pp. 1127-1136, 2006.

55. 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.

56. 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.

57. 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.

58. 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.

59. 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.

60. 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.

61. 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.

62. 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.

63. 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.

64. 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.

65. 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.
66. 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.
67. P. Drineas and Y. Makris, *On the Compaction of Independent Test Sequences for Sequential Circuits*, IEEE European Test Workshop (ETS), Maastricht, Netherlands, 2003.
68. 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.
69. 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.
70. 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.
71. 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.
72. P. Drineas and Y. Makris, *Non-intrusive design of concurrently self-testable FSMs*, IEEE North Atlantic Test Workshop (NATW), Montauk NY, USA, 2002.
73. 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.
74. 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.
75. 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 & Technical Reports

76. 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.
77. 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.**
78. 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.
79. 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.
80. 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.

81. 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.**
82. P. Drineas, M. W. Mahoney, and S. Muthukrishnan, *Polynomial time algorithm for column-row based relative error low-rank matrix approximation*, DIMACS Technical Report 2006-04, 2006.
83. P. Drineas, *Pass efficient algorithms for approximating large matrices*, Mathematisches Forschungsinstitut Oberwolfach (MFO) Workshop on Approximation Algorithms for NP-Hard Problems, Oberwolfach, Germany, 2004.

News Articles

1. 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`)
2. 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`)
3. 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`)
4. 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/`)
5. 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.

Tutorials & Keynotes

(Keynote talks and peer-reviewed tutorials.)

1. **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.
2. **Tutorial:** Randomized Algorithms in Linear Algebra and Applications, *Workshop on Algorithms for Modern Massive Datasets, Stanford University*, Jun 2010.
3. **Keynote Speaker:** Randomized algorithms for the least-squares approximation problem, *Midwest Theory day, University of Michigan, Ann Arbor*, May 2008.
4. **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.
5. **Tutorial:** Randomized algorithms for matrices and massive datasets, *VLDB*, Sep 2006.
6. **Tutorial:** Randomized algorithms for matrices and massive datasets, *SIAM Conference on Data Mining (SDM)*, Apr 2006.
7. **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.)

8. Dimensionality reduction in the analysis of human genetics data, *Bioinformatics Seminar, MIT,* Apr 2011.
9. Randomized matrix algorithms, *Theory Colloquium, University of Maryland College Park,* Feb 2011.
10. 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.
11. Sampling algorithms for ℓ_2 regression, *Theory Seminar, University of Toronto,* Nov 2009.
12. Randomized Algorithms in Linear Algebra, *SIAM Conference on Applied Linear Algebra,* Oct 2009.
13. Dimensionality Reduction in the Analysis of Human Genetics Data, *DIMACS Workshop on Algorithmics in Human Population-Genomics,* Apr 2009.
14. 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.
15. Approximating a tensor as a sum of rank-one components, *NSF Workshop on Future Directions in Tensor-Based Computation and Modeling*, Feb 2009.
16. Randomized Algorithms for Matrix Computations and Applications to Data Mining, *RPI Brown Bag Lunch Lecture Series*, Feb 2009.
17. 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.
18. The Column Subset Selection Problem: Theory and Applications, *Computer Science Department, University of Pennsylvania*, Nov 2008.
19. Randomized Algorithms for Matrix Computations and Applications to Data Mining, *IBM T.J. Watson Research Center*, Sep 2008.
20. The Column Subset Selection Problem, *Householder Symposium XVII, Zeuthen, Germany*, Jun 2008.
21. Randomized Algorithms for Matrix Computations and Applications to Data Mining, *Colloquium, Computer Science Department, Johns Hopkins University*, May 2008.
22. Randomized Algorithms for Matrix Computations and Applications to Data Mining, *Colloquium, Computer Science Department, Northeastern University*, Feb 2008.
23. 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.
24. Sampling algorithms for ℓ_2 regression and the column subset selection problem, *Applied Mathematics Seminar, University of California Davis*, Nov 2007.
25. Deterministic and randomized algorithms for column subset selection, *NumAn2007 Conference in Numerical Analysis, Kalamata, Greece*, Sep 2007.
26. From the singular value decomposition of matrices to CUR-type decompositions, *Colloquium, Max Planck Institute for Informatics*, Aug 2007.
27. Fast randomized algorithms for least squares approximations, *Theory colloquium, Max Planck Institute for Informatics*, Aug 2007.
28. Fast randomized algorithms for least squares approximations, *International Congress on Industrial and Applied Mathematics, ETH Zurich*, Jul 2007.

29. From the singular value decomposition of matrices to CUR-type decompositions: algorithms and applications, *Colloquium, Computer Science Department, Dartmouth University*, Apr 2007.
30. Sampling algorithms and coresets for ℓ_2 regression and applications, *Princeton Theory Lunch*, Mar 2007.
31. From the singular value decomposition of matrices to CUR-type decompositions, *New England Complex Systems Institute*, Dec 2006.
32. From the singular value decomposition of matrices to CUR-type decompositions, *General Electric Research Division, Niskayuna*, Nov 2006.
33. Subspace sampling and relative error matrix approximation, *Workshop on Algorithms for Modern Massive Datasets, Stanford University*, Jun 2006.
34. Subspace sampling: coresets for ℓ_2 regression problems, *Bertinoro workshop on space-conscious algorithms*, Jun 2006.
35. From the singular value decomposition of matrices to CUR-type decompositions: algorithms and applications, *Bioinformatics Colloquium, Rensselaer Polytechnic Institute*, Apr 2006.
36. Approximating a matrix with submatrices: algorithms and applications, *Theory Colloquium, Computer Science Department, Yale University*, Apr 2006.
37. A relative-error CUR decomposition for matrices and its data applications, *Theory Colloquium, Computer Science Department, University of Pennsylvania*, Mar 2006.
38. A relative-error CUR decomposition for matrices and its data applications, *Theory Colloquium, Computer Science Department, Columbia University*, Feb 2006.
39. CUR matrix decompositions for improved data analysis, *Yahoo! Research*, Oct 2005.
40. Randomized algorithms for matrices and applications, *Sandia National Laboratories*, Aug 2005.
41. Sampling algorithms for ℓ_2 regression and applications, *Dagstuhl Seminar on Sublinear Algorithms*, Jul 2005.
42. Randomized algorithms for matrices and applications, *IBM Research, Almaden*, May 2005.
43. Monte-carlo algorithms for matrices and massive datasets, *Theory Colloquium, Computer Science Department, Stanford University*, May 2005.
44. The CUR matrix decomposition and its applications to algorithm design and massive data sets, *Colloquium, Computer Science Department, Rutgers University and DIMACS*, Nov 2004.
45. 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.
46. Fast monte-carlo algorithms for common matrix operations, *Colloquium, Computer Science Department, Purdue University*, Sep 2004.
47. Randomized algorithms for matrix operations, *Colloquium, Computer Engineering and Informatics Department, University of Patras*, Jun 2004.
48. Pass-efficient algorithms for approximating large matrices, *Mathematisches Forschungsinstitut Oberwolfach (MFO) Workshop on Approximation Algorithms for NP-Hard Problems*, Jun 2004.
49. Computing sketches of matrices efficiently and privacy preserving data mining, *DIMACS Workshop on Privacy Preserving Data Mining*, Mar 2004.
50. Randomized algorithms for matrix operations, *Colloquium, Department of Mathematics, Rensselaer Polytechnic Institute*, Feb 2004.

51. Pass efficient algorithms for matrix operations and max-2-CSP problems, *NEC Research, Princeton*, Jul 2003.
52. Pass efficient algorithms for matrix approximations, *Colloquium, Department of Computer Science, Brown University*, Mar 2002.
53. Pass efficient algorithms for matrix approximations, *Colloquium, Department of Computer Science, Rensselaer Polytechnic Institute*, Feb 2002.
54. Pass efficient algorithms for matrix approximations, *Theory Colloquium, Department of Engineering and Applied Sciences, Harvard University*, Feb 2002.
55. Randomized algorithms for approximate matrix multiplication and singular value decomposition, *Theory Colloquium, Department of Computer Science, Brown University*, Dec 2001.
56. Fast monte carlo algorithms for matrix multiplication, *DIMACS Workshop on Sublinear Algorithms*, Sep 2000.
57. A fast monte carlo singular value decomposition algorithm, *Theory Colloquium, Department of Computer Science, Yale University*, Apr 1999.

Grants

1. **(PI Drineas)**, "Intergovernmental Mobility Assignment", *National Science Foundation (NSF)*, $200,000, 2010-2011.
2. **(PI Drineas, co-PI Saunders)**, "Randomized Algorithms in Linear Algebra and Numerical Evaluations on Massive Datasets", *National Science Foundation (NSF)*, $450,000, 2010 – 2013.
3. **(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.
4. **(PI Drineas)**, *European Molecular Biology Organization (EMBO) short term fellowship*, $12,000, Jun - Aug 2010.
5. **(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.
6. **(PI Drineas)**, *European Molecular Biology Organization (EMBO) short term fellowship*, $12,000, Jun - Aug 2009.
7. **(PI Drineas)**, "Extracting PCA-correlated SNPs from the Human Genome Diversity Panel data", *National Science Foundation (NSF)*, $30,844, 2009 – 2011.
8. **(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.
9. **(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.
10. **(PI Drineas, co-PI Abouzeid)**, "NeTS-NBD: Towards a Disconnection-Tolerant, Opportunistic Internet", *National Science Foundation (NSF)*, $460,000, 2006 – 2009.
11. **(PI Drineas)**, *Yahoo! Research Gift*, $18,000, 2006.
12. **(PI Drineas)**, "Research Experience for Undergraduates (REU) Supplement: Implementing Algorithms for tSNP selection in MatLab", *National Science Foundation (NSF)*, $12,000, 2006 – 2011.
13. **(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.

14. **(PI Golub, co-PIs Drineas, Mahoney, and Lim)**, "Workshop on Algorithms for Modern Massive Datasets", *National Science Foundation (NSF)*, $15,000, 2005 – 2006.

Committee Service

1. 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.
2. Program Committee Member, *International Conference on Pattern Recognition Applications and Methods,* 2012.
3. Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2011.
4. Invited Reviewer, *Neural Information Processing Systems Conference*, Dec 2010.
5. 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.
6. Organizing Committee Member, *Workshop on Algorithms for Modern Massive Datasets (MMDS) III*, Jun 2010.
7. Program Committee Member, *ACM Transactions on Knowledge Discovery from Data: Special Issue on Large-Scale Data Mining: Theory and Applications*, Mar 2010.
8. 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.
9. Program Committee Member, *21st Annual Symposium on Combinatorial Pattern Matching*, Jun 2010.
10. Program Committee Member, *Pacific-Asia Conference on Knowledge Discovery and Data Mining*, Jun 2010.
11. NSF IIS Review Panel, 2009.
12. Program Committee Member, *ICDM Workshop on Large-scale Data Mining: Theory and Application*, Dec 2009.
13. Invited Reviewer, *Neural Information Processing Systems Conference*, Dec 2009.
14. Co-organizer (with I. Ipsen), *Randomized Algorithms in Linear Algebra*, minisymposium in the SIAM Conference on Applied Linear Algebra, Oct 2009.
15. Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2009.
16. Program Committee Member, *International Conference on Artificial Intelligence and Statistics*, Apr 2009.
17. Program Committee Member, *Pacific-Asia Conference on Knowledge Discovery and Data Mining*, Apr 2009.
18. NSF CDI Review Panel, 2009.
19. Invited Reviewer, *Neural Information Processing Systems Conference*, Dec 2008.
20. Co-organizer (with S. Das and M. Zaki), *RPI Computer Science Day: Data Mining and Machine Learning*, Sep 2008.
21. Technical Program Committee Member, *NumAn 2008 Conference in Numerical Analysis*, Sep 2008.
22. Co-chair, *Data-Centric Computing Group for the Visions for Theoretical Computer Science Workshop*, University of Washington in Seattle, May 2008.

23. 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.
24. Organizing Committee Member, *Workshop on Algorithms for Modern Massive Datasets (MMDS) II*, Jun 2008.
25. Organizing Committee Member, *Workshop on Data Mining for Biomedical Informatics*, held in conjunction with the SIAM Conference on Data Mining, Apr 2008.
26. Technical Program Committee Member, *SIAM Conference on Data Mining*, Apr 2008.
27. Technical Program Committee Member, *NumAn 2007 Conference in Numerical Analysis*, Sep 2007.
28. Technical Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2007.
29. Organizing Committee Member, *Workshop on Data Mining for Biomedical Informatics*, held in conjunction with the SIAM Conference on Data Mining, Apr 2007.
30. Co-organizer (with D. Freedman), *RPI Computer Science Day: Aspects of Geometric Computing*, Oct 2006.
31. NSF CCF review panel, 2006.
32. Organizing Committee Member, *Workshop on Algorithms for Modern Massive Datasets (MMDS)*, Jun 2006.
33. 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.
34. Technical Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2006.
35. Technical Program Committee Member, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Aug 2005.
36. Technical Program Committee Member, *Workshop on Peer to Peer and Service-Oriented Hypermedia: Techniques and Systems*, ACM Hypertext 2005.
37. Technical Program Committee Member, *NSF-RPI Workshop on Pervasive Computing*, Apr 2004.

Biographical Data

Year of birth: 1975

Country of origin: Greece

Citizenship: Greek

Visa status (US): Permanent Resident