

CURRICULUM VITAE

Tamara G. Kolda

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Research Interests

- Linear and multilinear algebra, tensor decompositions, tensor eigenvalues, graph algorithms, data mining, derivative-free optimization, computational optimization, parallel computing, design of scientific software

Professional Experience

- Distinguished Member of Technical Staff (2010-present), Informatics and Systems Assessments Department, Sandia National Laboratories, Livermore, CA
- Principal Member of Technical Staff (2002-2010), Computational Sciences and Mathematics Research and Mathematics, Informatics, and Decision Sciences Departments, Sandia National Laboratories, Livermore, CA
- Senior Member of Technical Staff (1999-2002), Computational Sciences and Mathematics Research Department, Sandia National Laboratories, Livermore, CA
- Householder Postdoctoral Fellow in Scientific Computing (1997-1999), Computer Science and Mathematics Division, Oak Ridge National Laboratory, Oak Ridge, TN
- Adjunct Assistant Professor (1997-1999), Department of Computer Science, University of Tennessee, Knoxville, TN
- Summer Intern (Summers 1994, 1995, 1996), Institute for Defense Analyses Center for Computing Sciences, Bowie, MD
- Summer Intern (Summers 1992, 1993), National Security Agency, Ft. Meade, MD

Education

- Ph.D., Applied Mathematics, University of Maryland, College Park, 1997
- M.A., Applied Mathematics, University of Maryland, College Park, 1995
- B.S., Summa Cum Laude, Mathematics, University of Maryland Baltimore County, 1992

Refereed Journal Articles

- [J28] T. G. Kolda and J. R. Mayo, Shifted Power Method for Computing Tensor Eigenpairs, *SIAM Journal on Matrix Analysis and Applications* 32(4):1095-1124, Oct. 2011, [DOI:10.1137/100801482](https://doi.org/10.1137/100801482)
- [J27] E. Acar, D. M. Dunlavy, T. G. Kolda and M. Mørup, Scalable Tensor Factorizations for Incomplete Data, *Chemometrics and Intelligent Laboratory Systems* 106(1):41-56, Mar. 2011, [DOI:10.1016/j.chemolab.2010.08.004](https://doi.org/10.1016/j.chemolab.2010.08.004)
- [J26] D. M. Dunlavy, T. G. Kolda and E. Acar, Temporal Link Prediction using Matrix and Tensor Factorizations, *ACM Transactions on Knowledge Discovery from Data* 5(2), Feb. 2011, [DOI:10.1145/1921632.1921636](https://doi.org/10.1145/1921632.1921636)
- [J25] E. Acar, D. M. Dunlavy, and T. G. Kolda, A Scalable Optimization Approach for Fitting Canonical Tensor Decompositions, *Journal of Chemometrics* 25(2):67-86, Feb. 2011, [DOI:10.1002/cem.1335](https://doi.org/10.1002/cem.1335)
- [J24] J. D. Griffin and T. G. Kolda, Nonlinearly-constrained optimization using heuristic penalty methods and asynchronous parallel generating set search, *Applied Mathematics Research eXpress*, 2010(1):36-62, Apr. 2010, [DOI:10.1093/amrx/abq003](https://doi.org/10.1093/amrx/abq003)
- [J23] T. G. Kolda and B. W. Bader, Tensor Decompositions and Applications, *SIAM Review* 51(3):455-500, Sep. 2009, [DOI:10.1137/07070111X](https://doi.org/10.1137/07070111X)

- [J22] J. D. Griffin and T. G. Kolda, Asynchronous Parallel Hybrid Optimization Combining DIRECT and GSS, *Optimization Methods and Software* 25(5):797-817, Oct. 2010 (online Aug. 2009), DOI:10.1080/10556780903039893
- [J21] J. D. Griffin and T. G. Kolda, Asynchronous Parallel Generating Set Search for Linearly-constrained Optimization, *SIAM Journal on Scientific Computing* 30(4):1892-1924, May 2008, DOI:10.1137/060664161
- [J20] K. R. Fowler, J. P. Reese, C. E. Kees, J. E. Dennis, Jr., C. T. Kelley, C. T. Miller, C. Audet, A. J. Booker, G. Couture, R. W. Darwin, M. W. Farthing, D. E. Finkel, J. M. Gablonsky, G. Gray, and T. G. Kolda, A Comparison of Derivative-free Optimization Methods for Groundwater Supply and Hydraulic Capture Community Problems, *Advances in Water Resources* 31(5):743-757, May 2008, DOI:10.1016/j.advwatres.2008.01.010
- [J19] R. Bro, E. Acar, T. G. Kolda, Resolving the Sign Ambiguity in the Singular Value Decomposition, *Journal of Chemometrics* 22(2):135-140, Feb. 2008, DOI:10.1002/cem.1122
- [J18] B. W. Bader and T. G. Kolda, Efficient Matlab Computations with Sparse and Factored Tensors, *SIAM Journal on Scientific Computing* 30(1):205-231, Dec. 2007, DOI:10.1137/060676489
- [J17] B. W. Bader and T. G. Kolda, Algorithm 862: MATLAB Tensor Classes for Fast Algorithm Prototyping, *ACM Transactions on Mathematical Software*, 32(4):635-653, Dec. 2006, DOI:10.1145/1186785.1186794
- [J16] T. G. Kolda, R. M. Lewis, and V. Torczon, Stationarity Results for Generating Set Search for Linearly Constrained Optimization, *SIAM Journal on Optimization* 17(4):943-968, Nov. 2006, DOI:10.1137/S1052623403433638
- [J15] G. A. Gray and T. G. Kolda, Algorithm 856: APPSPACK 4.0: Asynchronous Parallel Pattern Search for Derivative-Free Optimization, *ACM Transactions on Mathematical Software* 32(3):485-507, Sep. 2006, DOI:10.1145/1163641.1163647
- [J14] T. G. Kolda, Revisiting Asynchronous Parallel Pattern Search for Nonlinear Optimization, *SIAM Journal on Optimization* 16(2):563-586, Dec. 2005, DOI:10.1137/040603589
- [J13] M. Heroux, R. Bartlett, V. Howle, R. Hoekstra, J. Hu, T. Kolda, R. Lehoucq, K. Long, R. Pawlowski, E. Phipps, A. Salinger, H. Thornquist, R. Tuminaro, J. Willenbring and A. Williams, An Overview of Trilinos, *ACM Transactions on Mathematical Software* 31(3):397-423, Sep. 2005, DOI:10.1145/1089014.1089021
- [J12] G. A. Gray, T. G. Kolda, K. L. Sale, and M. M. Young, Optimizing an Empirical Scoring Function for Transmembrane Protein Structure Determination, *INFORMS Journal on Computing* (Special Issue on Computational Molecular Biology/Bioinformatics), 16(4):406-418, Fall 2004, DOI:10.1287/ijoc.1040.0102
- [J11] T. G. Kolda and V. Torczon, On the Convergence of Asynchronous Parallel Pattern Search, *SIAM Journal on Optimization* 14(4):939-964, May 2004, DOI:10.1137/S1052623401398107
- [J10] T. G. Kolda, R. M. Lewis, and V. Torczon, Optimization by Direct Search: New Perspectives on Some Classical and Modern Methods, *SIAM Review* 45(3):385-482, Aug. 2003, DOI:10.1137/S003614450242889
- [J9] T. G. Kolda, A Counter-example to the Possibility of an Extension of the Eckart-Young Low-Rank Approximation Theorem for the Orthogonal Rank Tensor Decomposition, *SIAM Journal on Matrix Analysis and Applications* 24(3):762-767, Jan. 2003, DOI:10.1137/S0895479801394465
- [J8] T. G. Kolda, Orthogonal Tensor Decompositions, *SIAM Journal on Matrix Analysis and Applications* 23(1):243-255, Jul. 2001, DOI:10.1137/S0895479800368354
- [J7] P. D. Hough, T. G. Kolda, and V. J. Torczon, Asynchronous Parallel Pattern Search for Nonlinear Optimization, *SIAM Journal on Scientific Computing* 23(1):134-156, Jun. 2001, DOI:10.1137/S1064827599365823

- [J6] J. M. Conroy, T. G. Kolda, D. P. O’Leary, and T. J. O’Leary, Chromosome Identification Using Hidden Markov Models: Comparison with Neural Networks, Singular Value Decomposition, Principal Components Analysis, and Fisher Discriminant Analysis, *Laboratory Investigation* 80(11):1629-1641, Nov. 2000, [DOI:10.1038/labinvest.3780173](https://doi.org/10.1038/labinvest.3780173)
- [J5] B. Hendrickson and T. G. Kolda, Graph Partitioning Models for Parallel Computing, *Parallel Computing* 26(12):1519-1534, Nov. 2000, [DOI:10.1016/S0167-8191\(00\)00048-X](https://doi.org/10.1016/S0167-8191(00)00048-X)
- [J4] T. G. Kolda and D. P. O’Leary, Algorithm 805: Computation and Uses of the Semidiscrete Matrix Decomposition, *ACM Transactions on Mathematical Software* 26(3):415-435, Sep. 2000, [DOI:10.1145/358407.358424](https://doi.org/10.1145/358407.358424)
- [J3] B. Hendrickson and T. G. Kolda, Partitioning Rectangular and Structurally Nonsymmetric Sparse Matrices for Parallel Computation, *SIAM Journal on Scientific Computing* 21(6):2048-2072, May 2000, [DOI:10.1137/S1064827598341475](https://doi.org/10.1137/S1064827598341475)
- [J2] T. G. Kolda, D. P. O’Leary, and L. Nazareth, BFGS with Update Skipping and Varying Memory, *SIAM Journal on Optimization* 8(4):1060-1083, Nov. 1998, [DOI:10.1137/S1052623496306450](https://doi.org/10.1137/S1052623496306450)
- [J1] T. G. Kolda and D. P. O’Leary, A Semidiscrete Matrix Decomposition for Latent Semantic Indexing in Information Retrieval, *ACM Transactions on Information Systems* 16:322-346, Oct. 1998, [DOI:10.1145/291128.291131](https://doi.org/10.1145/291128.291131)

Refereed Conference and Workshop Proceedings

- [C15] C. Seshadhri, A. Pinar and T. G. Kolda, An In-Depth Study of Stochastic Kronecker Graphs, in *ICDM 2011: Proceedings of the 2011 IEEE International Conference on Data Mining*, in press
- [C14] J. D. Basilico, M. A. Munson, Tamara G. Kolda, K. R. Dixon and W. P. Kegelmeyer, COMET: A Recipe for Learning and Using Large Ensembles on Massive Data, in *ICDM 2011: Proceedings of the 2011 IEEE International Conference on Data Mining*, in press (preprint available at [arXiv:1103.2068](https://arxiv.org/abs/1103.2068))
- [C13] E. Acar, T. G. Kolda, D. M. Dunlavy, All-at-once Optimization for Coupled Matrix and Tensor Factorizations, in *MLG’11: Proceedings of Mining and Learning with Graphs*, ACM Press, Aug. 2011 (preprint available at [arXiv:1105.3422v1](https://arxiv.org/abs/1105.3422v1))
- [C12] G. Ballard, T. G. Kolda, and T. Plantenga, Efficiently Computing Tensor Eigenvalues on a GPU, PDSEC-11: 12th IEEE International Workshop on Parallel and Distributed Scientific and Engineering Computing, in *IPDPSW’11: Proceedings of the 2011 IEEE International Symposium on Parallel and Distributed Processing Workshops and PhD Forum*, IEEE Computer Society, May 2011, [DOI:10.1109/IPDPS.2011.287](https://doi.org/10.1109/IPDPS.2011.287)
- [C11] E. Acar, D. M. Dunlavy, M. Mørup, and T. G. Kolda, Scalable Tensor Factorizations with Missing Data, in *SDM10: Proceedings of the 2010 SIAM Conference on Data Mining*, SIAM, Philadelphia, pp. 701-712, Apr. 2010, http://www.siam.org/proceedings/datamining/2010/dm10_061_acare.pdf
- [C10] E. Acar, T. G. Kolda, and D. M. Dunlavy, Link Prediction on Evolving Data using Matrix and Tensor Factorization, LDMTA2009: 1st Workshop on Large-Scale Data Mining: Theory and Applications, in *ICDMW’09: Proceedings of the 2009 IEEE International Conference on Data Mining Workshops*, IEEE Computer Society Press, pp. 262-269, Dec. 2009, [DOI:10.1109/ICDMW.2009.54](https://doi.org/10.1109/ICDMW.2009.54)
- [C9] T. G. Kolda and J. Sun, Scalable Tensor Decompositions for Multi-aspect Data Mining, in *ICDM 2008: Proceedings of the 8th IEEE International Conference on Data Mining*, pp. 363-372, Dec. 2008, [DOI:10.1109/ICDM.2008.89](https://doi.org/10.1109/ICDM.2008.89) (best paper prize)
- [C8] B. W. Bader, R. A. Harshman, and T. G. Kolda, Temporal Analysis of Semantic Graphs using ASALSAN, in *ICDM 2007: Proceedings of the 7th IEEE International Conference on Data Mining*, IEEE Computer Society Press, pp. 33-42, Oct. 2007, [DOI:10.1109/ICDM.2007.54](https://doi.org/10.1109/ICDM.2007.54)
- [C7] P. A. Chew, B. W. Bader, T. G. Kolda, and A. Abdelali, Cross-language Information Retrieval using PARAFAC2, in *KDD ’07: Proceedings of the 13th ACM SIGKDD International Conference on*

- Knowledge Discovery and Data Mining*, ACM Press, pp. 143-152, Aug. 2007, DOI:10.1145/1281192.1281211
- [C6] T. G. Kolda and B. W. Bader, The TOPHITS model for higher-order web link analysis in *Proceedings of the SIAM Data Mining Conference Workshop on Link Analysis, Counterterrorism and Security* (electronic), Apr. 2006, http://www.siam.org/meetings/sdm06/workproceed/LinkAnalysis/21Tamara_Kolda_SIAMLACS.pdf
- [C5] T. G. Kolda, B. W. Bader, and J. P. Kenny, Higher-order Web Link Analysis using Multilinear Algebra, in *ICDM 2005: Proceedings of the 5th IEEE International Conference on Data Mining*, IEEE Computer Society Press, pp. 242-249, Nov. 2005, DOI:10.1109/ICDM.2005.77
- [C4] M. L. Chiesa, R. E. Jones, K. J. Perano, T. G. Kolda, Parallel Optimization of Forging Processes for Optimal Material Properties, in *NUMIFORM 2004: The 8th International Conference on Numerical Methods in Industrial Forming Processes*, AIP Conference Proceedings 712(1):2080-2084, Jun. 2004, DOI:10.1063/1.1766841
- [C3] J. M. Conroy, R. L. Becker, Jr., W. Lefkowitz, K. L. Christopher, R. B. Surana, T. O’Leary, D. P. O’Leary, T. G. Kolda, Hidden Markov Models for Chromosome Identification, in *CBMS 2001: Proceedings of the 14th IEEE Symposium on Computer-Based Medical Systems*, pp. 473-480, 2001, DOI:10.1109/CBMS.2001.941764
- [C2] B. Hendrickson and T. G. Kolda, Partitioning Sparse Rectangular Matrices for Parallel Computations of Ax and $A^T v$, in *PARA98: Applied Parallel Computing in Large Scale Scientific and Industrial Problems: 4th International Workshop*, B. Kågström et al., eds., Vol. 1541 in Lecture Notes in Computer Science, Springer-Verlag, pp. 239-247, 1998,
- [C1] T. G. Kolda, Partitioning Sparse Rectangular Matrices for Parallel Processing. in *Irregular’98: Solving Irregularly Structured Problems in Parallel: 5th International Symposium*, A. Ferreira et al., eds., Vol. 1457 in Lecture Notes in Computer Science, Springer-Verlag, pp. 68-79, 1998

Book Chapters

- [B3] D. M. Dunlavy, T. G. Kolda, and W. P. Kegelmeyer, Tensor Decompositions for Analyzing Similarity Graphs with Multiple Linkages, in *Graph Algorithms in the Language of Linear Algebra*, J. Kepner and J. Gilbert, eds., pp. 85-114, Fundamentals of Algorithms Series, SIAM, Philadelphia, 2011
- [B2] T. G. Kolda and V. Torczon, Understanding Asynchronous Parallel Pattern Search, in *High Performance Algorithms and Software for Nonlinear Optimization*, G. Di Pillo and A. Murli, eds., pp. 316-335, Kluwer Academic Publishers B.V., 2003
- [B1] T. G. Kolda and D. P. O’Leary, Latent Semantic Indexing via a Semi-discrete Matrix Decomposition, in *The Mathematics of Information Coding, Extraction and Distribution*, G. Cybenko et al., eds., pp. 73-80, Vol. 107 of IMA Volumes in Mathematics and Its Applications, Springer-Verlag, 1999

Technical Reports and Other Papers

- [T27] C. Seshadhri, A. Pinar and T. G. Kolda, Fast Triangle Counting through Wedge Sampling, [arXiv:1202.5230](https://arxiv.org/abs/1202.5230) [cs.SI], Feb. 2012 (submitted for publication)
- [T26] C. Seshadhri, T. G. Kolda and A. Pinar, Community Structure and Scale-free Collections of Erdős-Rényi Graphs, [arXiv:1112.3644](https://arxiv.org/abs/1112.3644) [cs.SI], Dec. 2011 (submitted for publication)
- [T25] E. C. Chi and T. G. Kolda, On Tensors, Sparsity, and Nonnegative Factorizations, [arXiv:1112.2414](https://arxiv.org/abs/1112.2414) [math.NA], Dec. 2011 (submitted for publication)
- [T24] A. Pinar, C. Seshadhri, and T. G. Kolda, The Similarity between Stochastic Kronecker and Chung-Lu Graph Models, [arXiv:1110.4925](https://arxiv.org/abs/1110.4925) [cs.SI], Oct. 2011 (submitted for publication)
- [T23] C. Seshadhri, A. Pinar, and T. G. Kolda, An In-Depth Analysis of Stochastic Kronecker Graphs, [arXiv:1102.5046](https://arxiv.org/abs/1102.5046) [cs.SI], Sep. 2011 (submitted for publication)

- [T22] T. D. Plantenga and T. G. Kolda, Analytics for Cyber Network Defense, Technical Report Number SAND2011-3786, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, May 2011
- [T21] E. C. Chi and T. G. Kolda, Making Tensor Factorizations Robust to Non-Gaussian Noise, Technical Report Number SAND2011-1877, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Mar. 2011
- [T20] E. C. Chi and T. G. Kolda, Making Tensor Factorizations Robust to Non-Gaussian Noise, *NIPS Workshop on Tensors, Kernels, and Machine Learning*, Whistler, BC, Canada, Dec. 2010 (also available as [arXiv:1010.3043](https://arxiv.org/abs/1010.3043))
- [T19] D. M. Dunlavy, T. G. Kolda, and E. Acar, Poblano v1.0: A Matlab Toolbox for Gradient-Based Optimization, Technical Report Number SAND2010-1422, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Mar. 2010
- [T18] K. H. Chiang and C. L. Corbett and T. G. Kolda and J. A. Van Randwyk and A. S. Yoshimura, Final Report for the Enabling All-Threat Analysis through Intelligent Filtering of Network Traffic LDRD, Technical Report Number SAND2009-7392, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Nov. 2009
- [T17] T. G. Kolda and M. J. Procopio, Generalized BadRank with Graduated Trust, Technical Report Number SAND2009-6670, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Oct. 2009
- [T16] E. Acar, D. M. Dunlavy and T. G. Kolda, CPOPT: Optimization for Fitting CANDECOMP/PARAFAC Models (extended abstract), in *CASTA 2008: Proceedings of the Workshop on Computational Algebraic Statistics, Theories and Applications*, Kyoto, Japan, Dec. 2008
- [T15] N. Goldberg, T. G. Kolda and A. S. Yoshimura, Concurrent Optimization with DUET: DIRECT Using External Trial Points, Technical Report Number SAND2008-5844, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Sep. 2008
- [T14] T. G. Kolda and B. W. Bader, Multi-way Data Analysis and Applications, in *Proceedings of the 2008 Sandia Workshop on Data Mining and Data Analysis*, J. M. Brandt, D. M. Dunlavy and A. C. Gentile (eds.), Technical Report SAND2008-6109, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, pp. 42-45, Sep. 2008.
- [T13] K. H. Chiang, C. L. Corbett, T. G. Kolda, J. A. Van Randwyk, and A. S. Yoshimura, Preparation and Analysis of Web Search Data for Identification of National Security Threats, Technical Report SAND2008-1479, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Mar. 2008
- [T12] T. G. Kolda and B. W. Bader, Final Report: Data Mining on Attributed Relationship Graphs, Technical Report SAND2007-8018, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Dec. 2007
- [T11] T. M. Selee, T. G. Kolda, W. P. Kegelmeyer, and J. D. Griffin, Extracting Clusters from Large Datasets with Multiple Similarity Measures using IMSCAND, in *CSRI Summer Proceedings 2007*, M. L. Parks and S. S. Collis, eds., Technical Report SAND2007-7977, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, pp. 87-103, Dec. 2007
- [T10] C. Faloutsos, T. G. Kolda, and J. Sun, Mining Large Graphs and Streams using Matrix and Tensor Tools (extended abstract), in *SIGMOD '07: Proceedings of the 2007 ACM SIGMOD International Conference on Management of Data*, ACM Press, p. 1174, Jun. 2007, [DOI:10.1145/1247480.1247647](https://doi.org/10.1145/1247480.1247647)
- [T9] M. S. Eldred, A. A. Giunta, S. L. Brown, B. M. Adams, D. M. Dunlavy, J. P. Eddy, D. M. Gay, J. D. Griffin, W. E. Hart, P. D. Hough, T. G. Kolda, M. L. Martinez-Canales, L. P. Swiler, J.-P. Watson, and P. J. Williams, DAKOTA, A Multilevel Parallel Object-oriented Framework for Design Optimization, Parameter Estimation, Uncertainty Quantification, and Sensitivity Analysis: Version 4.0 Reference Manual, Technical Report SAND2006-4055, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Oct. 2006

- [T8] T. G. Kolda, R. M. Lewis, and V. Torczon, A Generating Set Direct Search Augmented Lagrangian Algorithm for Optimization with a Combination of General and Linear Constraints, Technical Report SAND2006-5315, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Aug. 2006
- [T7] T. G. Kolda, Multilinear Operators for Higher-order Decompositions, Technical Report SAND2006-2081, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Apr. 2006
- [T6] J. D. Griffin and T. G. Kolda, A Parallel, Asynchronous Method for Derivative-free Nonlinear Programs (extended abstract), in *Mathematical Software — ICMS 2006*, Volume 4151 of Lecture Notes in Computer Science, Springer, pp. 260-262, 2006
- [T5] B. W. Bader, R. P. Pawlowski, and T. G. Kolda, Robust Large-scale Parallel Nonlinear Solvers for Simulations, Technical Report SAND2005-6864, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Nov. 2005
- [T4] E. Chisholm and T. G. Kolda, New Term Weighting Formulas for the Vector Space Method in Information Retrieval, Technical Memorandum ORNL-13756, Oak Ridge National Laboratory, Oak Ridge, TN, Mar. 1999
- [T3] T. G. Kolda, Limited-memory Matrix Methods with Applications, Ph.D. thesis, Applied Mathematics Program, University of Maryland, College Park, MD, 1997
- [T2] T. Gibson (Kolda), J. Hill, C. Juergens, S. Poothari, L. Potter, and S. Stolarski, Matching Permuted Variables in Two or More Data Sets, Tech. Rep. CRSC-TR96-7, Center for Research in Scientific Computation, North Carolina State University, Raleigh, North Carolina, 1996
- [T1] T. Gibson (Kolda), The NAS Parallel Conjugate Gradient Benchmark on the Cray T3D, Technical Report SRC-TR-94-192, Supercomputing Research Center, Bowie, MD, 1994

Expository Articles, Etc.

- [E6] T. G. Kolda and V. J. Torczon, Top Ten Ways to Lose an Audience, *SIAM News* 44(3), Apr. 2011
- [E5] D. M. Dunlavy, B. Hendrickson and T. G. Kolda, Mathematical Challenges in Cybersecurity, Technical Report Number SAND 2009-0805, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, Feb. 2009
- [E4] T. G. Kolda and U. Rude, First BGCE Student Prize in CSE, *SIAM News*, 40(5), Jun. 2007, <http://www.siam.org/news/news.php?id=1130>
- [E3] T. G. Kolda *et al.*, Data Sciences for Homeland Security Information Management and Knowledge Discovery: Report of the DHS Workshop on Data Sciences, Sep. 22-23, 2004, Alexandria, Virginia, Technical Report SAND2004-6648, Sandia National Laboratories, Livermore, CA, Jan. 2005
- [E2] T. G. Kolda. An Unexpected Turn, in *Complexities: Women In Mathematics*, Bettye Anne Case and Anne M. Leggett, eds., Princeton University Press, Jan. 2005
- [E1] T. G. Kolda, On the Threshold of a New Era for Parallel Computing, *SIAM News* 37(5), Jun. 2004

Honors and Awards

- Named Distinguished Scientist by Association for Computing Machinery (ACM), Dec. 2011
- Sandia Laboratory Directed Research & Development (LDRD) Excellence Award for “advancing the state-of-the-art in the mathematics of tensor analysis and its applications to data mining problems of interest to the scientific and national security communities,” Sep. 2009
- Elected as Senior Member of the Association for Computing Machinery (ACM), May 2009
- Best Theoretical/Algorithms Paper Award, IEEE International Conference on Data Mining (ICDM), Dec. 2008
- Sandia Outstanding Student Mentor Award, 2007 & 2010
- Distinguished Alumnus Award, University of Maryland Mathematics Department, Apr. 2005

- R&D100 Award for Trilinos from R&D Magazine to recognize the “100 most technologically significant products introduced in the past year,” Oct. 2004
- 2003 Presidential Early Career Award for Scientists and Engineers (PECASE) and 2003 Department of Energy Office of Science Early Career Scientist and Engineer Award for “innovative research in algorithms and software for scientific computing, optimization, parallel computing and nonlinear solvers,” awarded Sep. 2004
- Outstanding Poster Award for “Overview of the Semi-Discrete Decomposition and Its Applications,” Sixth SIAM Conference on Applied Linear Algebra, 1997
- National Physical Science Consortium (NPSC) Graduate Fellowship covering full tuition, fees, and stipend, 1992-1997
- University of Maryland Supplemental Graduate Fellowship, 1992-1995
- University of Maryland Baltimore County Dean’s Scholarship, 1989, 1990, and 1991

Software

- [BTER](#) (MATLAB) — Generative graph model
- [Poblano Toolbox](#) (MATLAB) — Large-scale algorithms for nonlinear optimization
- [HOPSPACK](#) (C++) — Hybrid Optimization Parallel Search Package
- [MET](#) (MATLAB) — Memory-efficient Tucker (distributed with Tensor Toolbox)
- [TaMALE](#) — Multi-way, semantic graph creation and visualization
- [Tensor Toolbox](#) (MATLAB) — Higher-order operations of multidimensional arrays
- [Trilinos](#) (C++) — A suite of high-performance numerical software
- [NOX](#) (C++) — An Object-Oriented Nonlinear Equation Solver Package
- [APPSPACK](#) (C++ with MPI) — Asynchronous Parallel Pattern Search
- [SDDPACK](#) (C) — Semidiscrete Matrix Decomposition
- [Modified L-BFGS](#) (FORTRAN) — L-BFGS with update skipping and varying memory

Conference & Workshop Presentations

- [Conference on Data Analysis](#), Santa Fe, NM, Feb. 29 – Mar. 2, 2012 (Invited Speaker)
- [Large Graphs: Modeling, Algorithms, and Applications](#), Institute for Mathematics and Its Applications, Minneapolis, MN, Oct. 24-28, 2011 (Invited Speaker)
- [DOE Applied Mathematics Program Meeting](#), Reston, VA, Oct. 17-19, 2011 (Contributed Poster)
- 2nd Graph Exploitation Symposium, MIT Endicott House, Dedham, MA, Aug. 9-10, 2011 (Invited Speaker)
- [ICIAM](#), Vancouver, BC, Canada, Jul. 18-22, 2011 (Minisymposium Speaker)
- [Householder Symposium XVIII](#), Tahoe City, CA, Jun. 12-17, 2011 (Speaker)
- Sandia Fall Leadership Forum, Albuquerque, NM, Oct. 18, 2010 (Invited Speaker)
- [Conference on Tensor Decompositions and Applications](#), Monopoli, Bari, Italy, Sep. 13-17, 2010 (Speaker)
- [Conference on Numerical Linear Algebra: Perturbation, Performance, and Portability](#), Austin, TX, Jul. 19-20, 2010 (Invited Speaker)
- [2010 SIAM Annual Meeting](#), Pittsburgh, PA, Jul. 12-16, 2010 (Invited Topical Speaker)
- [BIT 50 — Trends in Numerical Computing](#), Lund, Sweden, Jun. 17-20, 2010 (Invited Plenary Speaker)
- [SIAM International Conference on Data Mining \(SDM10\)](#), Columbus, OH, Apr. 29-May 1, 2010 (Presented Accepted Paper)

- [AIM Workshop on Computational Optimization for Tensor Decompositions](#), Palo Alto, CA, Mar. 29 - Apr. 2, 2010 (Invited Speaker & Participant)
- [BIRS Workshop on Sparse Random Structures: Analysis and Computation](#), Banff, Canada, Jan. 24-29, 2010 (Invited Speaker & Participant)
- [ICDM09 Workshop on Large-scale Data Mining: Theory and Applications \(LDMTA2009\)](#), Miami, FL, Dec. 6, 2009 (Invited Keynote)
- [SIAM Conference on Applied Linear Algebra \(LA09\)](#), Monterey Bay-Seaside, CA, Oct. 26-29, 2009 (Minisymposium Speaker)
- [Career Options for Women in Mathematical Sciences](#), Institute for Mathematics and Its Applications (IMA), Minneapolis, MN, Apr. 2-4, 2009 (Invited Speaker)
- [SIAM Conference on Computational Science and Engineering \(CSE09\)](#), Miami FL, Mar. 2-6, 2009 (Contributed Presentation)
- [Future Directions in Tensor-Based Computation and Modeling](#), National Science Foundation (NSF), Arlington, VA, Feb. 20-21, 2009 (Invited speaker)
- [Computational Algebraic Statistics, Theories and Applications \(CASTA2008\)](#), Kyoto, Japan, Dec. 10-11, 2008 (Invited Speaker)
- [Multi-Manifold Data Modeling and Applications](#), Institute for Mathematics and Its Applications (IMA), Minneapolis, MN, Oct. 27-30, 2008 (Invited Speaker)
- [AMR08: Applied Mathematics Principal Investigators Meetings](#), Argonne National Laboratory, Argonne, IL, Oct. 15-17, 2008 (Selected speaker)
- [SIAM Annual Meeting](#), San Diego, CA, Jul. 7-11, 2008 (Minisymposium Speaker)
- [SIAM Conference on Optimization](#), Boston, MA, May 10-13, 2008 (Plenary Panelist)
- [Symposium on Gene Golub's Legacy: Matrix Computations — Foundation and Future](#), Stanford University, CA, Mar. 1, 2008 (Invited Speaker)
- [GAMM Seminar on Tensor Approximations](#), Max-Planck Institute for Mathematics in the Sciences, Leipzig, Germany, Jan. 25-26, 2008 (Invited Speaker)
- [19th Annual Kavli Frontiers of Science Symposium](#), Irvine, CA, Nov. 8-10, 2007 (Poster Presenter and Invited Attendee)
- [2007 IEEE International Conference on Data Mining \(ICDM'07\)](#), Omaha, NE, Oct. 28-31, 2007 (Invited Keynote Speaker and Invited Plenary Panelist)
- [Numerical Tools and Fast Algorithms for Massive Data Mining, Search Engines and Applications](#), Institute for Pure and Applied Mathematics (IPAM), Los Angeles, CA, Oct. 22-26, 2007 (Invited Speaker)
- [The 13th International Conference on Knowledge Discovery and Data Mining](#), San Jose, CA, Aug. 12-15, 2007 (Tutorial Presenter)
- [Sixth International Congress on Industrial and Applied Mathematics \(ICIAM 07\)](#), Zurich, Switzerland, Jul. 16-20, 2007 (Minisymposium Speaker)
- [2007 International Conference on Machine Learning \(ICML07\)](#), Oregon State University, Corvallis, OR, Jun. 20-24, 2007 (Tutorial Presenter)
- [2007 SIAM International Conference on Data Mining](#), Minneapolis, MN, Apr. 26-28, 2007 (Tutorial Presenter)
- [DOE Workshop on Mathematical Research Challenges in Optimization of Complex Systems](#), Bethesda, MD, Dec. 7-8, 2006 (Invited Participant)
- [Workshop on Algorithms for Modern Massive Data Sets](#), Stanford University, CA, Jun. 21-24, 2006 (Invited Speaker)

- [ThRee-way methods In Chemistry And Psychology \(TRICAP 2006\)](#), Mediterranean Agronomic Institute of Chania, Chania, Crete, Greece, Jun. 4-9, 2006 (Invited Speaker)
- [Workshop on Link Analysis, Counterterrorism and Security](#), held in conjunction with SIAM International Data Mining Conference (SDM06), Bethesda, MD, Apr. 20-22, 2006 (Presented Accepted Paper)
- [SIAM Conference on Parallel Processing for Scientific Computing \(PP06\)](#), San Francisco, CA, Feb. 22-24, 2006 (Minisymposium Speaker)
- [ICDM05: The Fifth IEEE International Conference on Data Mining](#), Houston, TX, Nov. 27-30, 2005 (Presented Accepted Paper)
- [Workshop on Tensor Decompositions and Applications](#), CIRM, Luminy, Marseille, France, Aug. 29 - Sep. 2, 2005 (Invited Speaker)
- [SIAM Conference on Computational Science & Engineering](#), Disney's Coronado Springs Resort, Orlando, FL, Feb, 12-15, 2005 (Minisymposium Speaker)
- [First International Conference on Continuous Optimization ICCOPT-I](#), Rensselaer Polytechnic Institute, Troy, NY, Aug. 2-4, 2004 (Minisymposium Speaker)
- [SIAM 2004 Annual Meeting](#), Portland, OR, Jul. 12-16,2004 (Minisymposium Speaker)
- [Tensor Decompositions Workshop](#), American Institute of Mathematics Research Conference Center, Palo Alto, CA, Jul. 19-23, 2004 (Invited Participant & Speaker)
- [Eighth Copper Mountain Conference on Iterative Methods](#), Copper Mountain, CO, Mar. 28 - Apr. 2, 2004 (Minisymposium Speaker)
- [SIAM Conference on Parallel Processing for Scientific Computing](#), Hyatt at Fisherman's Wharf, San Francisco, CA, Feb. 25-27, 2004 (Minisymposium Speaker)
- [Solution Methods for Large-Scale Nonlinear Problems](#), Hilton Garden Inn, Livermore, CA, Aug. 6-8, 2003 (Poster)
- [SIAM Conference on Applied Linear Algebra \(LA03\)](#), The College of William and Mary, Williamsburg, VA, Jul. 15-19, 2003 (Minisymposium Speaker)
- [SCaLeS: Science Case for Large-scale simulation](#), Arlington, VA, Jun. 24-25, 2003 (Invited Panelist)
- [2003 SIAM Annual Meeting \(AN03\)](#), Montreal, Canada, Jun. 16-20, 2003 (Minisymposium Speaker)
- [SIAM Computational Sciences & Engineering, Mathematics, and Computer Sciences Workshop](#), Arlington, VA, Mar. 24-25, 2003 (Invited Minipanelist)
- [Workshop on Optimization in Simulation-Based Models](#), Institute for Math and Its Applications, University of Minnesota, Minneapolis, MN, Jan. 9-16, 2003 (Invited Speaker)
- DOE ASCI Solvers Workshop, Monterey, CA, Aug. 13-15, 2002 (Invited Speaker)
- [SIAM 50th Anniversary and 2002 Annual Meeting \(SIAM50\)](#), Philadelphia, PA, Jul. 8-12, 2002 (Minisymposium Speaker)
- [SIAM Conference on Optimization](#), Toronto, Canada, May 20-22, 2002 ([Contributed Talk](#))
- [Sandia CSRI Workshop on Numerical Aspects of Circuit and Device Modeling](#), Santa Fe, NM, Apr. 3-5, 2002 (Speaker)
- [2001 SIAM Annual Meeting \(AN01\)](#) San Diego, CA Jul. 9-13, 2001, (Minisymposium Speaker)
- [Workshop on Fault Tolerance](#), Sandia National Labs, Livermore, CA, Apr. 26-27, 2001 ([Invited Speaker](#))
- [IMA Workshop on Connecting Women in Mathematical Sciences to Industry](#), Minneapolis, MN, Sep. 8-11, 2000 (Invited Speaker)
- [International Symposium on Mathematical Programming 2000](#), Atlanta, GA, Aug. 7-11, 2000 (Parallel Session Speaker)

- [2000 SIAM Annual Meeting](#), Puerto Rico, Jul. 10-14, 2000 ([Minisymposium Speaker](#))
- [Bay Area Scientific Computing Day](#), Berkeley, CA, Feb. 26, 2000 ([Invited Speaker](#))
- [Joint Mathematics Meetings](#), Washington, D.C., Jan. 19-22, 2000 ([Special Session Speaker](#))
- [Householder Symposium XIV](#), Whistler, BC, Canada, Jun. 14-18, 1999 ([Plenary Speaker](#))
- [6th SIAM Conference on Optimization](#), Atlanta, Georgia, May 10-12, 1999 ([Minisymposium Speaker](#))
- [5th International Symposium on Solving Irregularly Structured Problems, Irregular'98](#), Berkeley, CA, Aug. 9-11, 1998 ([Contributed Paper](#))
- [1998 SIAM Annual Meeting](#), Toronto, Canada, Jul. 13-17, 1998 ([Contributed Poster](#) & [Contributed Talk](#))
- [4th International Workshop on Applied Parallel Computing in Large Scale Scientific and Industrial Problems, PARA98](#), Umeå, Sweden, Jun. 14-17, 1998 ([Contributed Paper](#))
- [6th SIAM Conference on Applied Linear Algebra](#), Snowbird, UT, Oct. 29 - Nov. 1, 1997 ([Poster](#))
- [Grace Hopper Celebration of Women in Computing](#) San Jose, CA, Sep. 19-21, 1997 ([Supported Attendee](#))
- [Association for Women in Mathematics Workshop: Focus on Reporting Research Results](#) (in conjunction with 1997 SIAM Annual Meeting), Stanford University, Palo Alto, CA, Jul. 13-15, 1997 ([Minisymposium Speaker](#))
- [1997 SIAM Annual Meeting](#), Stanford University, Palo Alto, CA, Jul. 13-18, 1997 ([Contributed Talk](#))
- [Association for Women in Mathematics Workshop: Focus on Reporting Research Results](#) (in conjunction with SIAM Annual Meeting), Kansas City, Missouri, Jul. 22-23, 1996 ([Contributed Poster](#))
- [5th SIAM Conference on Optimization](#), Victoria, BC, Canada, May 20-22, 1996 ([Contributed Poster](#))
- [IMA Women in Mathematical Sciences Connected to Industry Workshop](#), Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, MN, Feb. 23-25, 1996 ([Supported Attendee](#))
- [The Industrial Mathematics Modeling Workshop for Graduate Students](#), Center for Research in Scientific Computation, North Carolina State University, Aug. 7-16, 1995 ([Supported Participant](#))
- [National Physical Science Consortium Fifth Annual Meeting](#) La Jolla, CA, Oct. 3-5, 1994 ([Invited Speaker](#))
- [National Science Foundation Research Experience for Undergraduates \(REU\) Summer Program in Matrix Analysis](#), College of William and Mary, Williamsburg, VA, Summer 1991 ([Supported Participant](#))

Invited Seminars

- [Digital Technology Center Science and Technology Innovators Lecture Series](#), University of Minnesota, Minneapolis, MN, Oct. 25, 2011
- [Schlumberger Research](#), Boston, MA, Mar. 24, 2011
- [Technical University of Denmark](#), Copenhagen, Denmark, Jun. 16, 2010
- [LAPACK Seminar](#), University of California, Berkeley, CA, Dec. 3, 2008
- [Department of Computer Science](#), University of Texas, Austin, TX, Aug. 28, 2008
- [Stanford SMART Fields Seminar](#), Stanford University, CA, Apr. 3, 2008
- [Sandia National Laboratories "LDRD Day"](#), Albuquerque, NM, Sep. 19, 2008
- [Industrial Problems Seminar](#), Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, MN, Apr. 27, 2007
- [SCI Institute Seminar Series](#), University of Utah, Salt Lake City, UT, Apr. 13, 2007

- Applied Mathematics Colloquium, University of North Carolina, Chapel Hill, NC, Nov. 10, 2006
- Numerical Analysis Seminar, North Carolina State University, Raleigh, NC, Nov. 9, 2006
- Linear Algebra/Optimization Seminar, Stanford University, Stanford, CA, Oct. 25, 2006
- National Security Agency, Ft. Meade, MD, Aug. 24, 2006
- Scientific Computing Seminar, Lawrence Berkeley National Laboratory, Berkeley, CA, May 12, 2006
- Google, Mountain View, CA, Mar. 21, 2006
- SFU-UBC Distinguished Lecture in Scientific Computing, Vancouver, BC, Canada, Mar. 10, 2006
- Applied Mathematics Seminar, University of California, Davis, CA, Feb. 3, 2006
- Applied Mathematics Colloquium, MIT, Boston, MA, Oct. 31, 2005
- R&D Focus Symposium, Sandia National Laboratories, Livermore, CA, Jan. 26, 2005
- Numerical Analysis Seminar, Courant Institute, New York University, New York, NY, Apr. 4, 2003
- Operations Research and Financial Engineering Department Seminar, Princeton University, Princeton, NJ, Apr. 1, 2003
- Mathematical, Information, and Computational Science (MICS), Department of Energy, Germantown, MD, Mar. 27, 2003
- Scientific Computing and Computational Mathematics Seminar Series, Stanford University, Stanford, CA, Oct. 21, 2002
- Joint Colloquium sponsored by the Departments of Computer Science and Applied Mathematics, University of Colorado, Boulder, CO, Oct. 3, 2002
- Applied Mathematics Seminar, University of California, Davis, CA, Feb. 22, 2001
- Mathematics Department Colloquium, University of Maryland Baltimore County, Catonsville, MD, Jan. 24, 2000
- Computer Science Department Colloquium, College of William & Mary, Williamsburg, VA, Jan. 17, 2000
- Scientific Computing and Computational Mathematics Seminar Series, Stanford University, Stanford, CA, Oct. 25, 1999
- Colloquium in Vector and Parallel Computing, ETH, Zürich, Switzerland, Mar. 9, 1999
- Chalmers University of Technology, Göteborg, Sweden, Mar. 5, 1999
- Numerical Linear Algebra Group, Lawrence Berkeley Labs, Berkeley, CA, Jan. 15, 1999
- Computer Science Department Seminar, Old Dominion University, Norfolk, VA, Oct. 29, 1998
- Research Seminar, Lucent Bell Labs, Murray Hill, NJ, Apr. 1, 1998
- CASC/ISCR Seminar, Center for Applied Scientific Computing, Lawrence Livermore National Laboratory, Livermore, CA, Feb. 26, 1998
- Joint Computer Science and Mathematics Seminar, University of Tennessee, Knoxville, TN, Nov. 7, 1997
- Numerical Analysis Seminar, University of Maryland, College Park, MD, May 8, 1997
- Applied and Computational Mathematics Division Colloquium, National Institute of Standards and Technology, Gaithersburg, MD, Jan. 14, 1997

Postdocs & Students

- David Gleich (Von Neumann postdoc), Stanford University, 2010-2011
- Eric Chi (Krell graduate), Rice University, Summers 2010 & 2011
- Grey Ballard (graduate), University of California, Berkeley, Summers 2010 & 2011
- Evrim Acar Ataman (postdoc), Rensselaer Polytechnic Institute (RPI), 2008-2010

- Noam Goldberg (graduate), Rutgers University, Summer 2008
- Teresa Selee (graduate), North Carolina State University, Summer 2007
- Josh Griffin (postdoc), University of California, San Diego, 2005-2007
- Brett Bader (Von Neumann postdoc), University of Colorado, Boulder, 2003-2005
- Darin Diachin (graduate), Northwestern University, 2003-2004
- Jill Reese (graduate), North Carolina State University, Summers 2004 & 2005
- Robert Darwin (undergraduate), North Carolina State University, Summer 2004
- Genetha Gray (postdoc), Rice University, 2002-2004
- Gregory Croue (graduate), Ecole Centrale de Lyon, Ecully, France, Jun. 2003
- Sarah Brown (graduate), University of Maryland, College Park, Summers 2000 & 2002
- Daniel Dunlavy (graduate), University of Maryland, College Park. Summer 2001
- H. Alton Patrick (undergraduate), North Carolina State University, Summer 2000
- Sarah Guske (undergraduate), Washington State University, Summer 1999
- Erica Chisholm (undergraduate), University of Delaware, Summer 1997

Professional Service and Committee Work

- Section Editor, Software and High-Performance Computing, *SIAM Journal on Scientific Computing (SISC)*, 2010-present
- Editorial Board, *SIAM Journal on Matrix Analysis and Applications (SIMAX)*, 2011-2013
- Special Editor, [Special issue on Tensors and Multilinear Algebra](#), *Linear Algebra and Its Applications (LAA)*, 2010
- Editorial Board, *SIAM Journal on Scientific Computing (SISC)*, 2004-2010
- Editorial Board, Special Issue on Computational Science and Engineering, *SIAM Journal on Scientific Computing (SISC)*, 2007
- Editor, *NA Digest*, 2005-2010
- Workshop, Conference, and Minisymposium Organization
 - Organizing Committee, [SIAM Conference on Applied Linear Algebra \(LA12\)](#), Valencia, Spain, Jun. 18-22, 2012
 - Senior Program Committee, [SIAM International Conference on Data Mining \(SDM12\)](#), Anaheim, California, Apr. 26-28, 2012
 - Program Committee, [Ninth Workshop on Mining and Learning with Graphs \(MLG 2011\)](#), San Diego, CA, Aug. 20-21, 2011
 - Industrial Committee, [International Congress on Industrial and Applied Mathematics \(ICIAM\)](#), Vancouver, BC, Canada, Jul. 18-22, 2011
 - Program Committee, [2011 SIAM International Conference on Data Mining \(SDM11\)](#), Mesa, Arizona, Apr. 28-30, 2011
 - Minisymposium Organizer, [SIAM Conference on Computational Science and Engineering](#), Reno, Nevada, Feb. 28 - Mar. 4, 2011
 - Co-organizer, [NIPS Workshop on Tensors, Kernels, and Machine Learning](#), Whistler, BC, Canada, Dec. 10, 2010
 - Organizing Committee, [AAAI 2010 Fall Symposium on Manifold Learning and its Applications](#), Arlington, VA, Nov. 11-13, 2010
 - Program Committee, [Workshop on Dynamic Networks and Knowledge Discovery \(DyNaK 2010\)](#), Barcelona, Spain, Sep. 24, 2010

- Steering Committee, [Conference on Tensor Decompositions and Applications](#), Monopoli, Bari, Italy, Sep. 13-17, 2010
- Program Committee, [ASONAM 2010: The 2010 International Conference on Advances in Social Networks Analysis and Mining](#), Odense, Denmark, Aug. 9-11, 2010
- Program Committee, [2nd Workshop on Large-scale Data Mining: Theory and Applications \(LDMTA 2010\)](#), Washington, DC, Jul. 25-28, 2010
- Minisymposium Organizer, [2010 SIAM Annual Meeting](#), Pittsburgh, PA, Jul. 12-16, 2010
- Program Committee, [2010 SIAM International Conference on Data Mining](#), Columbus, OH, Apr. 29 - May 1, 2010
- Program Committee, [Workshop on High Performance Analytics — Algorithms, Implementations, and Applications](#), 2010 SIAM International Conference on Data Mining, Columbus, OH, Apr. 29 - May 1, 2010
- Co-organizer, [AIM Workshop on Computational Optimization for Tensor Decompositions](#), Palo Alto, CA, Mar. 29 - Apr. 2, 2010
- Program Committee, [ICDM09 Workshop on Large-scale Data Mining: Theory and Applications \(LDMTA2009\)](#), Miami, FL, Dec. 6, 2009
- Invited minisymposium organizer, [SIAM Conference on Applied Linear Algebra \(LA09\)](#), Monterey, CA, Oct. 26-29, 2009
- Program Committee, [23rd IEEE International Parallel and Distributed Processing Symposium \(IPDPS2009\)](#), Rome, Italy, May 25-29, 2009
- Co-organizer, [IMA Workshop: Career Options for Women in Mathematical Sciences](#), Institute for Mathematics and Its Applications, Minneapolis, MN, Apr. 2-4, 2009
- Co-organizer of minisymposium (with E. Acar), [SIAM Conference on Computational Science and Engineering \(CSE09\)](#), Miami, FL, Mar. 2-6, 2009
- Co-organizer, [Multi-Manifold Data Modeling and Applications](#), Institute for Mathematics and Its Applications (IMA), Minneapolis, MN, Oct. 27-30, 2008
- Co-Chair, [2008 SIAM Annual Meeting](#), San Diego, CA, Jul. 7-11, 2008
- Program Committee, [SIAM International Conference on Data Mining \(SDM08\)](#), Atlanta, Georgia, Apr. 24-26, 2008
- Stream Co-Organizer, [Second Mathematical Programming Society International Conference on Continuous Optimization \(ICCOPT II\)](#), McMaster University, Hamilton, Ontario, Canada, Aug. 12-17, 2007
- Program Committee, [2006 SIAM Conference on Data Mining](#), Hyatt Regency, Bethesda, MD, Apr. 20-22, 2006
- Organizing Committee, CSE Education Panel Organizer, [SIAM Conference on Computational Science & Engineering](#), Orlando, FL, Feb. 12-15, 2005
- Chair of Program Committee, [Department of Homeland Security Data Sciences Workshop](#), Hilton Alexandria Old Town, Alexandria, VA, Sep. 22-24, 2004
- Co-Organizer, [Tensor Decompositions Workshop](#), American Institute of Mathematics Research Conference Center, Palo Alto, CA, Jul. 19-23, 2004
- DOE Lab Representative (i.e., co-organizer), [DOE Multiscale Mathematics Workshop](#), Arlington, VA, May 3-5, 2004
- Co-Organizer, [Women of Applied Mathematics: Research and Leadership](#), University of Maryland at College Park, Oct. 8-10, 2003
- Program Committee, [17th Annual ACM International Conference on Supercomputing](#)

- (Sponsored by [ACM/SIGARCH](#)), San Francisco Bay Area, Jun. 23-26, 2003
- Co-Organizer, [Sandia CSRI Workshop on Numerical Aspects of Circuit and Device Modeling](#), Santa Fe, NM, Apr. 3-5, 2002
 - Co-Organizer, [Bay Area Scientific Computing Day](#), Pleasanton, CA, Mar. 2, 2002
 - Technical Papers Committee, [Supercomputing](#), Baltimore, MD, Nov. 16-22, 2002
 - Organizing Committee, [10th SIAM Conference on Parallel Processing for Scientific Computing](#), Portsmouth, VA, Mar. 12-14, 2001
 - Elected and Appointed Offices in Professional Societies
 - Member (elected), SIAM Board of Trustees, 2012-2014
 - Chair (elected), SIAM Activity Group on Computational Science & Engineering, 2009-2010
 - Vice Chair (elected), SIAM Activity Group on Computational Science & Engineering, 2007-2008
 - Secretary (elected), SIAM Activity Group on Computational Science & Engineering, 2004-2006
 - Secretary (elected), [SIAM Activity Group on Linear Algebra](#), 2001-2003
 - Web Editor and ex officio Executive Committee Member, AWM, 1997-2002
 - Current Committee Work
 - Member, Mathematics Awareness Month 2012 Advisory Committee, for theme “Mathematics, Statistics, and the Data Deluge,” Fall 2011
 - Member, SIAM Systems Oversight Committee, 2006-present
 - Member, [Data Mining Technical Committee of the IEEE Computational Intelligence Society](#), 2010-present
 - Creator and maintainer, [BANANA \(Bay Area Numerical Analysis Networking Alliance\) Email List](#), 2000-present
 - Referee for *ACM Transactions on Knowledge Discovery and Data Mining*, *ACM Transactions on Mathematical Software*, *Applied Mathematics and Computation*, *Automatica*, *Computing*, *IEEE Transactions on Knowledge and Data Engineering*, *IEEE Transactions on Neural Networks*, *Journal on Computational and Applied Mathematics*, *Linear Algebra and Its Applications*, *Numerical Algorithms*, *Numerical Linear Algebra*, *Optimization and Engineering*, *Parallel Computing*, *SIAM Journal on Matrix Analysis and Applications*, *SIAM Journal on Optimization*, *SIAM Journal on Scientific Computing*, *SIAM Review*, *International Journal on Supercomputing Applications and High Performance Computing*, *Psychometrika*, etc.
 - Selected Past Committee Work
 - Member, SIAM Ad Hoc XML Committee, 2011
 - Chair, Nominating Committee, SIAM Activity Group for Computational Science and Engineering, 2010
 - Member, Human Resources Board, American Institute of Mathematics, 2006-2009
 - Member, SIAM Nomination Committee, 2008-2009
 - Prize Committee Member, Bavarian Graduate School of Computational Engineering (BCGE) Student Prize, SIAM CS&E Conference, 2007
 - Member (SIAM representative), Joint Committee on Women, 2004-2006
 - Member, SIAM Web Committee, 2002-2005
 - Member, AWM Strategic Planning Committee, 2003-2004
 - Member (AWM representative), SIAM Kovalevsky Prize Selection Committee, 2002-2003
 - Chairperson, AWM Student Chapter Creation Task Force, 2001-2002

Non-Technical and Community Talks

- Invited Panelist, Big Data Panel, [2012 SIAM Annual Meeting](#), Minneapolis, MN, July 9-13, 2012
- Invited Panelist, Women in the Defense Industry, [Grace Hopper Celebration of Women in Computing](#), Portland, OR, Nov. 9-11, 2011
- Keynote Speaker, Sandia Girls' Math and Science Awards Banquet, Livermore, CA, May 18, 2011
- Invited Panelist, Opportunities in High-Performance Computing at Department of Energy Laboratories, [Richard Tapia Celebration of Diversity in Computing](#), San Francisco, CA, Apr. 3-5, 2011
- Invited Panelist, Negotiation and Self-Promotion Panel, [Women in Mathematics Symposium](#), Institute for Pure and Applied Mathematics (IPAM), Los Angeles, CA, Feb. 24-26, 2011
- Invited Panelist, Professional Development Evening, [SIAM Conference on Computational Science and Engineering \(CSE09\)](#), Miami, FL, Mar. 2-6, 2009
- Invited Panelist, *The Next 50 Years*, [Stanford 50: State of the Art and Future Directions of Computational Mathematics and Numerical Computing](#), Stanford University, Mar. 29-31, 2007
- *How to give a talk*, Sandia National Labs, Jul. 19, 2006, Jul. 3, 2007, Jun. 25, 2008, and Jul. 22, 2010; and North Carolina State University, Nov. 9, 2006
- Invited Panelist, *Industry Panel*, [SIAM Annual Meeting \(AN06\)](#), Boston, MA, Jul. 10-14, 2006
- *The What, Why, Who, Where, and How of a Successful Career*, University of Maryland, Apr. 29, 2005
- Keynote Address (with Dianne O'Leary), [Women of Applied Mathematics: Research and Leadership, Workshop on Women in Applied Mathematics: Research and Leadership](#), University of Maryland, College Park, MD, Oct. 8-10, 2003
- *On the Theoretical and Practical Importance of Generating Set Search: A Class of Direct Search Methods for Optimization*, a talk aimed at undergraduates, Cal State Hayward, Apr. 18, 2003
- *How to Give a Talk: Advice on Preparing and Presenting Technical Talks in the Mathematical Sciences*, Sandia Summer Student Seminar Series, Albuquerque, NM, Jul. 31, 2001
- Invited Panelist, *Launching a Career in Mathematics*, [AWM Workshop at the Joint Mathematics Meetings](#), New Orleans, LA, Jan. 10-13, 2001
- Invited Plenary Speaker, *Scientific Computing: Where Mathematics and Computer Science Meet*, 18th Annual Mathematics Symposium, Western Kentucky University, Bowling Green, Kentucky, Nov. 20-21, 1998
- *Parallel Computing*, Sharing Adventures in Engineering and Science (SHADES): An Interactive Colloquium in Science and Engineering for 6th and 7th Grade Girls and Teachers, Oak Ridge, TN, Mar. 7, 1998

Professional Societies

- [Society for Industrial and Applied Mathematics \(SIAM\)](#)
- [Association for Computing Machinery \(ACM\)](#) (Senior Member)
- [Association for Women in Mathematics \(AWM\)](#)