CURRICULUM VITAE
Tamara G. Kolda

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Education

- Ph.D., Applied Mathematics, University of Maryland, College Park, 1997.
  Advisor: D. P. O'Leary. Dissertation: *Limited-memory Matrix Methods with Applications*.
- M.A., Applied Mathematics, University of Maryland, College Park, 1995.
- B.S., Summa Cum Laude, Mathematics, University of Maryland Baltimore County, 1992.

Professional Experience

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

Refereed Journal Articles

- Tamara G. Kolda and Brett W. Bader. *Tensor Decompositions and Applications.* SIAM Review, in press.
- Joshua D. Griffin and Tamara G. Kolda. *Asynchronous Parallel Generating Set Search for Linearly-constrained Optimization*. SIAM Journal on Scientific Computing, 30(4):1892–1924, May 2008.
- 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.
- Rasmus Bro, Evrim Acar, Tamara G. Kolda, *Resolving the Sign Ambiguity in the Singular Value Decomposition.* Journal of Chemometrics, 22(2):135–140, February 2008.
- Brett W. Bader and Tamara G. Kolda. *Efficient Matlab Computations with Sparse and Factored Tensors.* SIAM Journal on Scientific Computing, 30(1):205–231, December 2007.
- Brett W. Bader and Tamara G. Kolda. *Algorithm 862: MATLAB Tensor Classes for Fast Algorithm Prototyping*. ACM Transactions on Mathematical Software, 32(4):635–653, December 2006.
- Tamara G. Kolda, Robert Michael Lewis, and Virginia Torczon. *Stationarity Results for Generating Set Search for Linearly Constrained Optimization*. SIAM Journal on Optimization, 17(4):943–968, November 2006.
- Genetha A. Gray and Tamara G. Kolda. *Algorithm 856: APPSPACK 4.0: Asynchronous Parallel Pattern Search for Derivative-Free Optimization*. ACM Transactions on Mathematical Software, 32(3):485–507, September 2006.

- Tamara G. Kolda. *Revisiting Asynchronous Parallel Pattern Search for Nonlinear Optimization*. SIAM Journal on Optimization, 16(2):563–586, December 2005.
- Michael Heroux, Roscoe Bartlett, Vicki Howle, Robert Hoekstra, Jonathan Hu, Tamara Kolda, Richard Lehoucq, Kevin Long, Roger Pawlowski, Eric Phipps, Andrew Salinger, Heidi Thornquist, Ray Tuminaro, James Willenbring and Alan Williams. *An Overview of Trilinos*. ACM Transactions on Mathematical Software, 31(3):397–423, September 2005.
- Genetha Anne Gray, Tamara G. Kolda, Kenneth L. Sale, and Malin 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.
- Tamara G. Kolda and Virginia Torczon. *On the Convergence of Asynchronous Parallel Pattern Search*. SIAM Journal on Optimization 14(4):939–964, May 2004.
- Tamara G. Kolda, Robert Michael Lewis, and Virginia Torczon. *Optimization by Direct Search: New Perspectives on Some Classical and Modern Methods*. SIAM Review, 45(3):385–482, August 2003.
- Tamara 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, January 2003.
- Tamara G. Kolda. *Orthogonal Tensor Decompositions*. SIAM Journal on Matrix Analysis and Applications, 23(1):243–255, July 2001.
- 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, June 2001.
- Bruce Hendrickson and Tamara G. Kolda. *Graph Partitioning Models for Parallel Computing*. Parallel Computing, 26(12):1519–1534, November 2000.
- John M. Conroy, Tamara G. Kolda, Dianne P. O'Leary, and Timothy 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, November 2000.
- Tamara G. Kolda and Dianne P. O'Leary. *Algorithm 805: Computation and Uses of the Semidiscrete Matrix Decomposition*. ACM Transactions on Mathematical Software, 26(3):415–435, September 2000.
- Bruce Hendrickson and Tamara G. Kolda. *Partitioning Rectangular and Structurally Nonsymmetric Sparse Matrices for Parallel Computation*. SIAM Journal on Scientific Computing, 21(6):2048–2072, May 2000.
- Tamara G. Kolda, Dianne P. O'Leary, and Larry Nazareth. *BFGS with Update Skipping and Varying Memory*. SIAM Journal on Optimization, 8(4):1060–1083, November 1998.
- Tamara G. Kolda and Dianne P. O'Leary. *A Semidiscrete Matrix Decomposition for Latent Semantic Indexing in Information Retrieval*. ACM Transactions on Information Systems, 16:322–346, October 1998.

Refereed Conference and Workshop Proceedings

- Tamara G. Kolda and Jimeng 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, December 2008. (Best paper prize.)
- Brett W. Bader, Richard A. Harshman, and Tamara G. Kolda. *Temporal Analysis of Semantic Graphs using ASALSAN.* In ICDM 2007: Proceedings of the 7th IEEE International Conference on Data Mining, pp. 33–42, October 2007.
- Peter A. Chew, Brett W. Bader, Tamara G. Kolda, and Ahmed Abdelali. *Cross-language Information Retrieval using PARAFAC2.* In KDD '07: Proceedings of the 13th ACM SIGKDD international conference on knowledge discovery and data mining, pp. 143–152. ACM Press, August 2007.

- Tamara Kolda and Brett Bader. *The TOPHITS model for higher-order web link analysis*. In Workshop on Link Analysis, Counterterrorism and Security, April 2006.
- Tamara G. Kolda, Brett W. Bader, and Joseph P. Kenny. *Higher-order Web Link Analysis using Multilinear Algebra.* In ICDM 2005: Proceedings of the 5th IEEE International Conference on Data Mining, pp. 242-249, November 2005.
- Michael L. Chiesa, Reese E. Jones, Kenneth J. Perano, Tamara 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, June 2004.
- Tamara G. Kolda and Virginia Torczon. *Understanding Asynchronous Parallel Pattern Search*. In High Performance Algorithms and Software for Nonlinear Optimization, G. Di Pillo and A. Murli, eds., Kluwer Academic Publishers B.V., pp. 316–335, 2003.
- 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-Bases Medical Systems, pp. 473–480, 2001.
- Tamara G. Kolda and Dianne 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., vol. 107 of IMA Volumes in Mathematics and Its Applications, Springer-Verlag, pp. 73–80, 1999.
- Bruce Hendrickson and Tamara G. Kolda. *Partitioning Sparse Rectangular Matrices for Parallel Computations of Ax and A'v*. In PARA98: Applied Parallel Computing in Large Scale Scientific and Industrial Problems: 4th International Workshop, B. Kågström et al., eds., no. 1541 in Lecture Notes in Computer Science, Springer-Verlag, pp. 239–247, 1998.
- Tamara 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., no. 1457 in Lecture Notes in Computer Science, Springer-Verlag, pp. 68–79, 1998.

Technical Reports and Other Papers

- E. Acar, T. G. Kolda and D. M. Dunlavy. *An Optimization Approach for Fitting Canonical Tensor Decompositions.* Technical Report Number SAND2009-0857, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, February 2009.
- E. Acar, D. M. Dunlavy and T. G. Kolda. *CPOPT: Optimization for Fitting CANDECOMP/PARAFAC Models (extended abstact).* In: CASTA 2008: Workshop on Computational Algebraic Statistics, Theories and Applications, Kyoto, Japan, December 2008.
- J. D. Griffin and T. G. Kolda. *Asynchronous Parallel Hybrid Optimization Combining DIRECT and GSS.* Technical Report Number SAND2008-6553, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, October 2008.
- 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, September 2008.
- 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, September 2008, pp. 42-45.
- Ken H. Chiang, Cherita L. Corbett, Tamara G. Kolda, Jamie A. Van Randwyk, and Ann 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, March 2008.

- Tamara G. Kolda and Brett W. Bader. *Final report: Data Mining on Attributed Relationship Graphs.* Technical Report SAND2007-8018, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, December 2007.
- Teresa M. Selee, Tamara G. Kolda, W. Philip Kegelmeyer, and Joshua D. Griffin. *Extracting Clusters from Large Datasets with Multiple Similarity Measures using IMSCAND.* In Michael L. Parks and S. Scott Collis, editors, CSRI Summer Proceedings 2007, Technical Report SAND2007-7977, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, pp. 87–103, December 2007.
- Christos Faloutsos, Tamara G. Kolda, and Jimeng 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, p. 1174. ACM, 2007.
- Joshua D. Griffin and Tamara G. Kolda. *Nonlinearly-constrained Optimization Using Asynchronous Parallel Generating Set Search.* Technical Report SAND2007-3257, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, May 2007. (Submitted for publication.)
- Michael S. Eldred, Anthony A. Giunta, Shannon L. Brown, Brian M. Adams, Daniel M. Dunlavy, John P. Eddy, David M. Gay, Josh D. Griffin, William E. Hart, Patty D. Hough, Tammy G. Kolda, Monica L. Martinez-Canales, Laura P. Swiler, Jean-Paul Watson, and Pamela 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, October 2006.
- Tamara G. Kolda, Robert Michael 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, August 2006.
- Daniel M. Dunlavy, Tamara G. Kolda, and W. Philip Kegelmeyer. *Multilinear Algebra for Analyzing Data with Multiple Linkages.* Technical Report SAND2006-2079, Sandia National Laboratories, Albuquerque, New Mexico and Livermore, California, April 2006.
- Tamara G. Kolda. *Multilinear Operators for Higher-order Decompositions* Technical Report SAND2006-2081, Sandia National Laboratories, Albuquerque, New Mexico and Livermore, California, April 2006.
- Joshua D. Griffin and Tamara 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, pp. 260–262. Springer, 2006.
- Brett W. Bader, Roger P. Pawlowski, and Tamara G. Kolda. *Robust Large-scale Parallel Nonlinear Solvers for Simulations*. Technical Report SAND2005-6864, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, November 2005.
- Erica Chisholm and Tamara G. Kolda. *New Term Weighting Formulas for the Vector Space Method in Information Retrieval*. Technical Memorandum ORNL-13756, Oak Ridge National Laboratory, Oak Ridge, Tennessee, March 1999.
- Tamara G. Kolda. *Limited-memory Matrix Methods with Applications*. Ph.D. thesis, Applied Mathematics Program, University of Maryland, College Park, Maryland, 1997.
- Tamara Gibson (Kolda), Jennifer Hill, Christina Juergens, Sridar Pootheri, Laura Potter, and Shirley 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.
- T. Gibson (Kolda). *The NAS Parallel Conjugate Gradient Benchmark on the Cray T3D*. Technical Report SRC-TR-94-192, Supercomputing Research Center, Bowie, Maryland, 1994.

Expository Articles, Etc.

- Daniel M. Dunlavy, Bruce Hendrickson and Tamara G. Kolda. *Mathematical Challenges in Cybersecurity.* Technical Report Number SAND 2009-0805, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, February 2009.
- Tamara G. Kolda and Ulrich Rüde. *First BGCE Student Prize in CSE.* SIAM News, 40(5), June 2007.
- Tamara G. Kolda *et al.*. *Data Sciences for Homeland Security Information Management and Knowledge Discovery: Report of the DHS Workshop on Data Sciences. September 22–23, 2004, Alexandria, Virgnia*, Technical Report SAND2004-6648, Sandia National Laboratories, Livermore, California, January 2005.
- Tamara G. Kolda. *An Unexpected Turn*. in Complexities: Women In Mathematics, Bettye Anne Case and Anne M. Leggett (eds), Princeton University Press, January 2005.
- Tamara G. Kolda. *On the Threshold of a New Era for Parallel Computing*. SIAM News 37(5), June 2004.

Software

- MET (MATLAB) — Memory-efficient Tucker.
- 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

- Career Options for Women in Mathematical Sciences, Institute for Mathematics and Its Applications (IMA), Minneapolis, Minnesota, April 2–4, 2009. (Invited speaker.)
- SIAM Conference on Computational Science and Engineering (CSE09), Miami Hilton Hotel, Miami Florida, March 2–6, 2009. (Contributed presentation.)
- Future Directions in Tensor-Based Computation and Modeling, National Science Foundation (NSF), Arlington, Virginia, February 20–21, 2009. (Invited participant.)
- Computational Algebraic Statistics,Theories and Applications (CASTA2008), Kyoto, Japan, December 10-11, 2008. (Invited Speaker.)
- Multi-Manifold Data Modeling and Applications, Institute for Mathematics and Its Applications (IMA), Minneapolis, Minnesota, October 27-30, 2008. (Invited speaker.)
- AMR08: Applied Mathematics Principal Investigators Meetings, Argonne National Laboratory, Argonne, Illinois, October 15-17, 2008. (Selected speaker.)
- Sandia 2008 Workshop on Data Mining and Data Analysis (Internal), Albuquerque, New Mexico, July 22, 2008. (Speaker.)
- SIAM Annual Meeting, San Diego, California, July 7-11, 2008. (Minisymposium Speaker.)
- Mathematics for Analysis of Petascale Data (DOE ASCR Workshop), Rockville, Maryland, June 3–5. (Invited Participant.)
- SIAM Conference on Optimization, Boston, Massachusetts, May 10-13, 2008. (Plenary Panelist.)
- Symposium on Gene Golub's Legacy: Matrix Computations — Foundation and Future, Stanford University, California, March 1, 2008. (Invited Speaker.)
- GAMM Seminar on Tensor Approximations, Max-Planck Institute for Mathematics in the Sciences, Leipzig, Germany, January 25–26, 2008. (Invited Speaker.)
- 19th Annual Kavli Frontiers of Science Symposium, Irvine, California, November 8–10, 2007. (Poster Presentation and Invited Attendee.)

- 2007 IEEE International Conference on Data Mining, Omaha, Nebraska, October 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, California, October 22-26, 2007. (Invited Speaker.)
- The 13th International Conference on Knowledge Discovery and Data Mining, San Jose, California, August 12–15, 2007. (Tutorial Presenter.)
- Sixth International Congress on Industrial and Applied Mathematics (ICIAM 07), Zurich, Switzerland, July 16–20, 2007. (Minisymposium Speaker.)
- 2007 International Conference on Machine Learning (ICML07), Oregon State University, Corvallis, Oregon, June 20–24, 2007. (Tutorial Presenter.)
- 2007 ACM SIGMOD International Conference on Management of Data, Beijing, China, June 11–14, 2007. (Tutorial Co-author, but did not attend conference.)
- ASCR Applied Mathematics Research Principal Investigators Meeting, Lawrence Livermore National Laboratory, Livermore, California, May 22–24, 2007. (Attendee.)
- 2007 SIAM International Conference on Data Mining, Minneapolis, Minnesota, April 26–28, 2007. (Tutorial Presenter.)
- Sandia 2007 Workshop on Data Mining and Data Analysis (Internal), Albuquerque, New Mexico, January 23–24, 2007. (Speaker.)
- DOE Workshop on Mathematical Research Challenges in Optimization of Complex Systems, Bethesda, Maryland, December 7–8, 2006. (Invited Participant.)
- Workshop on Algorithms for Modern Massive Data Sets, Stanford University, California, June 21–24, 2006. (Invited Speaker.)
- ThRee-way methods In Chemistry And Psychology (TRICAP 2006), Mediterranean Agronomic Institute of Chania, Chania, Crete, Greece, June 4–9, 2006. (Invited Speaker.)
- Workshop on Link Analysis, Counterterrorism and Security, held in conjunction with SIAM Interational Data Mining Conference (SDM06), Bethesda, Maryland, April 20–22, 2006. (Speaker.)
- SIAM Conference on Parallel Processing for Scientific Computing (PP06), San Francisco, California, February 22–24, 2006. (Minisymposium Speaker.)
- ICDM05: The Fifth IEEE International Conference on Data Mining, Houston, Texas, November 27–30, 2005. (Accepted Paper Speaker.)
- Workshop on Tensor Decompositions and Applications, CIRM, Luminy, Marseille, France, August 29 – September 2, 2005. (Invited Speaker.)
- SIAM Conference on Computational Science & Engineering, Disney's Coronado Springs Resort, Orlando, Florida, Feb, 12–15, 2005. (Minisymposium Speaker.)
- First International Conference on Continuous Optimization ICCOPT-I, Rensselaer Polytechnic Institute, Troy, New York, August 2–4, 2004. (Minisymposium Speaker.)
- SIAM 2004 Annual Meeting, Doubletree Hotel, Portland-Lloyd Center, Portland, Oregon, July 12–16,2004. (Minisymposium Speaker.)
- Tensor Decompositions Workshop, American Institute of Mathematics Research Conference Center, Palo Alto, California, July 19–23, 2004. (Speaker.)
- Eighth Copper Mountain Conference on Iterative Methods, Copper Mountain, Colorado, March 28 – April 2, 2004. (Minisymposium Speaker.)
- SIAM Conference on Parallel Processing for Scientific Computing, Hyatt at Fisherman's Wharf, San Francisco, California, February 25–27, 2004. (Minisymposium Speaker.)
- Solution Methods for Large-Scale Nonlinear Problems, Hilton Garden Inn, Livermore, California, August 6–8, 2003. (Poster.)
- SIAM Conference on Applied Linear Algebra (LA03), The College of William and Mary, Williamsburg, Virginia, July 15–19, 2003. (Minisymposium Speaker.)
- SCaLeS: Science Case for Large-scale simulation, Arlington, Virginia, June 24–25, 2003.

(Invited Panelist.)
- 2003 SIAM Annual Meeting (AN03), Montreal, Canada, June 16–20, 2003. (Minisymposium Speaker.)
- SIAM Computational Sciences & Engineering, Mathematics, and Computer Sciences Workshop, Arlington, Virginia, March 24–25, 2003. (Invited Minipanelist.)
- Workshop on Optimization in Simulation-Based Models, Institute for Math and Its Applications, University of Minnesota, Minneapolis, Minnesota, January 9–16, 2003. (Invited Speaker.)
- DOE ASCI Solvers Workshop, Monterey, California, August 13–15, 2002. (Invited Speaker.)
- SIAM 50th Anniversary and 2002 Annual Meeting (SIAM50), Philadelphia Marriott Hotel, Philadelphia, Pennsylvania, July 8–12, 2002. (Minisymposium Speaker.)
- SIAM Conference on Optimization, Westin Harbour Castle Hotel, Toronto, Canada, May 20–22, 2002. (Contributed Talk.)
- Sandia CSRI Workshop on Numerical Aspects of Circuit and Device Modeling, Santa Fe, New Mexico, April 3–5, 2002. (Speaker.)
- 2001 SIAM Annual Meeting (AN01), Town & Country Hotel, San Diego, California, July 9–13, 2001. (Minisymposium Speaker.)
- Workshop on Fault Tolerance, Sandia National Labs, Livermore, California, April 26–27, 2001. (Invited Speaker.)
- IMA Workshop on Connecting Women in Mathematical Sciences to Industry, Minneapolis, Minnesota, September 8–11, 2000. (Invited Speaker.)
- International Symposium on Mathematical Programming 2000, Atlanta, GA, August 7–11, 2000. (Parallel Session Speaker.)
- 2000 SIAM Annual Meeting, Puerto Rico, July 10–14, 2000. (Minisymposium Speaker.)
- Bay Area Scientific Computing Day, Berkeley, California, February 26, 2000. (Invited Speaker.)
- Joint Mathematics Meetings, Washington, D.C., January 19–22, 2000. (Special Session Speaker.)
- Householder Symposium XIV, Whistler, British Columbia, Canada, June 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, California, August 9–11, 1998. (Contributed Paper.)
- 1998 SIAM Annual Meeting, Toronto, Canada, July 13–17, 1998. (Contributed Poster, Contributed Talk.)
- 4th International Workshop on Applied Parallel Computing in Large Scale Scientific and Industrial Problems, PARA98, Umeå, Sweden, June 14–17, 1998. (Contributed Paper.)
- 6th SIAM Conference on Applied Linear Algebra, Snowbird, Utah, October 29 – November 1, 1997. (Poster.)
- Parallel Programming with PVM on Clusters of Workstations and on the IBM SP2, Joint Institute for Computational Science Workshop, Knoxville, October 22 – 24, 1997. (Attendee.)
- Grace Hopper Celebration of Women in Computing, September 19 – 21, 1997, San Jose. (Supported attendee.)
- Association for Women in Mathematics Workshop: Focus on Reporting Research Results (in conjunction with 1997 SIAM Annual Meeting), Stanford University, Palo Alto, California, July 13–15, 1997. (Minisymposium Speaker.)
- 1997 SIAM Annual Meeting, Stanford University, Palo Alto, California, July 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, July 22–23, 1996.

(Contributed Poster.)
- SIAM 1996 Annual Meeting, Kansas City, Missouri, July 22–26, 1996.
- 5th SIAM Conference on Optimization, Victoria, British Columbia, 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. February 23–25, 1996. (Supported attendee.)
- The Industrial Mathematics Modeling Workshop for Graduate Students, Center for Research in Scientific Computation, North Carolina State University, August 7–16, 1995. (Supported participant.)
- Maui High Performance Computing Center Introductory MHPCC User Training Workshop, Army Research Lab, Aberdeen, Maryland, March 21–24, 1995. (Attendee.)
- National Physical Science Consortium Fifth Annual Meeting, La Jolla, California, October 3–5, 1994. (Invited Speaker.)
- National Science Foundation Research Experience for Undergraduates (REU) Summer Program in Matrix Analysis, College of William and Mary, Williamsburg, Virginia, Summer, 1991. (Supported participant.)

Invited Seminars

- LAPACK Seminar, University of California, Berkeley, December 3, 2008.
- Department of Computer Science, University of Texas at Austin, August 28, 2009.
- Stanford SMART Fields Seminar, Stanford University, California, April 3, 2008.
- Sandia National Laboratories "LDRD Day", Albuquerque, New Mexico, September 19, 2008.
- Industrial Problems Seminar, Institute for Mathematics and its Applications, University of Minnesota, April 27, 2007.
- SCI Institute Seminar Series, University of Utah, April 13, 2007.
- Applied Mathematics Colloquium, University of North Carolina, November 10, 2006.
- Numerical Analysis Seminar, North Carolina State University, November 9, 2006.
- Linear Algebra/Optimization Seminar, Stanford University, October 25, 2006.
- National Security Agency, Ft. Meade, Maryland, August 24, 2006.
- Scientific Computing Seminar, Lawrence Berkeley National Laboratory, May 12, 2006.
- Google, Mountain View, California, March 21, 2006.
- SFU-UBC Distinguished Lecture in Scientific Computing, Vancouver, Canada, March 10, 2006.
- Applied Mathematics Seminar, University of California, Davis, February 3, 2006.
- Applied Mathematics Colloquium, MIT, Boston, Massachusetts, October 31, 2005.
- R&D Focus Symposium, Sandia National Laboratories, Livermore, California, January 26, 2005.
- Numerical Analysis Seminar, Courant Institute, New York University, April 4, 2003.
- Operations Research and Financial Engineering Department Seminar, Princeton University, April 1, 2003.
- Mathematical, Information, and Computational Science (MICS), Department of Energy, Germantown, Maryland, March 27, 2003.
- Scientific Computing and Computational Mathematics Seminar Series, Stanford University, October 21, 2002.
- Joint Colloquium sponsored by the Departments of Computer Science and Applied Mathematics, University of Colorado, Boulder, October 3, 2002.
- Applied Mathematics Seminar, University of California, Davis, February 22, 2001.
- Mathematics Department Colloquium, University of Maryland Baltimore County, January 24, 2000.
- Computer Science Department Colloquium, College of William & Mary, Williamsburg,

Virginia, January 17, 2000.
- Scientific Computing and Computational Mathematics Seminar Series, Stanford University, October 25, 1999.
- Colloquium in Vector and Parallel Computing, ETH, Zürich, Switzerland, March 9, 1999.
- Chalmers University of Technology, Göteborg, Sweden, March 5, 1999.
- Numerical Linear Algebra Group, Lawrence Berkeley Labs, California, January 15, 1999.
- Computer Science Department Seminar, Old Dominion University, Norfolk, Virginia, October 29, 1998.
- Research Seminar, Lucent Bell Labs, Murray Hill, New Jersey, April 1, 1998.
- CASC/ISCR Seminar, Center for Applied Scientific Computing, Lawrence Livermore National Laboratory, Livermore, California, February 26, 1998.
- Joint Computer Science and Mathematics Seminar, University of Tennessee, Knoxville, November 7, 1997.
- Numerical Analysis Seminar, University of Maryland, College Park, May 8, 1997.
- Applied and Computational Mathematics Division Colloquium, National Institute of Standards and Technology, Gaithersburg, Maryland, January 14, 1997.

Postdocs & Students

- 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 (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, June 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

Honors and Awards

- Best Theoretical/Algorithms Paper Award, IEEE International Conference on Data Mining (ICDM), December 2008.
- Tensor Toolbox featured in *Science Matters!*, a semiannual publication of Sandia National Laboratories that publicizes recent Sandia accomplishments in science, technology and engineering, 2008.
- Distinguished Alumnus Award, University of Maryland Mathematics Department, April 29, 2005.
- R&D100 Award for Trilinos from R&D Magazine to recognize the"100 most technologically significant products introduced in the past year," October 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 September 2004
- Outstanding Poster Award for "Overview of the Semi-Discrete Decomposition and Its Applications" (with Dianne P. O'Leary), Sixth SIAM Conference on Applied Linear Algebra, 1997

- Alston S. Householder Postdoctoral Fellowship in Scientific Computing, Oak Ridge National Laboratory, 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 Class Salutatorian and Summa Cum Laude graduate, 1992
- University of Maryland Baltimore County Dean's Scholarship, 1989, 1990, and 1991

Professional Service and Committee Work

- Editorial Board, *SIAM J. Scientific Computing*, 2004–2009.
- Editorial Board, special issue on Computational Science and Engineering, *SIAM J. Scientific Computing*, 2007.
- Editor, NA Digest, 2005–present.
- Workshop, Conference, and Minisymposium Organization
  - Steering Committee, Conference on Tensor Decompositions and Applications, Monopoli, Bari, Italy, September 2010.
  - Co-organizer, AIM Workshop on Computational Optimization for Tensor Decompositions, Palo Alto, California, March 29 - April 2, 2010.
  - 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, Minnesota, April 2-4, 2009.
  - Co-organizer of minisymposium (with E. Acar), SIAM Conference on Computational Science and Engineering (CSE09), Miami, Florida, March 2–6, 2009.
  - Co-organizer, Multi-Manifold Data Modeling and Applications, Institute for Mathematics and Its Applications (IMA), Minneapolis, Minnesota, October 27-30, 2008.
  - Program committee, KDD 2008 Workshop on Data Mining using Matrices and Tensors, Las Vegas, Nevada, August 24, 2008.
  - Co-Chair, 2008 SIAM Annual Meeting, San Diego, California, July 7–11, 2008.
  - Program Committee, SIAM International Conference on Data Mining (SDM08), Atlanta, Georgia, April 24–26, 2008.
  - Stream Co-Organizer, Second Mathematical Programming Society International Conference on Continuous Optimization (ICCOPT II), McMaster University, Hamilton, Ontario, Canada, August 12–17, 2007.
  - Program Committee, 2006 SIAM Conference on Data Mining, Hyatt Regency, Bethesda, Maryland, April 20-22, 2006.
  - Steering Committee, Workshop on Tensor Decompositions and Applications, CIRM, Luminy, Marseille, France, August 29–September 2, 2005.
  - Organizing Committee, CSE Education Panel Organizer, SIAM Conference on Computational Science & Engineering, Orlando, Florida, February 12–15, 2005.
  - Chair of Program Committee, Department of Homeland Security Data Sciences Workshop, Hilton Alexandria Old Town, Alexandria, Virginia, September 22–24, 2004.
  - Co-Organizer, Tensor Decompositions Workshop, American Institute of Mathematics Research Conference Center, Palo Alto, California, July 19–23, 2004.
  - DOE Lab Representative (i.e., co-organizer), DOE Multiscale Mathematics Workshop, Arlington, Virginia, May 3–5, 2004
  - Co-Organizer, Women of Applied Mathematics: Research and Leadership, University of Maryland at College Park, October 8–10, 2003.
  - Program Committee, 17th Annual ACM International Conference on Supercomputing (Sponsored by ACM/SIGARCH), San Francisco Bay Area, June 23–26, 2003.

  - Co-Organizer, Sandia CSRI Workshop on Numerical Aspects of Circuit and Device Modeling, Santa Fe, New Mexico, April 3–5, 2002.
  - Co-Organizer, Bay Area Scientific Computing Day, Pleasanton, California, March 2, 2002.
  - Technical Papers Committee, Supercomputing, Baltimore, Maryland, November 16–22, 2002.
  - Organizing Committee, 10th SIAM Conference on Parallel Processing for Scientific Computing, Portsmouth, Virginia, March 12–14, 2001.
- Elected and Appointed Offices in Professional Societies
  - 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, SIAM Nomination Committee, 2008–2009.
  - Member, Human Resources Board, American Institute of Mathematics, 2006–present.
  - Member, SIAM Systems Oversight Committee, 2006–present.
  - Chair, SIAM Web Committee, 2005–present.
- Creater and maintainer, BANANA (Bay Area Numerical Analysis Networking Alliance) Email List, 2000–present.
- Referee for *ACM Trans. Mathematical Software*, *J. Computational and Applied Mathematics*, *Linear Algebra and Its Applications*, *Optimization and Engineering*, *Parallel Computing*, *SIAM J. Matrix Analysis and Applications*, *SIAM J. Optimization*, *SIAM J. Scientific Computing*, *International Journal on Supercomputing Applications and High Performance Computing*, *Psychometrika*, etc.
- Selected Past Committee Work
  - Prize Committee Member, Bavarian Graduate School of Compuational 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 Stratgic 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, Professional Development Evening, SIAM Conference on Computational Science and Engineering (CSE09), Miami Hilton Hotel, Miami Florida, March 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, March 29–31, 2007.
- *How to give a talk*, Sandia National Labs, July 19, 2006, July 3, 2007, and June 25, 2008; and North Carolina State University, November 9, 2006.
- Invited Panelist, *Industry Panel*, SIAM Annual Meeting (AN06), Boston, Massachusetts, July 10–14, 2006.
- *The What, Why, Who, Where, and How of a Successful Career*, University of Maryland, April 29, 2005.

- Keynote Address (with Dianne O'Leary), *Women of Applied Mathematics: Research and Leadership*, Workshop on Women if Applied Mathematics: Research and Leadership, University of Maryland, College Park, Maryland, October 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, April 18, 2003.
- *How to Give a Talk: Advice on Preparing and Presenting Technical Talks in the Mathematical Sciences*, Sandia Summer Student Seminar Series, Albuequerque, New Mexico, July 31, 2001.
- Invited Panelist, *Launching a Career in Mathematics*, AWM Workshop at the Joint Mathematics Meetings, New Orleans, LA, January 10-13, 2001.
- Invited Plenary Speaker, *Scientific Computing: Where Mathematics and Computer Science Meet*, 18th Annual Mathematics Symposium, Western Kentucky University, Bowling Green, Kentucky, November 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, Tennessee, March 7, 1998.

Professional Societies

- Society for Industrial and Applied Mathematics (SIAM)
- Association for Computing Machinery (ACM)
- Association for Women in Mathematics (AWM)