

Dianne Prost O'Leary

Professor

Computer Science Department
and Institute for Advanced Computer Studies
University of Maryland
College Park, MD 20742 U.S.A.

Phone: (301) 405-2678
Fax: (301) 405 6707
Email: oleary@cs.umd.edu
<http://www.cs.umd.edu/~oleary/>

I. Personal Information

1. *Personal Data*

Born November 20, 1951, Chicago, Illinois
Married, 3 children

2. *Educational Background*

B. S. (Mathematics major, Physics minor), Purdue University June 1972
Ph.D. (Computer Science), Stanford University April 1976

3. *Employment Background*

Professor, Computer Science Department, University of Maryland 1988-
Sabbatical 1984-85 NBS
Sabbatical 1991-92 IMA, Univ. of Minnesota
Sabbatical 1998-99 NIST and ETH, Zürich, Switzerland
Sabbatical 2005-06 NIST and CCS
Professor, Institute for Advanced Computer Studies, University of Mary- 1988-
land
Affiliate Professor, Department of Electrical and Computer Engineering, 2007-
University of Maryland

Associate Professor, Computer Science Department, University of Mary- 1982-1988
land
Associate Professor, Institute for Advanced Computer Studies, University 1985-1988
of Maryland

Assistant Professor, Computer Science Department, University of Maryland 1978-1982
Assistant Professor, Institute for Physical Science and Technology, Univer- 1978-1981
sity of Maryland

Mathematician (consultant) National Institute of Standards and Technol- 1978-
ogy (National Bureau of Standards)

Assistant Professor, Mathematics Department, University of Michigan 1975-1978

Teaching Assistant, Computer Science Department, Stanford University 1974

Computer Programmer at a commercial data processing bureau Sum 1969, 1970
Computer Programmer at a university computing center Summer, 1971

II. Research and Scholarly Activities

(My students are marked with asterisks and my postdoctoral fellows are marked with daggers. Other students and postdoctoral fellows are marked with a plus sign.)

Books Authored

- [B2] Dianne P. O’Leary, *Scientific Computing with Case Studies*, SIAM Press, Philadelphia, 2009.
- [B1] Per Christian Hansen, James G. Nagy, and Dianne P. O’Leary, *Deblurring Images: Matrices, Spectra, and Filtering*, SIAM Press, Philadelphia, 2006.

Books Edited

- [A3] Misha E. Kilmer and Dianne P. O’Leary, eds., *G. W. Stewart: Selected Works with Commentaries*, Birkhauser Press, 2010.
- [A2] Raymond H. Chan, Chen Greif, and Dianne P. O’Leary, eds., *Milestones in Matrix Computation: Selected Works of Gene H. Golub, with Commentaries*, Oxford University Press, 2007.
- [A1] George Cybenko, Dianne P. O’Leary, and Jorma Rissanen, eds., *The Mathematics of Information Coding, Extraction and Distribution*, IMA Volumes in Math. and Its Applics., Springer-Verlag, New York, 1999.

Refereed Journal Publications

- [J104] Haw-ren Fang and Dianne P. O’Leary, “Euclidean Distance Matrix Completion Problems,” *Optimization Methods and Software*, Available on-line: December 2011 DOI: 10.1080/10556788.2011.643888
- [J103] Julianne M. Chung[†], Glenn R. Easley, and Dianne P. O’Leary, “Windowed Spectral Regularization of Inverse Problems,” *SIAM Journal on Scientific Computing*, 33(6) (2011) DOI: 10.1137/100809787
- [J102] Julianne M. Chung[†], Matthias Chung, and Dianne P. O’Leary, “Designing Optimal Spectral Filters for Inverse Problems” *SIAM Journal on Scientific Computing*, 33(6) (2011) DOI: 10.1137/100812938
- [J101] Luke B. Winternitz⁺, Stacey O. Nicholls^{*}, André Tits, and Dianne P. O’Leary, “A Constraint-Reduced Variant of Mehrotra’s Predictor-Corrector Algorithm” *Computational Optimization and Applications*, 19 January 2011, 36 pages. DOI: 10.1007/s10589-010-9389-4 <http://www.springerlink.com/content/g0878u6r78n55715/>
- [J100] Konstantin Berlin^{*}, Dianne P. O’Leary, and David Fushman, “Fast Approximations of the Rotational Diffusion Tensor and Their Application to Structural Assembly of Molecular Complexes,” *Proteins: Structure, Function, and Bioinformatics*, 79(7) (2011) 2268-2281. DOI: 10.1002/prot.23053 <http://onlinelibrary.wiley.com/doi/10.1002/prot.23053/abstract>
- [J99] John M. Conroy, Judith D. Schlesinger, and Dianne P. O’Leary, “Nouveau-ROUGE: A Novelty Metric for Update Summarization”, *Computational Linguistics*, 37(1) (2011). http://www.mitpressjournals.org/doi/pdf/10.1162/coli_a_00033
- [J98] Sungwoo Park^{*} and Dianne P. O’Leary, “Implicitly-Weighted Total Least Squares,” *Linear Algebra and Its Applications*, (posted June 2010) 435(3) 2011, 560–577 DOI:10.1016/j.laa.2010.06.020 <http://dx.doi.org/10.1016/j.laa.2010.06.020>
- [J97] Jin Hyuk Jung^{*}, Dianne P. O’Leary, and André L. Tits, “Adaptive Constraint Reduction for Convex Quadratic Programming,” *Computational Optimization and Applications*, (March 2010) 33 pages. (Online First) 51(1) (2012) 125-157. DOI:10.1007/s10589-010-9324-8

- [J96] Sungwoo Park* and Dianne P. O’Leary, “Portfolio Selection Using Tikhonov Filtering to Estimate the Covariance Matrix” *SIAM Journal on Financial Mathematics*, 1 (2010) 932–961. <http://dx.doi.org/10.1137/090749372>
- [J95] Konstantin Berlin*, Dianne P. O’Leary, and David Fushman, “Structural Assembly of Molecular Complexes Based on Residual Dipolar Couplings,” *Journal of the American Chemical Society*, 132(26) (2010) 8961–8972. DOI: 10.1021/ja100447p
- [J94] Konstantin Berlin*, Dianne P. O’Leary, and David Fushman, “Improvement and Analysis of Computational Methods for Prediction of Residual Dipolar Couplings,” *Journal of Magnetic Resonance* 201 (2009) 25–33. <http://dx.doi.org/10.1016/j.jmr.2009.07.028>
- [J93] Simon P. Schurr*, Dianne P. O’Leary, and André L. Tits, “A Polynomial-Time Interior-Point Method for Conic Optimization, with Inexact Barrier Evaluations,” *SIAM Journal on Optimization*, 20 (2009) 548–571. DOI: 10.1137/080722825
- [J92] Michael J. O’Hara* and Dianne P. O’Leary, “Quadratic Fermionic Interactions Yield Hamiltonians with Large Ground-State Energy Gaps,” *Physical Review A*, 79:3 (2009) 032331 (10 pages). DOI: 10.1103/PhysRevA.79.032331 <http://link.aps.org/abstract/PRA/v79/e032331> Chosen for inclusion in *Virtual Journal of Quantum Information* 9:4 (2009).
- [J91] Stephen S. Bullock⁺ and Dianne P. O’Leary, “Locality Bounds on Hamiltonians for Stabilizer Codes,” *Quantum Information and Computation*, 9 (2009) 0487–0499. <http://www.rinton.net/xxqic9/qic-9-56/0487-0499.pdf>
- [J90] Jin Hyuk Jung*, Dianne P. O’Leary, and André L. Tits, “Adaptive Constraint Reduction for Training Support Vector Machines,” *Electronic Transactions on Numerical Analysis*, 31 (2008) 156–177. <http://etna.mcs.kent.edu/vol.31.2008/pp156-177.dir/pp156-177.pdf>
- [J89] Jin Hyuk Jung* and Dianne P. O’Leary, “Implementing an Interior Point Method for Linear Programs on a CPU-GPU System,” *Electronic Transactions on Numerical Analysis*, 28 (2008) 174–189. <http://etna.mcs.kent.edu/vol.28.2007-2008/pp174-189.dir/pp174-189.pdf>
- [J88] Elena Zotenko*, Julian Mestre, Dianne P. O’Leary, and Teresa M. Przytycka, “Why Do Hubs in the Yeast Protein Interaction Network Tend to be Essential: Re-examining the Connection between the Network Topology and Essentiality,” *PLoS Computational Biology*, 4(8):e1000140 (2008) (16 pages) doi:10.1371/journal.pcbi.1000140 Highlighted in *Nature Reviews Genetics*. Selected for highlights track presentation at 17th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB), Stockholm, Sweden, 2009.
- [J87] Bert W. Rust and Dianne P. O’Leary, “Residual Periodograms for Choosing Regularization Parameters for Ill-Posed Problems”, *Inverse Problems*, (invited paper) 24 (2008) 034005 (30 pages). DOI:10.1088/0266-5611/24/3/034005
- [J86] Michael J. O’Hara* and Dianne P. O’Leary, “The Adiabatic Theorem in the Presence of Noise,” *Physical Review A*, 77 (2008) 042319, 20 pages. <http://link.aps.org/abstract/PRA/v77/e042319> DOI: 10.1103/PhysRevA.77.042319. Chosen for inclusion in *Virtual Journal of Applications of Superconductivity* 14:9 (2008) and *Virtual Journal of Quantum Information* 8:5 (2008).
- [J85] Julianne Chung⁺, James G. Nagy, and Dianne P. O’Leary, “A Weighted GCV Method for Lanczos Hybrid Regularization,” *Electronic Transactions on Numerical Analysis*, 28 (2008) 149–167. <http://etna.mcs.kent.edu/vol.28.2007-2008/pp149-167.dir/pp149-167.pdf>
- [J84] Elena Zotenko*, Rezarta Islamaj Dogan, W. John Wilbur, Dianne P. O’Leary, and Teresa M. Przytycka, “Structural Footprinting in Protein Structure Comparison: The Impact of Structural Fragments,” *BMC Structural Biology*, (2007) 7:53 DOI:10.1186/1472-6807-7-53.

- [J83] Haw-ren Fang* and Dianne P. O’Leary, “Modified Cholesky Algorithms: A Catalog with New Approaches,” *Mathematical Programming A*, 2007. DOI:10.1007/s10107-007-0177-6
- [J82] Daniel M. Dunlavy*, Dianne P. O’Leary, John M. Conroy, and Judith D. Schlesinger, “QCS: A System for Querying, Clustering, and Summarizing Documents,” *Information Processing and Management*, 43:6 (2007), pp. 1588–1605. DOI:10.1016/j.ipm.2007.01.003
- [J81] Dianne P. O’Leary, Zdeněk Strakoš, and Petr Tichý, “On Sensitivity of Gauss-Christoffel Quadrature,” *Numerische Mathematik*, 107 (2007) 147-174. DOI:10.1007/s00211-007-0078-x
- [J80] Nicola Mastronardi and Dianne P. O’Leary, “Fast Robust Regression Algorithms for Problems with Toeplitz Structure,” *Computational Statistics and Data Analysis*, 52:2 (2007), pp. 1119–1131. DOI:10.1016/j.csda.2007.05.008
- [J79] Simon P. Schurr*, André L. Tits, and Dianne P. O’Leary, “Universal Duality in Conic Convex Optimization,” *Mathematical Programming A*, 109, No. 1 (2007) pp. 69-88. DOI:10.1007/s10107-005-0690-4 <http://dx.doi.org/10.1007/s10107-005-0690-4>
- [J78] Dianne P. O’Leary, Gavin K. Brennen⁺, and Stephen S. Bullock⁺, “Parallelism for Quantum Computation with Qudits,” *Physical Review A*, (2006) 74:3. DOI:10.1103/PhysRevA.74.032334 Chosen for inclusion in *Virtual Journal of Quantum Information* 6:10 (2006).
- [J77] Haw-ren Fang* and Dianne P. O’Leary, “Stable Factorizations of Symmetric Tridiagonal and Triadic Matrices,” *SIAM J. on Matrix Analysis and Applications*, 28 (2006), pp. 576-595.
- [J76] Elena Zotenko*, Dianne P. O’Leary, and Teresa M. Przytycka, “Secondary Structure Spatial Conformation Footprint: A Novel Method for Fast Protein Structure Comparison,” *BMC Structural Biology*, (2006), 6:12, DOI:10.1186/1472-6807-6-12
- [J75] Gavin K. Brennen⁺, Stephen S. Bullock⁺, and Dianne P. O’Leary, “Efficient Circuits for Exact-Universal Computation with Qudits,” *Quantum Information and Computation*, 6 (2006), 436-454.
- [J74] Anoop Kalsi* and Dianne P. O’Leary, “Fast Algorithms for Structured Least Squares and Total Least Squares Problems,” *Journal of Research of the National Institute of Standards and Technology*, 111, No. 2 (2006) pp. 113-119. <http://nvl.nist.gov/pub/nistpubs/jres/111/2/V111.N02.A06.pdf>
- [J73] Daniel M. Dunlavy*, Dianne P. O’Leary, Dmitri Klimov, and D. Thirumalai, “HOPE: A Homotopy Optimization Method for Protein Structure Prediction,” *Journal of Computational Biology*, 12, No. 10 (2005), pp. 1275-1288.
- [J72] Dianne P. O’Leary and Stephen S. Bullock⁺, “QR Factorizations Using a Restricted Set of Rotations,” *Electronic Transactions on Numerical Analysis*, 21 (2005) pp. 20-27. <http://etna.mcs.kent.edu/vol.21.2005/pp20-27.dir/pp20-27.pdf>
- [J71] Stephen S. Bullock⁺, Dianne P. O’Leary, and Gavin K. Brennen⁺, “Asymptotically Optimal Quantum Circuits for d -level Systems,” *Physical Review Letters* 94, no 23 (2005) 230502, 4 pages. Chosen for inclusion in *Virtual Journal of Quantum Information* 5:6 (2005). <http://xxx.lanl.gov/abs/quant-ph/0410116>
- [J70] Gavin K. Brennen⁺, Dianne P. O’Leary, and Stephen S. Bullock⁺, “Criteria for Exact Qudit Universality,” *Physical Review A* 71, 052318 (2005) 7 pages. Chosen for inclusion in *Virtual Journal of Quantum Information* 5:6 (2005). <http://xxx.lanl.gov/abs/quant-ph/0407223>

- [J69] Stephen S. Bullock⁺, Gavin K. Brennen⁺, and Dianne P. O’Leary, “Time Reversal and n -qubit Canonical Decompositions,” *Journal of Mathematical Physics* 46, 062104 (2005) 18 pages. <http://xxx.lanl.gov/abs/quant-ph/0402051> Chosen for inclusion in *Virtual Journal of Quantum Information* 5:6 (2005).
- [J68] Howard C. Elman, Oliver G. Ernst[†], Dianne P. O’Leary, and Michael Stewart[†], “Efficient Iterative Algorithms for the Stochastic Finite Element Method with Application to Acoustic Scattering,” *Computer Methods in Applied Mechanics and Engineering*, 194 (2005) 1037-1055. <http://authors.elsevier.com/sd/article/S0045782504003123>
- [J67] Nicola Mastronardi, Phillip Lemmerling, Anoop Kalsi*, Dianne O’Leary, and Sabine Van Huffel, “Implementation of the Regularized Structured Total Least Squares Algorithms for Blind Image Deblurring,” *Linear Algebra and Its Applications*, 391 (2004) 203-221.
- [J66] David E. Gilsinn, Geraldine S. Cheok, and Dianne P. O’Leary, “Reconstructing Images of Bar Codes for Construction Site Object Recognition,” *Automation in Construction* (Elsevier), 13 (2004) 21-35.
- [J65] Dianne P. O’Leary, “Scaling Symmetric Positive Definite Matrices to Prescribed Row Sums”, *Linear Algebra and Its Applications*, 370 (2003) 185-191.
- [J64] Ilya Zavorin*, Dianne P. O’Leary, and Howard Elman, “Complete Stagnation of GMRES,” *Linear Algebra and Its Applications*, 367 (2003) 165-183.
- [J63] Armin Pruessner* and Dianne P. O’Leary, “Blind Deconvolution Using a Regularized Structured Total Least Norm Approach,” *SIAM J. on Matrix Analysis and Applications*, 24 (2003) 1018-1037. <http://epubs.siam.org/sam-bin/dbq/article/39544>
- [J62] Judith D. Schlesinger, John M. Conroy, Mary Ellen Okurowski, and Dianne P. O’Leary, “Machine and Human Performance for Single- and Multi-Document Summarization,” *IEEE Intelligent Systems* (special issue on Natural Language Processing) 18(1), 2003, 46-54. <http://csdl.computer.org/comp/mags/ex/2003/01/x1toc.htm>
- [J61] James G. Nagy[†] and Dianne P. O’Leary, “Image Restoration through Subimages and Confidence Images,” *Electronic Transactions on Numerical Analysis*, 13 (2002) 22-37. <http://etna.mcs.kent.edu/vol.13.2002/pp22-37.dir/pp22-37.pdf>
- [J60] Howard C. Elman, Oliver G. Ernst[†], and Dianne P. O’Leary, “A Multigrid Method Enhanced by Krylov Subspace Iteration for Discrete Helmholtz Equations,” *SIAM J. on Scientific Computing*, 23 (2001) 1291-1315. <http://epubs.siam.org/sam-bin/dbq/article/35719>
- [J59] Dianne P. O’Leary, “Near-Optimal Parameters for Tikhonov and Other Regularization Methods,” *SIAM J. on Scientific Computing*, 23 (2001) 1161-1171. <http://epubs.siam.org/sam-bin/dbq/article/35414>
- [J58] Isabel Beichl, Dianne P. O’Leary, and Francis Sullivan, “Approximating the Number of Monomer-Dimer Coverings in Periodic Lattices,” *Physical Review E* 64 (2001) 016701.1-6.
- [J57] Misha E. Kilmer* and Dianne P. O’Leary, “Choosing Regularization Parameters in Iterative Methods for Ill-Posed Problems,” *SIAM J. on Matrix Analysis and Applications*, 22 (2001) 1204-1221. <http://epubs.siam.org/sam-bin/dbq/article/34596>

- [J56] Tamara G. Kolda* and Dianne P. O’Leary, “Computation and Uses of the Semidiscrete Matrix Decomposition,” *ACM Transactions on Mathematical Software*, 26 (2000) 415-435.
<http://portal.acm.org/citation.cfm?doid=358407.358424>
- [J55] Weichung Wang* and Dianne P. O’Leary, “Adaptive Use of Iterative Methods in Predictor-Corrector Interior Point Methods for Linear Programming,” *Numerical Algorithms*, (special issue honoring Richard Varga), 25 (2000) 387-406.
- [J54] Dianne P. O’Leary, “Symbiosis between Linear Algebra and Optimization,” invited paper, *J. of Computational and Applied Math.* 123 (2000) 447-465; reprinted in a book *Numerical Analysis 2000*.
- [J53] John M. Conroy, Tamara G. Kolda*, Dianne P. O’Leary, and Timothy J. O’Leary, “Chromosome Identification Using Hidden Markov Models: Comparison with Neural Network, Singular Value Decomposition, Principal Components Analysis, and Fisher Discriminant Analysis,” *Laboratory Investigation* 80 (2000) 1629-1641.
- [J52] Howard C. Elman and Dianne P. O’Leary, “Eigenanalysis of Some Preconditioned Helmholtz Problems” *Numerische Mathematik*, 83 (1999) 231-257.
- [J51] Gene H. Golub, Per Christian Hansen, Dianne P. O’Leary, “Tikhonov Regularization and Total Least Squares,” *SIAM Journal on Matrix Analysis and Applications* 21 (1999) 185-194.
<http://epubs.siam.org/sam-bin/dbq/article/32643>
- [J50] Misha E. Kilmer* and Dianne P. O’Leary, “Pivoted Cauchy-Like Preconditioners for Regularized Solution of Ill-Posed Problems,” *SIAM Journal on Scientific Computing*, 21 (1999) 88-110.
<http://epubs.siam.org/sam-bin/dbq/article/30897>
- [J49] Dianne P. O’Leary and G. W. Stewart, “On the Convergence of a New Rayleigh Quotient Method with Applications to Large Eigenproblems,” *Electronic Transactions on Numerical Analysis* 7 (1998), 182-189. <http://etna.mcs.kent.edu/vol.7.1998/pp182-189.dir/pp182-189.pdf>
- [J48] Tamara G. Kolda* and Dianne P. O’Leary, “A Semi-Discrete Matrix Decomposition for Latent Semantic Indexing in Information Retrieval,” *ACM Transactions on Information Systems* 16 (1998) 322-346.
- [J47] Tamara Kolda*, Dianne P. O’Leary, and Larry Nazareth, “BFGS with Update Skipping and Varying Memory,” *SIAM Journal on Optimization* 8 (1998) 1060-1083. <http://epubs.siam.org/sam-bin/dbq/article/30645>
- [J46] Howard C. Elman and Dianne P. O’Leary “Efficient Iterative Solution of the Three-Dimensional Helmholtz Equation,” *Journal of Computational Physics* 142 (1998) 163-181.
- [J45] James G. Nagy[†] and Dianne P. O’Leary, “Restoring Images Degraded by Spatially-Variant Blur,” *SIAM Journal on Scientific Computing* 19 (1998), 1063-1082.
<http://epubs.siam.org/sam-bin/dbq/article/28507>
- [J44] Daniel P. Heyman and Dianne P. O’Leary, “Overcoming instability in computing the fundamental matrix for a Markov chain,” *SIAM Journal on Matrix Analysis and Applications* 19 (1998) 534-540.
<http://epubs.siam.org/sam-bin/dbq/article/30175>
- [J43] Ricardo Fierro, Gene H. Golub, Per Christian Hansen, and Dianne P. O’Leary, “Regularization by Truncated Total Least Squares,” *SIAM Journal on Scientific Computing* 18 (1997) 1223-1241.
<http://epubs.siam.org/sam-bin/dbq/article/26383>

- [J42] Dianne P. O’Leary and Yuan-Jye Jason Wu*, “A Block-GTH Algorithm for Finding the Stationary Vector of a Markov Chain,” *SIAM Journal on Matrix Applications* 17 (1996) 470-488.
<http://epubs.siam.org/sam-bin/dbq/article/26253>
- [J41] Dianne P. O’Leary, “Why Broyden’s nonsymmetric method terminates on linear equations,” *SIAM Journal on Optimization* 5 (1995) 231-235.
- [J40] K. J. Ray Liu, Dianne P. O’Leary, G. W. Stewart, and Yuan-Jye J. Wu*, “URV ESPRIT for tracking time-varying signals,” *IEEE Transactions on Signal Processing* 42 (1994) 3441-3448.
- [J39] Dianne P. O’Leary and A. Yeremin, “The linear algebra of block quasi-Newton algorithms,” *Linear Algebra and Its Applications* 212/213 (1994) 153-168.
- [J38] Bert W. Rust and Dianne P. O’Leary, “Confidence intervals for discrete approximations to ill-posed problems,” *The Journal of Computational and Graphical Statistics*, 3 (1994) 67-96.
- [J37] Per Christian Hansen and Dianne P. O’Leary, “The use of the L-curve in the regularization of discrete ill-posed problems,” *SIAM Journal on Scientific Computing* 14 (1993) 1487-1503.
- [J36] Chiou-Ming Huang* and Dianne P. O’Leary, “A Krylov multisplitting algorithm for solving linear systems of equations,” *Linear Algebra and Its Applications*, 194 (1993) 9-29.
- [J35] Moghen M. Monahemi⁺, Jewel B. Barlow and Dianne P. O’Leary, “The design of reduced order observers with precise loop transfer recovery,” *AIAA Journal of Guidance, Control, and Dynamics* 15 (1992) 1320-1326
- [J34] Jewel B. Barlow, Moghen M. Monahemi⁺, and Dianne P. O’Leary, “Constrained matrix Sylvester equations,” *SIAM Journal on Matrix Analysis and Applications*, 13 (1992) 1-9.
- [J33] Dianne P. O’Leary, “Yet another polynomial preconditioner for the conjugate gradient algorithm,” *Linear Algebra and Its Applications*, 154 (1991) 377-388.
- [J32] Dianne P. O’Leary and Peter Whitman*, “Parallel QR factorization by Householder and modified Gram-Schmidt algorithms,” *Parallel Computing* 16 (1990) 99-112.
- [J31] Dianne P. O’Leary and G.W. Stewart, “Computing the eigenvalues and eigenvectors of symmetric arrowhead matrices,” *Journal of Computational Physics* 90 (1990) 497-505.
- [J30] Dianne P. O’Leary, “Robust regression computation using iteratively reweighted least squares,” *SIAM Journal of Matrix Analysis and Applications* 11 (1990) 466-480.
- [J29] Dianne P. O’Leary, “On bounds for scaled projections and pseudoinverses,” *Linear Algebra and Its Applications* 132 (1990) 115-117.
- [J28] Gene H. Golub and Dianne P. O’Leary, “Some history of the conjugate gradient and Lanczos algorithms: 1948-1976,” *SIAM Review* 31 (1989) 50-102.
- [J27] Dianne P. O’Leary, “Some algorithms for approximating convolutions,” *Computer Vision, Graphics, and Image Processing* 41 (1988) 333-345.
- [J26] Dianne P. O’Leary and G. W. Stewart, “From determinacy to systaltic arrays,” *IEEE Transactions on Computers* C-36 (1987) 1355-1359.
- [J25] Dianne P. O’Leary, “A note on the capacitance matrix algorithm, substructuring, and mixed or Neumann boundary conditions,” *Applied Numerical Mathematics* 3 (1987) 339-345.
- [J24] Dianne P. O’Leary, “Parallel implementation of the block conjugate gradient algorithm,” *Parallel Computing* 5 (1987) 127-139.

- [J23] Dianne P. O’Leary, “Systolic arrays for matrix transpose and other reorderings,” *IEEE Transactions on Computers* C-36 (1987) 117-122.
- [J22] Dianne P. O’Leary and G. W. Stewart, “Assignment and scheduling in parallel matrix factorization,” *Linear Algebra and Its Applications* 77 (1986) 275-300.
- [J21] Dianne P. O’Leary and B. W. Rust, “Confidence intervals for inequality-constrained least squares problems, with applications to ill-posed problems,” *SIAM Journal on Scientific and Statistical Computing* 7 (1986) 473-489.
- [J20] Dianne P. O’Leary and R. E. White, “Multi-splittings of matrices and parallel solution of linear systems,” *SIAM Journal on Algebraic and Discrete Methods* 6 (1985) 630-640.
- [J19] Dianne P. O’Leary and G. W. Stewart, “Data-flow algorithms for parallel matrix computations,” *Communications of the ACM* 28 (1985) 840-853.
- [J18] Dianne P. O’Leary, “Ordering schemes for parallel processing of certain mesh problems,” *SIAM Journal on Scientific and Statistical Computing* 5 (1984) 620-632.
- [J17] Dianne P. O’Leary and Shmuel Peleg⁺, “Analysis of relaxation processes: the two node, two label case,” *IEEE Transactions on Systems, Man, and Cybernetics* SMC-13 (1983) 618-623.
- [J16] Dianne P. O’Leary and Shmuel Peleg⁺, “Digital image compression by outer product expansion,” *IEEE Transactions on Communications* COM-31 (1983) 441-444.
- [J15] K. A. Narayanan⁺, Dianne P. O’Leary, and Azriel Rosenfeld, “Multi-resolution relaxation,” *Pattern Recognition* 16 (1983) 223-230.
- [J14] K. A. Narayanan⁺, Dianne P. O’Leary, and Azriel Rosenfeld, “An optimization approach to edge reinforcement,” *IEEE Transactions on Systems, Man, and Cybernetics* SMC-12 (1982) 551-553.
- [J13] K. A. Narayanan⁺, Dianne P. O’Leary, and Azriel Rosenfeld, “Image smoothing and segmentation by cost minimization,” *IEEE Transactions on Systems, Man, and Cybernetics* SMC-12 (1982) 91-96.
- [J12] Dianne P. O’Leary, “A discrete Newton algorithm for minimizing a function of many variables,” *Mathematical Programming* 23 (1982) 20-33.
- [J11] Dianne P. O’Leary and John A. Simmons, “A bidiagonalization- regularization procedure for large scale discretizations of ill-posed problems,” *SIAM J. on Scientific and Statistical Computing* 2 (1981) 474-489.
- [J10] Dianne P. O’Leary and Olof Widlund, “Algorithm 572: Solution of the Helmholtz equation for the Dirichlet problem on general bounded three dimensional regions,” *ACM Transactions on Mathematical Software* 7 (1981) 239-246.
<http://portal.acm.org/citation.cfm?doid=355945.355954>
- [J09] Timothy J. O’Leary, Dianne P. O’Leary, Mary C. Habbersett, and Chester J. Herman, “Classification of gynecologic flow cytometry data: a comparison of methods,” *J. of Analytical and Quantitative Cytology* 3 (1981) 135-142.
- [J08] Dianne P. O’Leary, “A generalized conjugate gradient algorithm for solving a class of quadratic programming problems,” *Linear Algebra and Its Applications* Special Issue on Large Scale Matrix Problems 34 (1980) 371-399. Also in *Large Scale Matrix Problems*, A. Bjorck, R. J. Plemmons and H. Schneider, eds. North Holland Pub. Co. NY (1981) 391-399.

- [J07] Dianne P. O’Leary, “Estimating matrix condition numbers,” *SIAM J. on Scientific and Statistical Computing* 1 (1980) 205-209.
- [J06] Dianne P. O’Leary, “The block conjugate gradient algorithm and related methods,” *Linear Algebra and Its Applications* 29 (1980) 293-322.
- [J05] Dianne P. O’Leary, G. W. Stewart, and James S. Vandergraft, “Estimating the largest eigenvalue of a positive definite matrix,” *Mathematics of Computation* 33 (1979) 1289-1292.
- [J04] Dianne P. O’Leary and Olof Widlund, “Capacitance matrix methods for the Helmholtz equation on general three dimensional regions,” *Mathematics of Computation* 33 (1979) 849-879.
- [J03] Dianne P. O’Leary, “Conjugate gradient algorithms in the solution of optimization problems for nonlinear elliptic partial differential equations,” *Computing* 22 (1979) 59-77.
- [J02] Dianne P. O’Leary and Wei H. Yang, “Elasto-plastic torsion by quadratic programming,” *Computer Methods in Applied Mechanics and Engineering* 16 (1978) 361-368.
- [J01] Paul Concus, Gene H. Golub, and Dianne P. O’Leary, “Numerical solution of nonlinear elliptic partial differential equations by a generalized conjugate gradient method,” *Computing* 19 (1978) 321-339.

Patents

- [P01] John M. Conroy and Dianne P. O’Leary, “Method of Summarizing Text by Sentence Extraction,” U. S. Patent 6,990,634, January 24, 2006.

Publications on Education and Mentoring

- [E32] Dianne P. O’Leary and Bert W. Rust, “Light a Single Candle: Studying Supernovae,” *Computing in Science and Engineering*, to appear.
- [E31] Dianne P. O’Leary, “Professional Ethics: Taking the High Road,” *SIAM News*, Volume 44, Number 8, October 2011, pp. 6-7.
- [E30] Dianne P. O’Leary, “Beetles, Cannibalism, and Chaos: Analyzing a Dynamical System Model,” *Computing in Science and Engineering*.
Project: Vol. 9, No. 2, March/April 2007, pp. 96-99.
Solution: Vol. 9, No. 3, May/June 2007, pp. 86-89.
- [E29] Isabel Beichl, Dianne P. O’Leary, and Francis Sullivan, “Monte Carlo Minimization and Counting: One, Two, Too Many,” *Computing in Science and Engineering*.
Project: Vol. 9, No. 1, January/February 2007, pp. 72-76.
Solution: Vol. 9, No. 2, March/April 2007, pp. 99-103.
- [E28] Dianne P. O’Leary, “Sensitivity Analysis: When a Little Means a Lot,” *Computing in Science and Engineering*.
Project: Vol. 8, No. 6, November/December 2006, pp. 86-89.
Solution: Vol. 9, No. 1, January/February 2007, pp. 77-80.
- [E27] Dianne P. O’Leary, “Multigrid Methods: Managing Massive Meshes,” *Computing in Science and Engineering*.
Project: Vol. 8, No. 5, September/October 2006, pp. 86-90.
Solution: Vol. 8, No. 6, November/December 2006, pp. 89-91.

- [E26] Dianne P. O’Leary, “Iterative Methods for Linear Systems: Following the Meandering Way,” *Computing in Science and Engineering*.
Project: Vol. 8, No. 4, July/August 2006, pp. 74-78.
Solution: Vol. 8, No. 5, September/October 2006, pp. 91-93.
- [E25] Dianne P. O’Leary, “Computer Memory and Arithmetic: A Look under the Hood,” *Computing in Science and Engineering*.
Project: Vol. 8, No. 3, May/June 2006, pp. 86-89.
Solution: Vol. 8, No. 4, July/August 2006, pp. 79-80.
- [E24] Dianne P. O’Leary, “Updating and DOWndating Matrix Factorizations: A Change in Plans,” *Computing in Science and Engineering*.
Project: Vol. 8, No. 2, March/April 2006, pp. 66-70.
Solution: Vol. 8, No. 3, May/June 2006, pp. 90-91.
- [E23] Dianne P. O’Leary, “Computational Software: Writing Your Legacy,” Project: Vol. 7, No. 6, January/February 2006, pp. 78-80.
Solution: Vol. 8, No. 1, March/April 2006, pp. 70-71.
- [E22] Dianne P. O’Leary, “Fast Solvers and Sylvester Equations: Both Sides Now,” *Computing in Science and Engineering*.
Project: Vol. 7, No. 6, November/December 2005, pp. 74-77.
Solution: Vol. 8, No. 1, January/February 2006, pp. 81-83.
- [E21] Dianne P. O’Leary, “Solving Sparse Linear Systems: Taking the Direct Approach,” *Computing in Science and Engineering*.
Project: Vol. 7, No. 5, September/October 2005, pp. 62-67.
Solution: Vol. 7, No. 6, November/December 2005, pp. 77-80.
- [E20] Dianne P. O’Leary, “Eigenvalues: Valuable Principles,” *Computing in Science and Engineering*.
Project: Vol. 7, No. 4, July/August 2005, pp. 68-70.
Solution: Vol. 7, No. 5, September/October 2005, pp. 67-70.
- [E19] Dianne P. O’Leary, “Finite Differences and Finite Elements: Getting to Know You,” *Computing in Science and Engineering*.
Project: Vol. 7, No. 3, May/June 2005, pp. 20-23.
Solution: Vol. 7, No. 4, July/August 2005, pp. 71-75.
- [E18] Dianne P. O’Leary, “Blind Deconvolution: A Matter of Norm,” *Computing in Science and Engineering*.
Project: Vol. 7, No. 2, March/April 2005, pp. 60-62.
Solution: Vol. 7, No. 3, May/June 2005, pp. 24-27.
- [E17] Dianne P. O’Leary, “Blind Deconvolution: Errors, Errors Everywhere,” *Computing in Science and Engineering*.
Project: Vol. 7, No. 1, January/February 2005, pp. 56-59.
Solution: Vol. 7, No. 2, March/April 2005, pp. 63-66.
- [E16] Dianne P. O’Leary, “Multidimensional Integration: Partition and Conquer,” *Computing in Science and Engineering*.
Project: Vol. 6, No. 6, November/December 2004; pp. 58-62.
Solution: Vol. 7, No. 1, January/February 2005, pp. 60-63.
- [E15] Dianne P. O’Leary and David Schug*, “Achieving a Common Viewpoint: Yaw, Pitch, and Roll,” *Computing in Science and Engineering*.

- Project: Vol. 6, No. 5, September/October 2004; pp. 60-62.
 Solution: Vol. 6, No. 6, November/December 2004; pp. 63-66.
- [E14] Dianne P. O’Leary, “Elastoplastic Torsion: Twist and Stress,” *Computing in Science and Engineering*.
 Project: Vol. 6, No. 4, July/August 2004, pp. 74-76.
 Solution: Vol. 6, No. 5, September/October 2004. pp. 63-65.
- [E13] Dianne P. O’Leary, “Fitting Exponentials: An Interest in Rates,” *Computing in Science and Engineering*.
 Project: Vol. 6, No. 3, May/June 2004, pp. 66-69.
 Solution: Vol. 6, No. 4, July/August 2004, pp. 77-83.
- [E12] Dianne P. O’Leary, “More Models of Infection: It’s Epidemic,” *Computing in Science and Engineering*.
 Project: Vol. 6, No. 2, March/April 2004, pp. 50-53.
 Solution: Vol. 6, No. 3, May/June 2004, pp. 70-72.
- [E11] Dianne P. O’Leary, “Models of Infection: Person to Person,” *Computing in Science and Engineering*.
 Project: Vol. 6, No. 1, January/February 2004, pp. 68-70.
 Solution: Vol. 6, No. 2, March/April 2004, pp. 53-56.
- [E10] Dianne P. O’Leary, “The Direction of Arrival Problem: Coming at You,” *Computing in Science and Engineering*.
 Project: Vol. 5, No. 6, November/December 2003, pp. 60-63.
 Solution: Vol. 6, No. 1, January/February 2004, pp. 71-73.
- [E09] Nargess Memarsadeghi* and Dianne P. O’Leary, “Classified Information: The Data Clustering Problem,” *Computing in Science and Engineering*.
 Project: Vol. 5, No. 5, September/October 2003, pp. 54-57.
 Solution: Vol. 5, No. 6, November/December 2003, pp. 64-70.
- [E08] Dianne P. O’Leary and Yalin E. Sagduyu*, “Robot Control: Swinging Like a Pendulum,” *Computing in Science and Engineering*.
 Project: Vol. 5, No. 4, July/August 2003, pp. 68-71.
 Solution: Vol. 5, No. 5, September/October 2003, pp. 57-60.
- [E07] James G. Nagy and Dianne P. O’Leary, “Image Deblurring: I Can See Clearly Now,” *Computing in Science and Engineering*.
 Project: Vol. 5, No. 3, May/June 2003, pp. 82-85.
 Solution: Vol. 5, No. 4, July/August 2003, pp. 72-74.
- [E06] Dianne P. O’Leary, “Eight Rules for Career Success,” *Prime PMO Notes* June 16, 2003, p. 3; taken from a talk given at a Women in Engineering Symposium. <http://www.cs.umd.edu/users/oleary/wie2003.ps>
- [E05] Dianne P. O’Leary, “Meandering Mathematical Career Paths,” *SIAM News* January-February 2000, pp. 7, 13.
- [E04] Dianne P. O’Leary “Accessibility of Computer Science: A Reflection for Faculty Members,” available as <http://www.cs.umd.edu/users/oleary/faculty/whole.html>, June 1999.
- [E03] Dianne P. O’Leary, “Teamwork: Computational Science and Applied Mathematics,” *IEEE Computational Science and Engineering* 4:2, April-June 1997, pp. 13-18.

- [E02] Dianne P. O’Leary, “Graduate Study in the Computer and Mathematical Sciences: A Survival Manual,” available as <http://www.cs.umd.edu/users/oleary/gradstudy/gradstudy.html>
- [E01] Dianne P. O’Leary, “Demystifying Graduate Study,” selected by the IBM Total Quality Project and the University of Maryland Center for Teaching Excellence for inclusion in *Essays on Quality Learning*, Steven Selden, ed., 1998.

Publications on 20th Century History of Scientific Computing

See also edited books [A2] and [A3] and journal publication [J28].

- [H16] “John Osborn, 1936–2011”, obituary, Ricardo Nochetto and Dianne O’Leary, *SIAM News* July/August 2011, p. 2; *Notices of the AMS*, 58(8) September 2011, p. 1134.
- [H15] Misha E. Kilmer and Dianne P. O’Leary, “Other Contributions,” Chapter 11 in *G. W. Stewart: Selected Works with Commentaries*, Misha E. Kilmer and Dianne P. O’Leary, eds., Birkhauser Press, Boston (2010) pp. 121–123.
- [H14] Howard C. Elman and Dianne P. O’Leary, “Krylov Subspace Methods for the Eigenproblem,” Chapter 10 in *G. W. Stewart: Selected Works with Commentaries*, Misha E. Kilmer and Dianne P. O’Leary, eds., Birkhauser Press, Boston (2010) pp. 111–119.
- [H13] Misha E. Kilmer and Dianne P. O’Leary, “Least Squares, Projections, and Pseudoinverses, Chapter 6 in *G. W. Stewart: Selected Works with Commentaries*, Misha E. Kilmer and Dianne P. O’Leary, eds., Birkhauser Press, Boston (2010) pp. 59–69.
- [H12] Lars Eldén, Misha E. Kilmer, and Dianne P. O’Leary, “Updating and Dated Matrix Decompositions,” Chapter 5 in *G. W. Stewart: Selected Works with Commentaries*, Misha E. Kilmer and Dianne P. O’Leary, eds., Birkhauser Press, Boston (2010) pp. 45–58.
- [H11] Charles F. Van Loan, Misha E. Kilmer, and Dianne P. O’Leary, “Matrix Decompositions: LINPACK and Beyond,” Chapter 4 in *G. W. Stewart: Selected Works with Commentaries*, Misha E. Kilmer and Dianne P. O’Leary, eds., Birkhauser Press, Boston (2010) pp. 27–44.
- [H10] Misha E. Kilmer and Dianne P. O’Leary, “Introduction to the Commentaries,” Chapter 3 in *G. W. Stewart: Selected Works with Commentaries*, Misha E. Kilmer and Dianne P. O’Leary, eds., Birkhauser Press, Boston (2010) p. 25.
- [H09] Dianne P. O’Leary, “Gene Howard Golub, 1932-2007,” obituary, *Linear Algebra and Its Applications*, 428 (2008) 2405–2409. doi:10.1016/j.laa.2008.1.014
- [H08] Dianne P. O’Leary, “George Dantzig: A Remembrance,” *Computing in Science and Engineering* 7, no. 5, September/October 2005, p.96
- [H07] Dianne O’Leary, “Celebrating 50 Years of the Conjugate Gradient Method,” *SIAM News* (35) June 2002, p. 4.
- [H06] Dianne P. O’Leary, “Commentary on *An Iteration Method for the Solution of the Eigenvalue Problem of Linear Differential and Integral Operators* by Cornelius Lanczos,” in David R. Lide, ed., *A Century of Excellence in Measurements, Standards, and Technology – A Chronicle of Selected NBS/NIST Publications 1901-2000*, NIST Special Publication 958, 2001, pp. 77-80.
- [H05] Dianne P. O’Leary, “Commentary on *Methods of Conjugate Gradients for Solving Linear Systems* by Magnus R. Hestenes and Eduard Stiefel,” in David R. Lide, ed., *A Century of Excellence in Measurements, Standards, and Technology – A Chronicle of Selected NBS/NIST Publications 1901-2000*, NIST Special Publication 958, 2001, pp. 81-85.

- [H04] D. O’Leary, R. Plemmons, H. Schneider, and P. N. Shivakumar, “Winnipeg 1997 Conference Report,” *Linear Algebra and Its Applications Special Issue: Proceedings of the International Linear Algebra Society (ILAS) Symposium on Fast Algorithms for control, Signals, and Image Processing (6-8 June 1997)*, Winnipeg, Canada, 284 (1998) 357-359.
- [H03] Dianne P. O’Leary, “Commentary on Lanczos’s ‘Analytical and Practical Curve Fitting of Equidistant Data,’” *Cornelius Lanczos Collected Published Papers with Commentaries*, William R. Davis et al., eds., North Carolina State University Publishers, Raleigh, 1998, volume 5, 3-433 to 3-434.
- [H02] Dianne P. O’Leary, “Conjugate Gradients and Related KMP Algorithms: The Beginnings,” in *Linear and Nonlinear Conjugate Gradient-Related Methods*, Loyce Adams and J. L. Nazareth, eds., SIAM, Philadelphia, 1996, 1-8.
- [H01] (invited) Dianne P. O’Leary, “Some Themes in Gene H. Golub’s Work on Iterative Methods,” *Iterative Methods for Sparse and Structured Problems (IMA, February 1992)*, in *Recent Advances in Iterative Methods* Gene H. Golub, Anne Greenbaum, and Mitchell Luskin, eds., IMA Volumes in Mathematics and Its Applications, Vol. 60, Springer-Verlag, New York, 1994, 1-11.

Conference Publications, Book Chapters, etc.

- [C39] Peter Rankel*, John M. Conroy, Eric V. Slud, and Dianne P. O’Leary, “Ranking Human and Machine Summarization Systems,” *Proceedings of the 2011 Conference on Empirical Methods in Natural Language Processing (EMNLP 2011)*, Edinburgh, UK, July 27-31, 2011. Association for Computational Linguistics (ACL) <http://aclweb.org/anthology-new/D/D11/D11-1043.pdf>
- [C38] David A. Schug*, Dianne P. O’Leary, and Glenn R. Easley, “Three-dimensional Shearlet Edge Analysis,” *Independent Component Analyses, Wavelets, Neural Networks, Biosystems, and Nanoengineering IX*, Orlando, Florida, April 2011, *Proc. SPIE* 8058, 805808 (2011). <http://dx.doi.org/10.1117/12.884194>
- [C37] John M. Conroy, Judith D. Schlesinger, Peter A. Rankel*, and Dianne P. O’Leary, “Guiding CLASSY toward More Responsive Summaries,” *TAC 2010 Workshop Proceedings*, NIST, November 15-16, 2010. <http://www.nist.gov/tac/2010/workshop/>
- [C36] Bert W. Rust, Dianne P. O’Leary, and Katharine M. Mullen, “Modelling Type 1a Supernova Light Curves,” Chapter 8 in *Exponential Data Fitting and Its Applications*, V. Pereyra and G. Scherer, eds., Bentham Science Publishers Ltd. 2010, pp. 169-186. <http://www.bentham.org/ebooks/9781608050482/>
- [C35] John M. Conroy, Judith D. Schlesinger, and Dianne P. O’Leary, “CLASSY 2009: Summarization and Metrics,” *TAC 2009 Workshop Proceedings*, NIST, November 16-17, 2009. <http://www.nist.gov/tac/publications/2009/participant.papers/CLASSY.proceedings.pdf>
- [C34] Judith D. Schlesinger, Dianne P. O’Leary, and John M. Conroy, “Arabic/English Multi-document Summarization with CLASSY – The Past and the Future,” *CICLing Conference on Intelligent Text Processing and Computational Linguistics*, Haifa, Israel, February 17-23, 2008. in *Computational Linguistics and Intelligent Text Processing, Lecture Notes in Computer Science Volume 4919*, Alexander F. Gelbukh (Ed.), Springer Berlin, (2008) 568-581. http://dx.doi.org/10.1007/978-3-540-78135-6_49
- [C33] Nitin Madnani⁺, Rebecca Passonneau, Necip Fazil Ayan⁺, John M. Conroy, Bonnie J. Dorr, Judith L. Klavans, Dianne P. O’Leary, and Judith D. Schlesinger, “Measuring Variability in Sentence Ordering for News Summarization,” *11th European Workshop on Natural Language Generation (ENLG07)* Schloss Dagstuhl, Germany, June 17-20, 2007.

- [C32] John M. Conroy, Judith D. Schlesinger, and Dianne P. O’Leary, “CLASSY 2007 at DUC 2007,” Document Understanding Conference DUC 2007, HLT-NAACL, Rochester, NY, April 26, 2007.
- [C31] John M. Conroy, Judith D. Schlesinger and Dianne P. O’Leary, “Topic-Focused Multi-Document Summarization Using an Approximate Oracle Score”, Proceedings of the ACL’06 / COLING’06, 2006.
- [C30] John M. Conroy, Dianne P. O’Leary, and Judith D. Schlesinger, “CLASSY Arabic and English Multi-Document Summarization”, in Multi-Lingual Summarization Evaluation 2006, <http://www.isi.edu/~cyl/MTSE2006/MSE2006/papers/index.html>, 2006.
- [C29] David M. Zajic⁺, Bonnie Dorr, J. Lin, Dianne P. O’Leary, John M. Conroy, and Judith D. Schlesinger, “Sentence Trimming and Selection: Mixing and Matching,” *DUC 06 Conference Proceedings*, 2006. <http://duc.nist.gov/>
- [C28] John M. Conroy, Judith D. Schlesinger, Dianne P. O’Leary, and Jade Goldstein, “Back to Basics: CLASSY 2006,” *DUC 06 Conference Proceedings*, 2006. <http://duc.nist.gov/>
- [C27] John M. Conroy, Judith D. Schlesinger, Jade Goldstein, and Dianne P. O’Leary, “Left-Brain/Right-Brain Multi-Document Summarization,” *DUC 04 Conference Proceedings*, 2004. <http://duc.nist.gov/>
- [C26] Daniel M. Dunlavy*, John M. Conroy, Timothy J. O’Leary, and Dianne P. O’Leary, “Clustering and Summarizing Medline Abstracts”, *BISTI 2003 Symposium on Digital Biology: The Emerging Paradigm*, National Institutes of Health Biomedical Information Science and Technology Initiative (BISTI), 2003.
- [C25] Daniel M. Dunlavy*, John M. Conroy, Judith D. Schlesinger, Sarah A. Goodman, Mary Ellen Okurowski, Dianne P. O’Leary, and Hans van Halteren, “Performance of a Three-Stage System for Multi-Document Summarization,” *DUC 03 Conference Proceedings*, 2003. <http://duc.nist.gov/>
- [C24] David E. Gilsinn, Geraldine S. Cheok, and Dianne P. O’Leary, “Reconstructing Images of Bar Codes for Construction Site Object Recognition,” *Proceedings of the 19th International Symposium on Automation and Robotics in Construction*, NIST, September 2002.
- [C23] John M. Conroy, Robert L. Becker Jr., William Lefkowitz, Kewi L. Christopher, Rawatmal B. Surana, Timothy J. O’Leary, Dianne P. O’Leary, and Tamara G. Kolda, “Hidden Markov Models for Chromosome Identification,” Proceedings of the 14th IEEE Symposium on Computer-Based Medical Systems (CBMS’01), 2001.
- [C22] J. D. Schlesinger, M. E. Okurowski, J. M. Conroy, D. P. O’Leary, A. Taylor, J. Hobbs, H. T. Wilson, “Understanding Machine Performance in the Context of Human Performance for Multi-document Summarization,” *DUC 02 Conference Proceedings*, 2002. <http://duc.nist.gov/>
- [C21] Lynn Carlson, John M. Conroy, Daniel Marcu, Dianne P. O’Leary, Mary Ellen Okurowski, Anthony Taylor, and William Wong, “An Empirical Study of the Relation between Abstracts, Extracts, and the Discourse Structure of Texts,” *DUC 01 Conference Proceedings*, 2001. <http://duc.nist.gov/>
- [C20] J. M. Conroy, J. D. Schlesinger, D. P. O’Leary, and M. E. Okurowski, “Using HMM and Logistic Regression to Generate Extract Summaries for DUC,” *DUC 01 Conference Proceedings*, 2001. <http://duc.nist.gov/>
- [C19] Dianne P. O’Leary and Scott T. Weidman, “The Interface between Computer Science and the Mathematical Sciences,” *Computing in Science and Engineering* Vol 3 No 3 May/June 2001, 60-65.
- [C18] Dianne P. O’Leary and Scott T. Weidman, “The Interface of Three Areas of Computer Science with the Mathematical Sciences,” National Academy Press, Washington, DC, 2000. <http://www.nap.edu/books/NI000351/html/>

- [C17] 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*, George Cybenko, Dianne P. O’Leary, and Jorma Rissanen, eds., IMA Volumes in Math. and Its Applics., Springer-Verlag, New York, 1999, 73–80.
- [C16] James G. Nagy and Dianne P. O’Leary, “Fast Iterative Image Restoration with a Spatially Varying PSF,” in *Advanced Signal Processing Algorithms, Architectures, and Implementations VII* F. T. Luk, ed., SPIE, 1997, 388–399.
- [C15] Dianne P. O’Leary, “The SVD in Image Restoration,” *SVD and Signal Processing III: Algorithms, Architectures, and Applications*, Marc Moonen and Bart DeMoor, eds., Elsevier, New York, 1995, 315–322.
- [C14] D. P. Heyman and Dianne P. O’Leary, “What is Fundamental for Markov Chains: First Passage Times, Fundamental Matrices, and Group Generalized Inverses,” *Proceedings of the Second International Workshop on Markov Chains*, W. Stewart, ed., Kluwer Academic Publishers, 1995, 151–161.
- [C13] Dianne P. O’Leary, “Parallel Computing: Emerging from a Time Warp,” *IEEE Computational Science & Engineering* 1:4 (1994) 1,15.
- [C12] Dianne P. O’Leary, “Regularization of Ill-Posed Problems in Image Restoration,” *Proceedings of the Fifth SIAM Conference on Applied Linear Algebra*, J.G. Lewis, ed., SIAM Press, Philadelphia, 1994, 102–105.
- [C11] Richardo Fierro, Gene H. Golub, Per Christian Hansen, and Dianne P. O’Leary, “Regularization by Truncated Total Least Squares,” *Proceedings of the Fifth SIAM Conference on Applied Linear Algebra*, J.G. Lewis, ed., SIAM Press, Philadelphia, 1994, 250–254.
- [C10] K.J.R. Liu, Dianne P. O’Leary, G.W. Stewart, and Yuan-Jye J. Wu*, “An Adaptive ESPRIT Based on URV Decomposition,” *International Conference on Acoustics, Speech, and Signal Processing (ICASSP-93)*, Vol. IV, 37–40.
- [C09] (invited) Dianne P. O’Leary, “Iterative Methods for Finding the Stationary Vector for Markov Chains,” *Linear Algebra, Markov Chains, and Queuing Models (IMA, January 1992)*, Carl Meyer and Robert Plemmons, eds., Springer-Verlag, IMA Volumes in Math. and Its Applics. Vol. 48 New York, 1993, 125–136.
- [C08] M. Monahemi⁺, J. Barlow and Dianne P. O’Leary, “On the Precise Loop Transfer Recovery and Transmission Zeroes,” *First IEEE Conference on Control Applications*, Dayton, Ohio, September 1992.
- [C07] Chiou-Ming Huang* and Dianne P. O’Leary, “Preconditioning Parallel Multisplittings for Solving Linear Systems of Equations,” *International Conference on Supercomputing (Washington, DC, July 1992)* ACM Press, New York, 1992, 478–484.
- [C06] M. Monahemi⁺, J. Barlow, and Dianne P. O’Leary, “Considerations on Loop Transfer Recovery for Non-minimum Phase Plants,” *Proceedings of the AIAA Aircraft Design Systems and Operations Meeting*, Baltimore, September 1991, AIAA-91-3086.
- [C05] M. Monahemi⁺, J. Barlow, and Dianne P. O’Leary, “The Design of Reduced Order Luenberger Observers with Precise LTR,” *Proceedings of the AIAA Meeting on Guidance, Navigation and Control* New Orleans, August 1991, AIAA-91-2731.

- [C04] Dianne P. O’Leary, G.W. Stewart and Robert van de Geijn⁺, “Domino: A Transportable System for Parallel Processing,” in *Parallel Processing and Medium-Scale Multiprocessors* (Proceedings of a 1986 Conference), Arthur Wouk (Ed.), SIAM Press, Philadelphia (1989) 25-34.
- [C03] (invited, extended abstract) Dianne P. O’Leary, “Fine and Medium Grained Parallel Algorithms for Matrix QR Factorization,” *Algorithms and Applications on Vector and Parallel Computers*, H.J.J. te Riele, Th.J. Dekker and H.A. van der Vorst, eds., Elsevier Science Publishers B.V. (North Holland), (1987) 347-349.
- [C02] Dianne P. O’Leary, “Linear programming problems arising from partial differential equations,” in *Sparse Matrix Proceedings 1978*, Iain S. Duff and G. W. Stewart (Eds.) SIAM Press, Philadelphia (1979) 25-40.
- [C01] (Invited paper) Paul Concus, Gene H. Golub, and Dianne P. O’Leary, “A generalized conjugate gradient method for the numerical solution of elliptic partial differential equations,”
in *Sparse Matrix Computations*, James R. Bunch and Donald J. Rose (Eds.) Academic Press, New York (1976) 309-332.

reprinted in *Studies in Numerical Analysis*, Gene H. Golub (Ed.), Volume 25 of Studies in Mathematics, The Mathematical Association of America (1984) 178-198.

Technical Reports and Other Publications

- [T16] Jin Hyuk Jung* and Dianne P. O’Leary, “Exploiting Structure of Symmetric or Triangular Matrices on a GPU,” Computer Science Department Report CS-TR-4914, Institute for Advanced Computer Studies Report UMIACS-TR-2008-12, January 2008. <http://hdl.handle.net/1903/7984>
- [T15] Daniel M. Dunlavy* Dianne P. O’Leary, John M. Conroy, and Judith D. Schlesinger, “QCS: A System for Querying, Clustering, and Summarizing Documents,” SANDIA Technical Report SAND2006-5000, July 2006.
- [T14] David E. Gilsinn, Geraldine S. Cheok, Dianne P. O’Leary, “Deconvolving LADAR Images of Bar Codes for Construction Site Object Recognition, NISTIR-7044, National Inst. of Standards and Technology, Gaithersburg, MD, 2003.
- [T13] John Conroy and Dianne P. O’Leary, “Text Summarization via Hidden Markov Models and Pivoted QR Matrix Decomposition,” Computer Science Department Report CS-TR-4221, Institute for Advanced Computer Studies Report UMIACS-2001-11, University of Maryland, February 2001.
- [T12] James G. Nagy and Dianne P. O’Leary, “Displaying Confidence Images,” Computer Science Department Report CS-TR-4161, Institute for Advanced Computer Studies Report UMIACS-2000-51, University of Maryland, July 2000.
- [T11] D. O’Leary, H. Park, A. H. Sayed, P. N. Shivakumar, “Preface,” Linear Algebra and Its Applications Special Issue: Proceedings of the International Linear Algebra Society (ILAS) Symposium on Fast Algorithms for control, Signals, and Image Processing (6-8 June 1997), Winnipeg, Canada, 284 (1998) 1
- [T10] Per Christian Hansen and Dianne P. O’Leary, “Regularization Algorithms Based on Total Least Squares,” Computer Science Department Report CS-TR-3684, Institute for Advanced Computer Studies Report UMIACS-TR-96-65, University of Maryland, September 1996.
- [T09] Dianne P. O’Leary, “First Birthday for AWM-Net,” AWM Newsletter, Vol. 25, No. 2, March-April 1995, p. 22.

- [T08] Chiou-Ming Huang* and Dianne P. O’Leary, “A Parallel Inexact Newton Method Using a Krylov Multisplitting Algorithm,” Computer Science Department Report CS-TR-3112, Institute for Advanced Computer Studies Report UMIACS-93-71, University of Maryland, July 1993.
- [T07] Dianne P. O’Leary, Roger Pierson, G. W. Stewart, and Mark Weiser, “The Maryland Crab: A module for building parallel computers,” Computer Science Department Report CS-1660, Institute for Advanced Computer Studies Report UMIACS-86-9, University of Maryland, April, 1986.
- [T06] Dianne P. O’Leary, G. W. Stewart and R. van de Geijn⁺, “DOMINO: A message passing system for parallel computation,” Computer Science Department Report CS-1648, University of Maryland, April, 1986.
- [T05] Dianne P. O’Leary, “Solving sparse matrix problems on parallel computers,” Computer Science Department Report TR-1234, University of Maryland (1982).
- [T04] Dianne P. O’Leary, “Some mathematics of image processing” *SIAM News* November 15, 1982 p6.
- [T03] Dianne P. O’Leary, “Sparse quadratic programming without matrix updating,” Computer Science Department Report TR-1200, University of Maryland (1982).
- [T02] Dianne P. O’Leary, “Linear Programming Practice and Pitfalls,” Engineering Summer Conference on Operations Research, Course Notes, University of Michigan, Summer 1976, 1977, 1978.
- [T01] Dianne P. O’Leary, “Hybrid conjugate gradient algorithms,” Ph.D. Thesis, Computer Science Department Report STAN-CS-76-548, Stanford University (1976).

Invited Lectures

- [S48] “Confidence in Image Reconstruction,” IMA Workshop on Large-scale Inverse Problems and Quantification of Uncertainty, Minneapolis, MN June 2011
- [S47] “Where am I? Position from Incomplete Distance Information,” Householder Symposium, Lake Tahoe, CA, June 2011.
- [S46] “Where am I? Position from Incomplete Distance Information,” Purdue University, April 2011.
- [S45] 2011 Norbert Wiener Lecturer for Tufts University. Delivered three lectures, one for a very broad audience, one at the level of a colloquium, and one more specialized: “Computer Science in Words and Images,” “Where am I? Position from Incomplete Distance Information,” “Uncertainty Quantification for Ill-Posed Problems.”
- [S44] “Mathematics and Computer Science in Words and Images,” Women in Science Forum, Towson University, March 2011.
- [S43] “Confidence and Mislplaced Confidence in Image Reconstruction,” SIAM Applied Linear Algebra Meeting, Monterey, California, October 2009.
- [S42] “Validating Approximate Solutions to Ill-Posed Problems,” Washington-Baltimore Section of the Society for Industrial and Applied Mathematics Meeting, College Park, Maryland, May 2009
- [S41] “Optimization Methods for Image Deblurring,” NASA Goddard Space Flight Center IS&T Colloquium, April, 2009.
- [S40] “A Noisy Adiabatic Theorem and Implications for Quantum Computing,” Scientific Computing and Advanced Computing Session, sponsored by the AMS Mathematical Research Community, at the AMS Joint Math Meetings, Washington, DC, January 2009.

- [S39] “Web Searches: Queries, Clusters, and Summaries,” Computer Science Distinguished Speakers Series, College of William and Mary, Williamsburg, VA, November 2008.
- [S38] “A Noisy Adiabatic Theorem: Wilkinson Meets Schrödinger’s Cat,” Sonia Kovalevsky Lecture, SIAM Annual Meeting, San Diego, CA, July 2008.
- [S37] “Residual Periodograms for Ill-Posed Problems,” 17th Householder Symposium, Zeuthen, Germany, June 2008.
- [S36] “Mining Multilingual Documents,” (a keynote talk) 8th SIAM International Conference on Data Mining, Atlanta, Georgia, April 2008.
- [S35] “Speeding the Training of Support Vector Machines and Solution of Quadratic Programs,” Harrochov, Czech Republic, August 2007.
- [S34] “Parallel Matrix Computation: From the ILLIAC to Quantum Computing,” Stanford 50: State of the Art and Future Directions of Computational Mathematics and Numerical Computing, March, 2007.
- [S33] “Matrix Factorizations for Information Retrieval,” Workshop on Modern Massive Datasets, Stanford, California, June 2006.
- [S32] “Multi-Success,” Convocation Address, University of Waterloo, October 2005.
- [S31] “HOPE: A Homotopy Optimization Method for Protein Structure Prediction,” University of Waterloo, October 2005.
- [S30] “Some Linear Algebra of Quantum Computing,” Sandia National Laboratory, Livermore, CA, September 28, 2005.
- [S29] “Numerical Linear Algebra in Image Deblurring,” Third International School in Numerical Linear Algebra and Applications, Monopoli, Italy, September 11-17, 2005.
- [S28] “Math in Words and Images,” Math SPIRAL (Summer Program In Research And Learning) for undergraduate students from a variety of schools, mostly HBCU’s, University of Maryland, 2003, 2005, 2007.
- [S27] “8 Rules for Career Success,” ALL-WIE Symposium, IEEE Women in Engineering Washington Area Affinity Group, Lanham, Maryland, May 2003.
- [S26] “Blind Deconvolution Algorithms,” IPAM/SIAM/EMS Conference on “Applied Inverse Problems”. Lake Arrowhead, California, May 2003.
- [S25] “Towards Understanding the Convergence of the Krylov Subspace Methods,” Latsis Symposium 2002, ETH Zurich, Switzerland, February 2002.
- [S24] “The Linear Algebra of Image Processing,” Seventh SIAM Conference on Applied Linear Algebra, Raleigh, NC, October, 2000.
- [S23] “Computing and Displaying Confidence Intervals for Images,” AMW-AWM-SIAM Special Session on Linear Algebra and Optimization, Joint Mathematics Meetings, Washington, DC January 21, 2000.
- [S22] “Computational Science and Engineering’s Relation to Applied Mathematics,” Invited address at the IEEE Workshop on Computational Science and Engineering, Lafayette, Indiana, October 1996.

- [S21] “Conjugate Gradients: Images, Parallelism, and Preconditioning” Invited speaker at the AMS/SIAM Meeting on Linear and Nonlinear Conjugate Gradient-Related Methods, Seattle, Washington, July 1995.
- [S20] “Computation with Markov Chains,” Plenary speaker at the SIAM National Meeting, San Diego, California, July 1994.
- [S19] Invited speaker at the Computer Research Association “Windows of Opportunity Symposium for Female Students in Computing,” Washington, D.C., May 1993.
- [S18] “The Block Quasi-Newton Algorithm,” Plenary speaker at the International Linear Algebra Society Conference on Pure and Applied Linear Algebra, Pensacola, Florida, March 1993.
- [S17] “Iterative Methods for Solving Markov Chains,” Workshop on Linear Algebra, Markov Chains, and Queuing Problems, Institute for Mathematics and Its Applications, University of Minnesota, Minneapolis, January 1992.
- [S16] “Regularizing Iterations for the Solution of Discrete Ill-Posed Problems,” Numerical Linear Algebra Conference, Mathematisches Forschungsinstitut Oberwolfach, Germany, April, 1991.
- [S15] “Techniques for Improving the Accuracy of Solutions to Linear Least Squares Problems,” US/Finnish Workshop on Scientific Computing, Espoo, Finland, August, 1989.
- [S14] “Some Small Problems in Parallel Processing,” Gatlinburg X Meeting on Numerical Linear Algebra, Fairfield Glade, Tennessee, October, 1987.
- [S13] “The Block Conjugate Gradient Algorithm in Parallel Computing,” International Conference on Vector and Parallel Computing, Loen, Norway, June, 1986.
- [S12] “Fine and Medium Grained Parallel Algorithms for Matrix QR Factorization,” Stichting Mathematisch Centrum, Centrum voor Wiskunde en Informatica, Amsterdam, The Netherlands, May, 1986.
- [S11] “Parallel Computation and Linear Programming,” Workshop on Future Directions in Mathematical Programming, Naval Postgraduate School, Monterey, California, February, 1986.
- [S10] “A Testbed for Parallel Algorithm Development,” Second SIAM Meeting on Parallel Processing and Numerical Analysis, Norfolk, Virginia, November, 1985.
- [S09] “Solution of Matrix Problems on Parallel Computers,” Gatlinburg IX Meeting on Numerical Linear Algebra, Waterloo, Ontario, Canada, July, 1984.
- [S08] “Data-flow Algorithms for Matrix Computations,” ACM SIGNUM Conference on Numerical Computations and Mathematical Software for Microcomputers (minisymposium), Boulder, Colorado, March, 1984.
- [S07] “Parallel Computations for Sparse Linear Systems,” SIAM 1983 Fall Meeting (minisymposium), Norfolk, Virginia, November, 1983.
- [S06] “Solving Mesh Problems on Parallel Processors,” Sparse Matrix Symposium, Fairfield Glade, Tennessee, October 1982.
- [S05] “Linear Algebra in Digital Image Processing,” SIAM Conference on Applied Linear Algebra, Raleigh, North Carolina, April 1982.
- [S04] “Ill-posed Toeplitz Systems,” Gatlinburg VIII Meeting on Numerical Linear Algebra, Oxford, England, July 1981.

- [S03] “The Block Conjugate Gradient Algorithm,” Gatlinburg VII Meeting on Numerical Linear Algebra, Monterey, California, December 1977.
- [S02] “The Block Conjugate Gradient Algorithm,” Symposium on Applied Matrix Methods, Johns Hopkins University, August, 1977.
- [S01] “Conjugate Gradient Convergence Acceleration Methods for Elliptic Partial Differential Equations,” Symposium on Sparse Matrix Computations, Argonne, Illinois, September, 1975 (With Gene H. Golub and Paul Concus).

Grant Support

- [G22] National Science Foundation Grant DMS-1016266, 2010-2013: “Confidence and Misplaced Confidence in Image Reconstruction.”
- [G21] Department of Energy Grant DESC0001862, 2009-2012: “Advanced Optimization Techniques for Entropy-Based Moment Closures,” (With A. Tits and C. Hauck)
- [G20] Department of Energy Grant DESC0002218, 2009-2012: “Interior-Point Algorithms for Optimization Problems with Many Constraints,” (With A. Tits)
- [G19] National Science Foundation Grant CCF-0514213, 2005-2009: “Computations with Unitary Matrices,” (With G. W. Stewart).
- [G18] Department of Energy Grant DEFG0204ER25655, 2004-2009: “Interior Point Algorithms for Optimization Problems,” (with A. Tits).
- [G17] National Science Foundation Grant, 2004-2008: “HP and Visualization Cluster,” (co-PI, with A. Varshney et al.)
- [G16] Department of Energy Grant DEFG0203ER25555, 2003-2004: “Workshop on Women of Applied Mathematics: Research and Leadership,”
- [G15] National Science Foundation Grant ITR, 2002-2005: “Fast Multipole Translation Algorithms for Solution of the 3D Helmholtz Equation,” (with R. Duraiswami, H. Elman, N. Gumerov, I. Mayergoyz).
- [G14] National Science Foundation Grant CCR-0204084, 2002-2005: “New Krylov Methods: Theory and Applications,” (With G. W. Stewart).
- [G13] Office of Naval Research Grant N000140110181, 2000-2003: “Solution Algorithms and Probabilistic Analysis of Models and Scattering,” (With Howard Elman).
- [G12] National Science Foundation Grant CCR-97-32022, 1998-2001: “Numerical Methods for Ill-Posed Problems and Large scale Eigenvalue Problems,” (With G. W. Stewart).
- [G11] National Science Foundation Grant, 1999, “Support of Householder Symposium XIV on Numerical Algebra.” (With G. W. Stewart)
- [G10] National Science Foundation Grant CCR-95-03126, 1995-1998: “Numerical Methods for Ill-Posed Problems and Markov Chains” (With G. W. Stewart).
- [G09] Office of Naval Research Grant N00014-94-10580, 1995-1997, “Numerical Methods for Underwater Structural Acoustics Simulations” (With H. Elman, J. Saltz, and G.W. Stewart).

- [G08] NSF CISE Research Infrastructure Award, National Science Foundation, 1994-1997: “Systems and Software Tools for High Performance Computing” (With L. S. Davis, H. Elman, J. Hendler, and J. Saltz)
- [G07] National Science Foundation Grant 95-1120-8721, 1996, “Support of Householder Symposium XIII on Numerical Algebra.”
- [G06] Office of Naval Research Grant N00014-94-10580, 1994-1995, “Numerical Methods for Underwater Structural Acoustics Simulations” (With H. Elman, J. Saltz, and G.W. Stewart).
- [G05] National Science Foundation Grant CCR-91-15568, 1992-1995: “The Numerical Treatment of Markov Chains” (With G. W. Stewart).
- [G04] Air Force Office of Scientific Research Grant AFOSR-82-0078 and AFOSR-87-0188, 1982-92: “Parallel Matrix Computation” (With G. W. Stewart).
- [G03] National Science Foundation Grant MCS-79-23422, 1980-84: “Representation and control in computer vision: multi- level relaxation approaches” (With A. Rosenfeld).
- [G02] Office of Naval Research Grant N00014-76-C-0391, 1979-1982, “Research in numerical linear algebra” (With G. W. Stewart).
- [G01] National Science Foundation Grant MCS 76-06595, 1976-1978: “Conjugate gradient algorithms for nonlinear elliptic equations” and “Linear programming problems arising from partial differential equations”.

Awards and Achievements

2012 Cray Distinguished Speaker for the Computer Science Department, University of Minnesota.

“Portfolio Selection Using Tikhonov Filtering to Estimate the Covariance Matrix,” by graduate student Sungwoo Park and Dianne P. O’Leary, winner of the 2011 SIAM Student Paper Competition.

2011 Norbert Wiener Lecturer for Tufts University.

“Portfolio Selection Using Tikhonov Filtering to Estimate the Covariance Matrix,” by graduate student Sungwoo Park and Dianne P. O’Leary, winner of the 2011 SIAM Student Paper Competition.

Named a SIAM Fellow, 2009 (inaugural group).

Outstanding Authorship Award, Best Journal Paper of the Year, Information Technology Laboratory, National Institute of Standards and Technology, May 2009.

AWM-SIAM Sonia Kovalevsky Lecturer, July 2008.

Keynote address, SIAM Conference on Data Mining, April 2008.

Board of Visitors Distinguished Faculty Award, College of Computer, Mathematical, and Physical Sciences, University of Maryland, 2007.

Named an ACM Fellow, November 2006.

Named an ACM Distinguished Scientist, October 2006.

Doctor of Mathematics, *honoris causa*, from the University of Waterloo for “outstanding contributions to research and education in the mathematical and computer sciences and leadership and promotion of women in the field,” October 2005.

Best Paper Award, 19th Annual Symposium on Automation and Robotics in Construction (ISARC 2002), for "Reconstructing Images of Bar Codes for Construction Site Object Recognition," with D. Gilsinn and G. Cheok, NIST, Gaithersburg, MD, September 2002.

St. George Emblem, Washington D.C. Catholic Committee on Boy Scouting, 2001.

P.A.D.I Certified Open-water SCUBA Diver, 1997; Advanced Open-water Diver 1998.

Outstanding Poster Award for "Overview of the Semi-Discrete Matrix Decomposition and Its Applications," (with Tamara G. Kolda), Sixth SIAM Conference on Applied Linear Algebra, Snowbird, Utah, October 1997.

Semester Research Award, General Research Board, Office of Graduate Studies and Research, 1992, 1997.

Second Place Award for the poster presentation "Regularization by Truncated Total Least Squares," (with R. Fierro, G.H. Golub, and P.C. Hansen), Fifth SIAM Conference on Applied Linear Algebra, Snowbird, Utah, June 1994.

Distinguished Alumna Award, Purdue University 1993.

Hertz Foundation Fellow 1972-1975.

Betty Crocker Homemaker of Tomorrow for the State of Illinois 1969.

Editorships and Reviewing Activities for Journals

Editor-in-Chief, *SIAM Journal on Matrix Analysis and Applications* 2009-2014

Member, Editorial Board, *SIAM Review* Education Section 2007-

Member, Editorial Board, SIAM Books 2009-

Member, Editorial Board, *Computing in Science and Engineering*, formerly *IEEE Computational Science and Engineering* 1994-

Department Editor, "Your Homework Assignment," a column in *Computing in Science and Engineering*, <http://www.computer.org/cise/homework/> 2002-2006, 2011-

Member, Editorial Board, *SIAM Journal on Matrix Analysis and Applications* 1995-2003, 2006-2009

Member, Editorial Board, SIAM book series on "Fundamentals of Algorithms" 2003-2010

Associate Editor, *Linear Algebra and Its Applications* 1998-2003

Member, Editorial Board, *SIAM Review* 1989-1997

Editor, *Linear Algebra and Its Applications* issue on papers presented at the ILAS Conference, Winnipeg, Canada, June 1997.

Editor, *Linear Algebra and Its Applications* issue on papers presented at the Third ILAS Conference, Pensacola, FL March 1993.

Member, Editorial Board, *SIAM Journal on Scientific and Statistical Computing* 1981-1989

Memberships in Professional Societies

Society for Industrial and Applied Mathematics

Association for Computing Machinery

American Association for the Advancement of Science

Association for Women in Mathematics

Phi Beta Kappa

III. Teaching and Advising

1. Courses Taught Recently

CMSC 460/ AMSC 460	Computational Methods	(30 students)	Fall 2007
CMSC 498D/ AMSC 498D	Image Deblurring	(30 students)	Spring 2012
CMSC 660/ AMSC 660	Scientific Computing I	(30 students) (30 students) (30 students)	Fall 2010 Fall 2009 Fall 2008
CMSC 661/ AMSC 661	Scientific Computing II	(20 students)	Spring 2010
CMSC 662/ AMSC 662	Computer Organ. and Prog. for Scientific Computing	(25 students)	Fall 2011
CMSC 760/ AMSC 600	Advanced Linear Numerical Analysis	(25 students)	Fall 2007
CMSC 764/ AMSC 607	Advanced Optimization	(20 students) (25 students)	Fall 2010 Fall 2008

2. *Other Courses*

- CMSC 150: Discrete Mathematics
- CMSC 251: Algorithms
- CMSC 311: Computer Organization
- CMSC 411: Computer Systems Architecture
- CMSC 452: Theory of Computation
- CMSC/MAPL 466: Introduction to Numerical Analysis I
- CMSC/MAPL 666: Numerical Analysis I
- (ETH) Parallel Numerical Computing

3. *Advising: Other than Research Direction*

4. *Advising: Research Direction*

Ph.D. Students

- (a) Mansuk Song, "Regularization - projection methods and finite element approximations for ill-posed linear operator equations," University of Michigan, 1978. (Directed jointly with M. Z. Nashed).
- (b) David C. Fisher, "Matrix Computation on Processors in One, Two, and Three Dimensions," Applied Mathematics Program, University of Maryland, 1985.
- (c) John Conroy, "Parallel Direct Solution of Sparse Linear Systems of Equations," Applied Mathematics Program, University of Maryland, 1986.
- (d) Pil Seong Park, "Iterative Solution of Sparse Linear Systems Arising from Queueing Networks," Applied Mathematics Program, University of Maryland, 1991.
- (e) Chiou-Ming Huang, "Multi-Splitting Preconditioners for the Conjugate Gradient Algorithm," Computer Science Department, University of Maryland, 1992.

- (f) Peter Whitman, “Solution Ranges in Stochastic Linear Programming,” Applied Mathematics Program, University of Maryland, 1993.
- (g) Yuan-Jye Jason Wu, “Matrix Decompositions for Markov Chains and Signal Processing,” Applied Mathematics Program, University of Maryland, 1995.
- (h) Weichung Wang, “Iterative Methods in Interior Point Methods for Linear Programming,” Applied Mathematics Program, University of Maryland, 1996.
- (i) Tamara Gibson Kolda, “Limited-Memory Matrix Methods with Applications,” Applied Mathematics Program, University of Maryland, 1997.
- (j) Misha E. Kilmer, “Regularization of Ill-Posed Problems,” Applied Mathematics Program, University of Maryland, 1997 (directed jointly with G. W. Stewart).
- (k) Ilya A. Zavorin, “Analysis of GMRES Convergence by Spectral Factorization of the Krylov Matrix,” Applied Mathematics and Scientific Computing Program, University of Maryland, 2001 (directed jointly with Howard Elman).
- (l) Bitu Khoshvaghti, “Prediction of Protein Folding Using Residue Fragment Graphs,” Applied Mathematics and Scientific Computing Program, University of Maryland, 2003.
- (m) Daniel M. Dunlavy, “Homotopy Optimization Methods and Protein Structure Prediction,” Applied Mathematics and Scientific Computing Program, University of Maryland, 2005.
- (n) Haw-ren Fang, “Matrix Factorizations, Triadic Matrices, and Modified Cholesky Factorizations for Optimization,” Computer Science Department, University of Maryland, 2006.
- (o) Simon P. Schurr, “An Inexact Interior-Point Algorithm for Conic Convex Optimization Problems,” Applied Mathematics and Scientific Computing Program, University of Maryland, 2006 (directed jointly with Andre Tits).
- (p) Elena Zotenko, “Computational Methods in Protein Structure Comparison and Analysis of Protein Interaction Networks,” Computer Science Department, University of Maryland, 2007 (directed jointly with Teresa Przytycka).
- (q) Jin Hyuk Jung, “Adaptive Constraint Reduction for Convex Quadratic Programming and Training Support Vector Machines,” Computer Science Department, University of Maryland, 2008.
- (r) Michael J. O’Hara “Adiabatic Quantum Computation: Noise in the Adiabatic Theorem and Using the Jordan-Wigner Transform to Find Effective Hamiltonians,” Applied Mathematics and Scientific Computing Program, University of Maryland, 2008.
- (s) Stacey O. Nicholls, “Column Generation in Predictor-Corrector Methods for Solving Linear Programs, Applied Mathematics and Scientific Computing Program, University of Maryland, 2009.
- (t) Konstantin Berlin, “Protein-Protein Docking Using Long Range Nuclear Magnetic Resonance Constraints,” Computer Science Department, University of Maryland, 2010 (directed jointly with David Fushman)
- (u) Sungwoo Park, “Matrix Reduction in Numerical Optimization,” Computer Science Department, University of Maryland, 2011

M.A. Students

- (a) Robert E. Blase, “Parametric eigensystem computation techniques,” M.A. Thesis, Applied Mathematics Program, University of Maryland, 1982.
- (b) Bruce G. White, “Graphical Debugging Tools for Parallel Algorithms,” M.A. Thesis, Computer Science Department, University of Maryland, 1987.

- (c) Tongbiao Li, “The s -Step Block Minimal Residual Method,” M.A. scholarly paper, Applied Mathematics Program, University of Maryland, 1994.
- (d) Tamara L. Gibson, “NAS Parallel Conjugate Gradient Benchmark on the Cray T3D,” M.A. scholarly paper, Applied Mathematics Program, University of Maryland, 1995.
- (e) Allen Gregory Harbaugh, “Minimization Techniques for Eigenvalue and Eigenvector Problems,” M.A. scholarly paper, Applied Mathematics Program, University of Maryland, 1998.
- (f) Kimberly Ann Flagg Sellers, “Iterative Methods for Computing Mean First Passage Times of Markov Chains,” M.A. Thesis, Mathematics Department, University of Maryland, 1998.
- (g) Armin A. Pruessner, “Blind Deconvolution Using a Regularized Structured Total Least Norm Algorithm,” M.A. Thesis, Applied Mathematics Program, University of Maryland, 2001.
- (h) Anoop Kalsi, “Blind Two-Dimensional Deconvolution Using Total Least Squares,” M.A. Thesis, Mathematics Department, University of Maryland, 2002.
- (i) Che-Rung (Roger) Lee, “Yield Optimizaton of VLSI Layout Using a Dynamic L-infinity Voronoi Diagram,” M.A. scholarly paper, Computer Science Department, University of Maryland, 2002.
- (j) Sarah A. Brown, “Incorporating a Model in Asynchronous Parallel Pattern Search,” M.A. scholarly paper, Mathematics Department, University of Maryland, 2003.
- (k) Daniel Dunlavy, “QCS: A Method for Querying, Clustering, and Summarizing Documents”, M.A. scholarly paper, Applied Mathematics and Scientific Computing Program, University of Maryland, 2003.
- (l) Stacey O. Nicholls, “A Column Generation Approach to Solving Large-Scale Integer and Linear Programming Problems,” M.A. scholarly paper, Applied Mathematics and Scientific Computing Program, University of Maryland, 2004.
- (m) Elena Zotenko, “Geometric Invariants for Protein Structure Comparison,” M.A. scholarly paper, Computer Science Department, University of Maryland, 2004.
- (n) Simon P. Schurr, “Properties of Central Paths in Linear and Nonlinear Programming,” M.S. scholarly paper, Applied Mathematics Program, University of Maryland, 2005.
- (o) Ping Chen, “The Adaptive Preconditioned Conjugate Gradient Method,” M.S. scholarly paper, Computer Science Department, University of Maryland, 2005.
- (p) Jin-Hyuk Jung, “Cholesky Decomposition and Linear Programming on a GPU,” M.S. scholarly paper, Computer Science Department, University of Maryland, 2006.
- (q) Brianne L. Roth, “An Alternative Method for Computing the Semidiscrete Matrix Decomposition,” M.S. scholarly paper, Computer Science Department, University of Maryland, 2006.
- (r) Michael J. O’Hara, “Research Topics in Adiabatic Quantum Computing,” M.A. scholarly paper, Applied Mathematics Program, University of Maryland, 2006.
- (s) Jhacova A. Williams, “The Use of Preconditioning for Training Support Vector Machines,” M.S. thesis, Applied Mathematics Program, University of Maryland, 2008.
- (t) Sungwoo Park, M.A. scholarly paper, Computer Science Department, University of Maryland, 2009.
- (u) Kathryn Linehan, “Information Retrieval through Various Approximate Matrix Decompositions,” M.A. scholarly paper, Applied Mathematics Program, University of Maryland, 2009.
- (v) Brianna Satinoff, “An Evaluation of Two Algorithms for Hierarchically Semiseparable Matrices,” M.S. Scholarly Paper, Computer Science Department, University of Maryland, 2011.

- (w) Viktoria Taroudaki, “Image Deblurring – Computation of Confidence Intervals,” M.S. Scholarly paper, Applied Mathematics, Statistics, and Scientific Computing Program, University of Maryland, 2011.

B.A. Students

- (a) Nilani Aluthgedara, “Recognizing Sentence Boundaries and Boilerplate,” Honors thesis, Computer Science Department, University of Maryland, 2003.

High School Students

- i. Urja Mittal, “Evaluating and Improving the Efficiency of Mangasarian’s Linear Programming Algorithm,” winner of Galileo Circle Award, Washington Academy of Science and Blair High School’s Vaccaro Award.

IV. *Service*

1. *Professional*

Member of Organizing Committee, SIAM Conference on Applied Linear Algebra (LA12), Valencia, Spain, June 18-22, 2012.

Member of Oversight Committee, Gene Golub SIAM Summer Schools, 2010-2014.

Member of Organizing Committee, 2010 SIAM Annual Meeting.

Member of Organizing Committee, Numerical Linear Algebra: Perturbation, Performance, and Portability, Conference in honor of G. W. Stewart, Austin, Texas, 2010.

Member of Advisory Committee, SIAM Linear Algebra Activity Group International Summer School on Numerical Linear Algebra, 2007-.

Chair of AWM Committee on Committees, 2009-2011.

Member of Review Committee, Applied Science, College of William and Mary, 2009.

Member of External Advisory Board, Computer Science Department, George Washington University, 2005-2007

Mentor in AWM Mentor Network, 2001-

Member of SIAM/AMS/ASA/AWM/IMS/MAA/NCTM Joint Committee on Women 2004-2007

Member of the Organizing Committee, Householder Conferences (formerly the Gatlinburg series of conferences), 1987-2005

Member of the Organizing Committee, SIAM 2004 Annual Meeting

Co-organizer (with Tamara Kolda) of “Women of Applied Mathematics: Research and Leadership” Meeting, October 2003.

Member of the Board on Mathematical Sciences of the National Research Council, 1996-2001

Chair of the Organizing Committee, “Research, Careers, and Computer Science: A Maryland Symposium,” 2001.

Member of the Organizing Committee, Workshop on the Interface between Computer Science and Mathematics, sponsored by the National Research Council, 2000, and moderator for the Data Mining and Search session.

Member of Organizing Committee and Co-Chair of Program Committee, Olga Taussky Todd Celebration, MSRI, Berkeley, July 1999.

Member of review committee, Computer Science Department, Purdue University, 1999.

Member of Committee of Visitors for the Division of Mathematical Sciences, National Science Foundation, 1995, 1998.

Member of NSF Panel on Postdoctoral Programs in Computational Science and Engineering, New Technologies Program, Division of Advanced Scientific Computing, 1994.

Member of SIAM Nominating Committee, 1994-96

Mentor for participants in the AWM Workshop for Graduate Students and Post-Docs, SIAM Meeting, Stanford, CA, July 1997.

Organizer (with George Cybenko and Jorma Rissanen) of the IMA Workshop on The Mathematics of Information Coding, Extraction, and Distribution, November 11-15, 1996, Minneapolis, MN.

Founder and moderator of AWM-Net, an electronic mailing list, 1994-2005.

Organizer of the AWM Workshop for Graduate Students and Post-Docs, SIAM Meeting, San Diego, CA, July 1994.

Co-chair (with Bob Plemmons) of Program Committee and member of the Organizing Committee for the Workshop on Linear Algebra in Control Theory, Signal Processing and Image Processing, Winnipeg, Canada, June 6-8, 1997.

Member of Organizing Committee, University of Minnesota IMA Special Year on the Mathematics of High Performance Computing, 1996-97.

Member of the AMS-SIAM Committee on Applied Mathematics, 1994-97.

Chair of Program Committee, Householder Conference, 1993-96.

Member of Review Committee, Mathematics and Computer Science Division, Argonne National Laboratory, 1989-1994. Chair of Committee, 1991-94.

Member of Awards Committee, SIAM Student Paper Competition, 1993.

Member, SIAM Council, 1989-1991

Representative of SIAM Council to SIAM Board of Trustees, 1990-91

Member, Board of Directors, ACM Special Interest Group on Numerical Mathematics, 1985-1988

Member of the Evaluation Panel for NSF Postdoctoral Fellowships in the Mathematical Sciences, 1985-1988

Member of the Executive Committee of the Evaluation Panel for NSF Postdoctoral Fellowships in the Mathematical Sciences, and Chairperson of the Evaluation Panel, 1987-1988

Organizer of Workshop on Scientific Computing Using Parallel Architectures, (Greenbelt, Maryland), sponsored by University of Maryland Institute for Advanced Computer Studies and Computer Science Department, and the Air Force Office of Scientific Research, April, 1987

SIAM Representative to Joint Committee on Women in the Mathematical Sciences, 1984-1986

Member of NSF Selection Panel for Equipment Grants for the Mathematical Sciences, 1985

Referee for National Science Foundation, Department of Energy

2. *University*

Computer Science Department:

Member of Departmental Council, 1987-1991, 1993-1994, 2000-2001, 2007-2009, 2011-2012.

Member of Search Committee for Computer Science Department Chairperson, 1978-1979, 1981-1982, 1987-1988, 2011-2012.

Member of Education Committee, 1978-

Member of Numerical Analysis Field Committee, 1978-

Chair, Faculty Search Committee, 2009-2010. Member, Faculty Search Committee, 2010-2011, 2011-2012.

Chair, Academic Integrity Committee, 1999-2005, 2007-2008.

Chairperson of Review Committee for Departmental Plan of Organization, 1979-1980, 1999-2000, 2006-2007.

Co-Chair of Recruiting and Retention of Women and Minorities Committee, Departmental Retreat, 2003-2004.

Chair, Faculty Awards Committee, 2004-2005.

Chairperson of the Appointments, Promotion, and Tenure (APT) Committee, 1990-1991, 2001-2002, 2002-2003, 2008-2010.

Chair, Organizing Committee: Research, Careers, and Computer Science: A Maryland Symposium, Fall 2001.

Member of Merit Pay Committee, 1996-97.

Member of Academic Evaluation Committee, 1995-97.

Director of Undergraduate Studies, 1989-91.

Associate Chairperson for Research and Administration, 1987-1988.

Member of Laboratory Committee, 1992-93, 1994-98, 1999-2000.

Member of Program Library Policy Committee, 1988-89.

Chairperson of Committee to Review CMSC 112/113, 1988-89.

EEEE Officer 1980-1982, 1987-1988.

Member of Internal Review Committee for Computer Science Department, 1985-86.

Chairperson of Recruiting Committee for Computer Science Department Faculty, 1983-1984.

Graduate Admissions and Financial Aid Committee, 1982-1983.

Applied Mathematics Program:

Elected to Graduate Committee for Applied Mathematics, 1981-1983, 1985-1987, 1999-2002, 2006-2012.

Member of Admissions Committee, 2006-2011.

Member of Applied Mathematics Faculty, 1979-

Elected to Committee on the Applied Mathematics Faculty, 1988-1990.

Institute for Advanced Computer Studies:

Chair of the APT Committee, 2011-12.

Elected member of APT Committee, 1990-91, 1993-95, 1997-98, 2001-02, 2003-05, 2007-11.

Co-chair, Search committee for Bioinformatics faculty, 2001-03.

Elected member of Steering Committee, 1994-95, 2011-12.

College:

Served on Search Committee for Chair of Mathematics Department, 2006-2007.

Served on CMPS Women in Technology Panel, March 2004.

Member of CMPS APT Committee, 2002-2004.

Member of Search Committee for UMIACS Director, 2002-2003.

Member of Committee to Design Computational Science Curriculum, 2000.

Member of Search Committee for Director of the Center for Scientific Computation, 2000.

Member of Computational Science Committee 1996-1997.

Member of Future Directions for MAPL Committee 1994.

Chairperson, Internal Review Committee for the Mathematics Department 1993.

Member of CMPS Education Committee 1989-91.

Member of CMPS PCC Committee 1989-90.

Chairperson, CMPS Salary Review Committee, 1987, 1989.

Campus:

Member of Campus Courses, Curriculum, and Program Committee, 1986-1987.

3. Community:

Girl Scout Troop 2036 Leader 1993-98

Boy Scout Explorer Post 769 Advisor 1996-98

Cub Scout Pack 1072 Committee Chair 1993-97

Boy Scout Troop 772 Committee Member 1995-2004, and Treasurer 1995-99