

## Publications, Honors, and Students

### 2.1. Publications of G. W. Stewart

#### 2.1.1. Thesis

- [T1] Dissertation: G. W. Stewart III, “Some Topics in Numerical Analysis,” University of Tennessee. Published as Technical Report ORNL-4303, Oak Ridge National Laboratory, September 1968.  
<http://www.ornl.gov/info/reports/1968/3445605155079.pdf>

#### 2.1.2. Books

- [B1] *Introduction to Matrix Computations*, Academic Press, New York (1973).  
 [B2] (with J. J. Dongarra, J. R. Bunch, and C. B. Moler), *LINPACK Users’ Guide*, SIAM, Philadelphia (1979).  
 [B3] (with J.-G. Sun) *Matrix Perturbation Theory*, Academic Press, New York (1990).  
 [B4] Translation of Karl Friedrich Gauss, *Theoria Combinationis Observationum Erroribus Minimis Obnoxiae*, (Theory of the Combination of Observations Least Subject to Errors, Part One, Part Two, Supplement) SIAM, 1995.  
 [B5] *Afternotes on Numerical Analysis*, SIAM, 1996.  
 [B6] *Afternotes Goes to Graduate School*, SIAM, 1998.  
 [B7] *Matrix Algorithms Volume I: Basic Decompositions*, SIAM, 1998.  
 [B8] *Matrix Algorithms Volume II: Eigensystems*, SIAM, 2001.

#### 2.1.3. Journal Publications

- [J1] “A Modification of Davidon’s Minimization Method to Accept Difference Approximations of Derivatives,” *Journal of the ACM* **14** (1967) 72–83.

- [J2] “A Generalization of a Theorem of Fan on Gershgorin Disks,” *Numerische Mathematik* **10** (1967) 162.
- [J3] (with D. W. Lick) “Numerical Solution of a Thin Plate Heat Transfer Problem,” *Communications of the ACM* **11** (1968) 639–640.
- [J4] “On the Continuity of the Generalized Inverse,” *SIAM Journal on Applied Mathematics* **17** (1969) 33–45.
- [J5] “Accelerating the Orthogonal Iteration for the Eigenvectors of a Hermitian Matrix,” *Numerische Mathematik* **13** (1969) 362–376.
- [J6] “Some Iterations for Factoring a Polynomial,” *Numerische Mathematik* **13** (1969) 458–470.
- [J7] “On Lehmer’s Method for Finding the Zeros of a Polynomial,” *Mathematics of Computation* **23** (1969) 829–836, s24–s30. Corrigendum: **25** (1971) 203.
- [J8] “On Samelson’s Iteration for Factoring Polynomials,” *Numerische Mathematik* **15** (1970) 306–314.
- [J9] “Incorporating Origin Shifts into the QR Algorithm for Symmetric Tridiagonal Matrices,” *Communications of the ACM* **13** (1970) 365–367.
- [J10] “Algorithm 384: Eigenvalues and Eigenvectors of a Real Symmetric Matrix,” *Communications of the ACM* **13** (1970) 369–371. Remark: *Communications of the ACM* **13** (1970) 750.
- [J11] “On the Convergence of Sebastião E Silva’s Method for Finding a Zero of a Polynomial,” *SIAM Review* **12** (1970) 458–460.
- [J12] (with A. S. Householder) “The Numerical Factorization of a Polynomial,” *SIAM Review* **13** (1971) 38–46.
- [J13] “Error Analysis of the Algorithm for Shifting the Zeros of a Polynomial by Synthetic Division,” *Mathematics of Computation* **25** (1971) 135–139.
- [J14] “On a Companion Operator for Analytic Functions,” *Numerische Mathematik* **18** (1971) 26–43.
- [J15] “Error Bounds for Approximate Invariant Subspaces of Closed Linear Operators,” *SIAM Journal on Numerical Analysis* **8** (1971) 796–808.
- [J16] “On the Sensitivity of the Eigenvalue Problem  $Ax = \lambda Bx$ ,” *SIAM Journal on Numerical Analysis* **9** (1972) 669–686.
- [J17] (with R. H. Bartels) “Algorithm 432: Solution of the Matrix Equation  $AX + XB = C$ ,” *Communications of the ACM* **15** (1972) 820–826.
- [J18] (with C. B. Moler) “An Algorithm for Generalized Matrix Eigenvalue Problems,” *SIAM Journal on Numerical Analysis* **10** (1973) 241–256.
- [J19] “Error and Perturbation Bounds for Subspaces Associated with Certain Eigenvalue Problems,” *SIAM Review* **15** (1973) 727–764.
- [J20] “Conjugate Direction Methods for Solving Systems of Linear Equations,” *Numerische Mathematik* **21** (1973) 285–297.
- [J21] “Some Iterations for Factoring a Polynomial. II A Generalization of the Secant Method,” *Numerische Mathematik* **22** (1974) 33–36.
- [J22] “The Convergence of Multipoint Iterations to Multiple Zeros,” *SIAM Journal on Numerical Analysis* **11** (1974) 1105–1120.

- [J23] (with T. Söderström) “On the Numerical Properties of an Iterative Method for Computing the Moore-Penrose Generalized Inverse,” *SIAM Journal on Numerical Analysis* **11** (1974) 61–74.
- [J24] (with M. M. Blevins) “Calculating the Eigenvectors of Diagonally Dominant Matrices,” *Journal of the ACM* **21** (1974) 261–271.
- [J25] “Modifying Pivot Elements in Gaussian Elimination,” *Mathematics of Computation* **28** (1974) 537–542.
- [J26] “The Convergence of the Method of Conjugate Gradients at Isolated Extreme Points of the Spectrum,” *Numerische Mathematik* **24** (1975) 85–93.
- [J27] “Gershgorin Theory for the Generalized Eigenvalue Problem  $Ax = \lambda Bx$ ,” *Mathematics of Computation* **29** (1975) 600–606.
- [J28] “An Inverse Perturbation Theorem for the Linear Least Squares Problem,” (*ACM*) *SIGNUM Newsletter* **10**(2–3) (1975) 39–40.
- [J29] (with W. B. Gragg) “A Stable Variant of the Secant Method for Solving Non-linear Equations,” *SIAM Journal on Numerical Analysis* **13** (1976) 889–903.
- [J30] “Simultaneous Iteration for Computing Invariant Subspaces of Non-Hermitian Matrices,” *Numerische Mathematik* **25** (1976) 123–136.
- [J31] (with J. W. Daniel, W. B. Gragg, and L. Kaufman) “Reorthogonalization and Stable Algorithms for Updating the Gram-Schmidt QR Factorization,” *Mathematics of Computation* **30** (1976) 772–795.
- [J32] “The Economical Storage of Plane Rotations,” *Numerische Mathematik* **25** (1976) 137–138.
- [J33] “Algorithm 506: HQR3 and EXCHNG: Fortran Subroutines for Calculating and Ordering the Eigenvalues of a Real Upper Hessenberg Matrix,” *ACM Transactions on Mathematical Software* **2** (1976) 275–280.
- [J34] “Perturbation Bounds for the QR Factorization of a Matrix,” *SIAM Journal on Numerical Analysis* **14** (1977) 509–518.
- [J35] “On the Perturbation of Pseudo-Inverses, Projections and Linear Least Squares Problems,” *SIAM Review* **19** (1977) 634–662.
- [J36] (with C. B. Moler) “On the Householder-Fox Algorithm for Decomposing a Projection,” *Journal of Computational Physics* **28** (1978) 82–91.
- [J37] (with C. A. Bavely) “An Algorithm for Computing Reducing Subspaces by Block Diagonalization,” *SIAM Journal on Numerical Analysis* **16** (1979) 359–367.
- [J38] “Perturbation Bounds for the Definite Generalized Eigenvalue Problem,” *Linear Algebra and its Applications* **23** (1979) 69–85.
- [J39] “A Note on the Perturbation of Singular Values,” *Linear Algebra and its Applications* **28** (1979) 213–216.
- [J40] “The Effects of Rounding Error on an Algorithm for DOWDATING a Cholesky Factorization,” *Journal of the Institute of Mathematics and its Applications* **23** (1979) 203–213.

- [J41] (with D. P. O’Leary and J. S. Vandergraft) “Estimating the Largest Eigenvalue of a Positive Definite Matrix,” *Mathematics of Computation* **33** (1979) 1289–1292.
- [J42] (with A. K. Cline, C. B. Moler, and J. H. Wilkinson) “An Estimate for the Condition Number of a Matrix,” *SIAM Journal on Numerical Analysis* **16** (1979) 368–375.
- [J43] “The Efficient Generation of Random Orthogonal Matrices with an Application to Condition Estimators,” *SIAM Journal on Numerical Analysis* **17** (1980) 403–409.
- [J44] “The Behavior of a Multiplicity Independent Root-finding Scheme in the Presence of Error,” *BIT* **20** (1980) 526–528.
- [J45] “On the Implicit Deflation of Nearly Singular Systems of Linear Equations,” *SIAM Journal on Scientific and Statistical Computing* **2** (1981) 136–140.
- [J46] “Constrained Definite Hessians Tend to be Well Conditioned,” *Mathematical Programming* **21** (1981) 235–238.
- [J47] “Computing the CS Decomposition of a Partitioned Orthonormal Matrix,” *Numerische Mathematik* **40** (1982) 297–306.
- [J48] “Computable Error Bounds for Aggregated Markov Chains,” *Journal of the ACM* **30** (1983) 271–285.
- [J49] “Rank Degeneracy,” *SIAM Journal on Scientific and Statistical Computing* **5** (1984) 403–413.
- [J50] “A Second Order Perturbation Expansion for Small Singular Values,” *Linear Algebra and its Applications* **56** (1984) 231–235.
- [J51] (with D. F. McAllister and W. J. Stewart) “On a Rayleigh-Ritz Refinement Technique for Nearly Uncoupled Stochastic Matrices,” *Linear Algebra and its Applications* **60** (1984) 1–25.
- [J52] “On the Invariance of Perturbed Null Vectors under Column Scaling,” *Numerische Mathematik* **44** (1984) 61–65.
- [J53] “On the Asymptotic Behavior of Scaled Singular Value and QR Decompositions,” *Mathematics of Computation* **43** (1984) 483–489.
- [J54] “A Note on Complex Division,” *ACM Transactions on Mathematical Software* **11** (1985) 238–241. Corrigendum: **12** (1986) 285.
- [J55] “A Jacobi-like Algorithm for Computing the Schur Decomposition of a Non-hermitian Matrix,” *SIAM Journal on Scientific and Statistical Computing* **6** (1985) 853–864.
- [J56] (with D. P. O’Leary) “Data-flow Algorithms for Parallel Matrix Computation,” *Communications of the ACM* **28** (1985) 840–853.
- [J57] (with P. E. Gill, W. Murray, M. A. Saunders, and M. H. Wright) “Properties of a Representation of a Basis for the Null Space,” *Mathematical Programming* **33** (1985) 172–186.
- [J58] (with D. P. O’Leary) “Assignment and Scheduling in Parallel Matrix Factorization,” *Linear Algebra and its Applications* **77** (1986) 275–299.

- [J59] (with G. H. Golub and A. Hoffman) “A Generalization of the Eckart-Young-Mirsky Matrix Approximation Theorem,” *Linear Algebra and its Applications* **88–89** (1987) 317–327.
- [J60] “Collinearity and Least Squares Regression,” *Statistical Science* **2** (1987) 68–100 (including commentary).
- [J61] (with D. P. O’Leary) “From Determinacy to Systaltic Arrays,” *IEEE Transactions on Computers* **C-36** (1987) 1355–1359.
- [J62] “A Parallel Implementation of the QR Algorithm,” *Parallel Computing* **5** (1987) 187–196.
- [J63] “A Curiosity Concerning the Representation of Integers in Noninteger Bases,” *Mathematics of Computation* **51** (1988) 755–756.
- [J64] (with C. D. Meyer) “Derivatives and Perturbations of Eigenvectors,” *SIAM Journal on Numerical Analysis* **25** (1988) 679–691.
- [J65] “On Scaled Projections and Pseudoinverses,” *Linear Algebra and its Applications* **112** (1989) 189–193.
- [J66] (with G. N. Stenbakken and T. M. Souders) “Ambiguity Groups and Testability,” *IEEE Transactions on Instrumentation and Measurement* **38** (1989) 941–947.
- [J67] (with D. P. O’Leary) “Computing the Eigenvalues and Eigenvectors of Symmetric Arrowhead Matrices,” *Journal of Computational Physics* **90** (1990) 497–505.
- [J68] “Communication and Matrix Computations on Large Message Passing Systems,” *Parallel Computing* **16** (1990) 27–40.
- [J69] “Stochastic Perturbation Theory,” *SIAM Review* **32** (1990) 579–610.
- [J70] “Two Simple Residual Bounds for the Eigenvalues of a Hermitian Matrix,” *SIAM Journal on Matrix Analysis and Applications* **12** (1991) 205–208.
- [J71] (with G. Zhang) “Eigenvalues of Graded Matrices and the Condition Numbers of a Multiple Eigenvalue,” *Numerische Mathematik* **58** (1991) 703–712.
- [J72] (with G. Zhang) “On a Direct Method for the Solution of Nearly Uncoupled Markov Chains,” *Numerische Mathematik* **59** (1991) 1–11.
- [J73] “An Updating Algorithm for Subspace Tracking,” *IEEE Transactions on Signal Processing* **40** (1992) 1535–1541.
- [J74] “Error Analysis of QR Updating with Exponential Windowing,” *Mathematics of Computation* **59** (1992) 135–140.
- [J75] (with R. Mathias) “A Block QR Algorithm and the Singular Value Decomposition,” *Linear Algebra and its Applications* **182** (1993) 91–100.
- [J76] (with P. Schweitzer) “The Laurent Expansion of Pencils that are Singular at the Origin,” *Linear Algebra and its Applications* **183** (1993) 237–254.
- [J77] “Updating a Rank-Revealing ULV Decomposition,” *SIAM Journal on Matrix Analysis and Applications* **14** (1993) 494–499.
- [J78] “On the Perturbation of LU, Cholesky, and QR Factorizations,” *SIAM Journal on Matrix Analysis and Applications* **14** (1993) 1141–1145.

- [J79] “On the Early History of the Singular Value Decomposition,” *SIAM Review* **35** (1993) 551–566.
- [J80] “On the Perturbation of Markov Chains with Nearly Transient States,” *Numerische Mathematik* **65** (1993) 135–141.
- [J81] (with A. Edelman) “Scaling for Orthogonality,” *IEEE Transactions on Signal Processing* **41** (1993) 1676–1677.
- [J82] “Updating URV Decompositions in Parallel,” *Parallel Computing* **20** (1994) 151–172.
- [J83] “On the Convergence of Multipoint Iterations,” *Numerische Mathematik* **68** (1994) 143–147.
- [J84] “Perturbation Theory for Rectangular Matrix Pencils,” *Linear Algebra and its Applications* **208-209** (1994) 297–301.
- [J85] (with K. J. R. Liu, D. P. O’Leary, and Y.-J. J. Wu) “URV ESPRIT for Tracking Time-Varying Signals,” *IEEE Transactions on Signal Processing* **42** (1994) 3441–3448.
- [J86] “On the Solution of Block Hessenberg Systems,” *Numerical Linear Algebra with Applications* **2** (1995) 287–296.
- [J87] “On the Stability of Sequential Updates and Datedates,” *IEEE Transactions on Signal Processing* **43** (1995) 2642–2648.
- [J88] “Gauss, Statistics, and Gaussian Elimination,” *Journal of Computational and Graphical Statistics* **4** (1995) 1–11.
- [J89] “On Graded QR Decompositions of Products of Matrices,” *Electronic Transactions on Numerical Analysis* **3** (1995) 39–49.
- [J90] (with U. von Matt) “Rounding Errors in Solving Block Hessenberg Systems,” *Mathematics of Computation* **65** (1996) 115–135.
- [J91] (with X.-W. Chang and C. C. Paige) “New perturbation analyses for the Cholesky factorization,” *IMA Journal of Numerical Analysis* **16** (1996) 457–484.
- [J92] “On the Perturbation of LU and Cholesky Factors,” *IMA Journal of Numerical Analysis* **17** (1997) 1–6.
- [J93] (with X.-W. Chang and C. C. Paige) “Perturbation Analyses for the QR Factorization,” *SIAM Journal on Matrix Analysis and Applications* **18** (1997) 775–791.
- [J94] “The Triangular Matrices of Gaussian Elimination and Related Decompositions,” *IMA Journal of Numerical Analysis* **17** (1997) 7–16.
- [J95] “On Markov Chains with Sluggish Transients,” *Stochastic Models* **13** (1997) 85–94.
- [J96] (with Z. Bai) “Algorithm 776: SRRIT: A Fortran Subroutine to Calculate the Dominant Invariant Subspace of a Nonsymmetric Matrix,” *ACM Transactions on Mathematical Software* **23** (1997) 494–513.
- [J97] “On the Weighting Method for Least Squares Problems with Linear Equality Constraints,” *BIT* **37** (1997) 961–967.

- [J98] (with M. Stewart) “On Hyperbolic Triangularization: Stability and Pivoting,” *SIAM Journal on Matrix Analysis and Applications* **19** (1998) 847–860.
- [J99] (with D. P. O’Leary) “On the Convergence of a New Rayleigh Quotient Method with Applications to Large Eigenproblems,” *Electronic Transactions on Numerical Analysis* **7** (1998) 182–189.
- [J100] “On the Adjugate Matrix,” *Linear Algebra and its Applications* **283** (1998) 151–164.
- [J101] (with R. F. Boisvert, J. J. Dongarra, R. Pozo, and K. A. Remington) “Developing numerical libraries in Java,” *Concurrency: Practice and Experience* **10** (1998) 1117–1129.
- [J102] “The QLP Approximation to the Singular Value Decomposition,” *SIAM Journal on Scientific Computing* **20** (1999) 1336–1348.
- [J103] “Four Algorithms for the the (sic) Efficient Computation of Truncated Pivoted QR Approximations to a Sparse Matrix,” *Numerische Mathematik* **83** (1999) 313–323.
- [J104] (with M. Kilmer) “Iterative Regularization and MINRES,” *SIAM Journal on Matrix Analysis and Applications* **21** (2000) 613–628.
- [J105] “The Decompositional Approach to Matrix Computation,” *Computing in Science and Engineering* **2** (2000) 50–59.
- [J106] (with R.-C. Li) “A New Relative Perturbation Theorem for Singular Subspaces,” *Linear Algebra and its Applications* **313** (2000) 41–51.
- [J107] (with Z. Jia) “An Analysis of the Rayleigh–Ritz Method for Approximating Eigenspaces,” *Mathematics of Computation* **70** (2001) 637–647.
- [J108] “A Generalization of Saad’s Theorem on Rayleigh–Ritz Approximations,” *Linear Algebra and its Applications* **327** (2001) 115–119.
- [J109] “On the Eigensystems of Graded Matrices,” *Numerische Mathematik* **90** (2001) 349–370.
- [J110] “Backward Error Bounds for Approximate Krylov Subspaces,” *Linear Algebra and its Applications* **340** (2002) 81–86.
- [J111] “A Krylov–Schur Algorithm for Large Eigenproblems,” *SIAM Journal on Matrix Analysis and Applications* **23** (2002) 601–614.
- [J112] “Adjusting the Rayleigh Quotient in Semiorthogonal Lanczos Methods,” *SIAM Journal on Scientific Computing* **24** (2002) 201–207.
- [J113] “Addendum to ‘A Krylov–Schur Algorithm for Large Eigenproblems’,” *SIAM Journal on Matrix Analysis and Applications* **24** (2002) 599–601.
- [J114] “On the Powers of a Matrix with Perturbations,” *Numerische Mathematik* **96** (2003) 363–376.
- [J115] “Memory Leaks in Derived Types Revisited,” *(ACM) SIGPLAN Fortran Forum* **22** (2003) 25–27.
- [J116] “An Elsner-Like Perturbation Theorem for Generalized Eigenvalues,” *Linear Algebra and its Applications* **390** (2004) 1–5.
- [J117] “Error Analysis of the Quasi-Gram–Schmidt Algorithm,” *SIAM Journal on Matrix Analysis and Applications* **27** (2005) 493–506.

- [J118] (with M. W. Berry and S. A. Pulatova) “Algorithm 844: Computing Sparse Reduced-Rank Approximations to Sparse Matrices,” *ACM Transactions on Mathematical Software* **31** (2005) 252–269.
- [J119] “A Note on Generalized and Hypergeneralized Projectors,” *Linear Algebra and its Applications* **412** (2006) 408–411.
- [J120] (with C.-R. Lee) “Algorithm 879: EIGENTEST: A Test Matrix Generator for Large-Scale Eigenproblems,” *ACM Transactions on Mathematical Software* **35** (2008) article 7, 1–11.
- [J121] “Block Gram–Schmidt Orthogonalization,” *SIAM Journal on Scientific Computing* **31** (2008) 761–775.

#### 2.1.4. Other Notable Publications

- [N1] (with A. S. Householder), “Bigradients, Hankel Determinants, and the Padé Table,” in *Constructive Aspects of the Fundamental Theorem of Algebra*, B. Dejon and P. Henrici, eds., John Wiley & Sons, New York (1969) 131–150.
- [N2] “A Set Theoretic Formulation of Backward Rounding Error Analysis,” University of Texas at Austin Computation Center Report TNN-92, 1969.
- [N3] (with L. L. Hoberock), “Input Requirements and Parametric Errors for Systems Identification under Periodic Excitement,” *Transactions of the AMSE* **94** (1972) 296–302.
- [N4] “The Numerical Treatment of Large Eigenvalue Problems,” in *Information Processing 74: Proceedings of the IFIP Congress, Stockholm*, J. L. Rosenfeld, ed., North Holland, Dordrecht (1974) 666–672.
- [N5] “Methods of Simultaneous Iteration for Calculating Eigenvectors of Matrices,” in *Topics in Numerical Analysis II. Proceedings of the Royal Irish Academy Conference on Numerical Analysis, 1974*, John J. H. Miller, ed., Academic Press, New York (1974) 185–196.
- [N6] (with G. H. Golub and Virginia Klema) “Rank Degeneracy and Least Squares Problems,” University of Maryland Computer Science TR-751, 1976.
- [N7] “A Bibliographical Tour of the Large, Sparse Generalized Eigenvalue Problem,” in *Sparse Matrix Computations*, J. R. Bunch and D. J. Rose, eds., Academic Press, New York (1976) 113–130.
- [N8] “Compilers, Virtual Memory, and Matrix Computations,” in *Computer Science and Statistics: Proceedings of the 9th Symposium on the Interface*, D. C. Hoaglin and R. E. Welsch, eds., Boston (1976) 85–88.
- [N9] “Research, Development, and LINPACK,” in *Mathematical Software III*, John Rice, ed., Academic Press, New York (1977) 1–14.
- [N10] “Perturbation Theory for the Generalized Eigenvalue Problem,” in *Recent Advances in Numerical Analysis*, C. de Boor and G. H. Golub, eds., Academic Press, New York (1978) 193–206.
- [N11] (with Iain Duff, ed.) *Sparse Matrix Proceedings*, SIAM, Philadelphia, 1978.



- [N12] “A Method for Computing the Generalized Singular Value Decomposition,” in *Matrix Pencils*, B. Kagstrom and A. Ruhe, eds., Springer Verlag, New York (1983) 207–220.
- [N13] (with J. Dongarra) “LINPACK – a Package for Solving Linear Systems,” in *Sources and Development of Mathematical Software*, W. R. Cowell, ed., Prentice Hall, Englewood Cliffs, NJ (1984) 20–48.
- [N14] “On the Structure of Nearly Uncoupled Markov Chains,” in *Mathematical Computer Performance and Reliability*, G. Iazeolla, P. J. Courtois, A. Hordijk, eds., North-Holland, Dordrecht (1984) 287–302.
- [N15] “Collinearity, Scaling, and Rounding Error,” in *Computer Science and Statistics: Proceedings of the Seventeenth Symposium on the Interface*, D. M. Allen, ed., North Holland, New York (1985) 195–198.
- [N16] (with D. P. O’Leary and R. van de Geijn) “DOMINO: A Message Passing Environment for Parallel Computation,” University of Maryland Computer Science TR-1648, 1986 (documentation of a system distributed over NETLIB).
- [N17] (with Dianne P. O’Leary, Roger Pierson, and Mark Weiser), “The Maryland Crab: A module for building parallel computers,” University of Maryland Computer Science Report CS-1660, Institute for Advanced Computer Studies Report UMIACS-86-9, 1986.
- [N18] “Communication in Parallel Algorithms: An Example,” in *Computer Science and Statistics: Proceedings of the 18th Symposium on the Interface*, T. J. Boardman, ed., ASA, Washington, D.C. (1986) 11–14.
- [N19] “Numerical Linear Algebra in Statistical Computing,” in *The State of the Art in Numerical Analysis*, A. Iserles and M. J. D. Powell, eds., Oxford University Press, Oxford (1987) 41–58.
- [N20] (with D. A. Buell et al.) “Parallel Algorithms and Architectures. Report of a Workshop,” *Journal of Supercomputing* **1** (1988) 301–325.
- [N21] “Parallel Linear Algebra in Statistical Computing,” in *COMPSTAT Proceedings in Computational Statistics, 8th Symposium, 1988*, D. Edwards and N. E. Raun, eds., Physica-Verlag, Heidelberg (1988) 3–14.
- [N22] (with D. P. O’Leary and R. van de Geijn) “DOMINO: A Transportable Operating System for Parallel Computation,” in *Parallel Processing and Medium-Scale Multiprocessors (Proceedings of a 1986 Conference)*, Arthur Wouk, ed., SIAM Press, Philadelphia (1989) 25–34.
- [N23] “An Iterative Method for Solving Linear Inequalities,” in *Reliable Numerical Computation*, M. G. Cox and S. Hammarling, eds., Oxford University Press, Oxford (1990) 241–247.
- [N24] “Perturbation Theory and Least Squares with Errors in the Variables,” in *Contemporary Mathematics 112: Statistical Analysis of Measurement Error Models and Applications*, P. J. Brown and W. A. Fuller, eds., American Mathematical Society, Providence RI (1990) 171–181.

- [N25] “On the Sensitivity of Nearly Uncoupled Markov Chains,” in *Numerical Solutions of Markov Chains*, W. J. Stewart, ed., Dekker, New York (1990) 105–119.
- [N26] “Perturbation Theory for the Singular Value Decomposition,” in *SVD and Signal Processing, II*, R. J. Vacarro, ed., Elsevier, Amsterdam (1991) 99–109.
- [N27] (with G. Adams and M. F. Griffin) “Direction-of-Arrival Estimation Using the Rank-Revealing URV Decomposition,” *1991 IEEE Conference on Acoustics, Speech, and Signal Processing ICASSP-91* 2 (1991) 1385–1388.
- [N28] “Jeep: A General Purpose Style File,” *TeX and TUG News*, **0**(0) (1991) 3–4. <http://tug.ctan.org/tex-archive/digests/ttn/ttn0n0.tex>
- [N29] (with M. F. Griffin and E. C. Boman) “Minimum-Norm Updating with the Rank-Revealing URV Decomposition.” *1992 IEEE Conference on Acoustics, Speech, and Signal Processing ICASSP-92* 5 (1992) 293–296.
- [N30] “Lanczos and Linear Systems,” in *Proceedings of the Cornelius Lanczos International Centenary Conference*, J. D. Brown, M. T. Chu, D. C. Ellison, and R. J. Plemmons, eds., SIAM Philadelphia (1993) 134–139.
- [N31] “Gaussian Elimination, Perturbation Theory, and Markov Chains.” in *Linear Algebra, Markov Chains, and Queuing Models* (Proceedings of an IMA workshop), C. D. Meyer and R. J. Plemmons, eds., Springer, New York (1993) 59–69.
- [N32] “Determining Rank in the Presence of Error,” in *Linear Algebra for Large Scale and Real-Time Applications*, M. S. Moonen, G. H. Golub, and B. L. R. De Moor, eds., Kluwer Academic Publishers, Dordrecht (1993) 275–291.
- [N33] (with W. J. Stewart and D. F. McAllister) “A Two-Stage Iteration for Solving Nearly Completely Decomposable Markov Chains,” in *Recent Advances in Iterative Methods*, G. Golub, A. Greenbaum, and M. Luskin, eds., Springer, New York (1994) 201–216.
- [N34] “UTV Decompositions,” *Proceedings of the 15th Biennial Conference on Numerical Analysis, Dundee*, D. F. Griffiths and G. A. Watson, eds., Longman Scientific, Harlow Essex (1994) 225–236.
- [N35] (with G. Latouche) “Numerical Methods for M/G/1 Type Queues,” in *Computations with Markov Chains*, W. J. Stewart, ed., Kluwer, Boston, 1995, 571–581
- [N36] “Errors in Variables for Numerical Analysts,” in *Recent Advances in Total Least Squares Techniques and Errors-in-Variables Modeling*, S. Van Huffel, ed., SIAM, Philadelphia (1997) 3–10.
- [N37] “Building an Old-Fashioned Sparse Solver,” University of Maryland Computer Science TR-4527, UMIACS TR-2003-95, 2003.

### 2.2. Major Honors of G. W. Stewart

- The F. L. Bauer prize, awarded by the Technical University of Munich, 1998.
- Elected to the National Academy of Engineering, 2004.
- Distinguished University Professor, University of Maryland, 2006.
- Distinguished Editor of *Linear Algebra and its Applications*.
- SIAM Fellow (inaugural group), 2009.

### 2.3. Ph.D. Students of G. W. Stewart

- Eric Hill, “Computer Solution of Large Dense Linear Problems,” 1977.
- Nancy David, “A First Order Theory of Hypothesis Testing,” 1982.
- Robert van de Geijn, “Implementing the QR-Algorithm on an Array of Processors,” 1987.
- Xiaobai Sun, “An Unified Analysis of Numerical Methods for Nearly Uncoupled Markov Chains,” 1991.
- Misha Kilmer, “Regularization of Ill-Posed Problems,” 1997 (jointly directed by Dianne P. O’Leary).
- Che-Rung Lee, “Residual Arnoldi Methods: Theory, Package, and Experiments,” 2007.



<http://www.springer.com/978-0-8176-4967-8>

G.W. Stewart

Selected Works with Commentaries

Kilmer, M.E.; O'Leary, D.P. (Eds.)

2010, XIII, 729 p., Hardcover

ISBN: 978-0-8176-4967-8

A product of Birkhäuser Basel