Kyle A. GALLIVAN

Florida State University
Department of Mathematics
318 Love Building Tallahassee FL, 32306
email: gallivan@math.fsu.edu, kgallivan@fsu.edu
phone: 850-645-0306

Personal Data

Born 10/11/58 in Evergreen Park, IL, USA, Married, U.S. Citizen.

Current Position

Professor
Department of Mathematics
Florida State University

Research Interests

General research interests include: the design and analysis of efficient and robust numerical methods for a range of architectures and science and engineering applications; performance analysis (empirical and analytical) of high-performance architectures and algorithms; and software support for high-performance algorithm design and analysis, e.g., compiler-assisted restructuring.

Current specific research interests: Fundamental theory and state-of-the-art efficient numerical optimization algorithms with an emphasis on Riemannian manifolds; structure extraction in large-scale networks/graphs (role models, communities) using state-of-the-art optimization algorithms (combinatorial and Riemannian) on multiple architectures; large-scale matrix completion using graph learning for regularization using state-of-the-art optimization algorithms; common data extraction from multiple data sets; statistical computations (means, divergences) on Riemannian manifolds such as symmetric positive semidefinite matrices of fixed and variable rank; Riemannian optimization under rank constraints; design and implmentation of large-scale libraries to support Riemannian optimization and its applications (ROPTLIB), network analysis for phylogenetics (Treescaper and CloudForest) and large-scale data analysis.

Employment History

FLORIDA STATE UNIVERSITY Tallahassee, FL
August 1997 – present.

Professor, Department of Mathematics (August 2008-present);
Professor, Department of Computer Science and School of Computational Science (August 1999 – August 2008)
Associate Professor, Department of Computer Science (Fall 1997 – Summer 1999)

LEIDEN UNIVERSITY Leiden, The Netherlands
2012.

The 2012 Pascal Chair in the Faculty of Sciences.

VISITING APPOINTMENTS
May 1999 – present.
Catholic University of Louvain, Belgium – Visiting Professor, Summer 2023, 2019, 2018, 2017, 2016, 2011, 2010, 2009, 2008, 2007.
Participating Guest, Center for Applied Scientific Computation, Lawrence Livermore National Laboratory (1999 – 2000)

UNIVERSITY OF ILLINOIS Urbana, IL
November 1985 – August 1997.
University of Illinois at Urbana-Champaign – Research Associate Professor in the Coordinated Science Laboratory (August 1996 – July 1997)
University of Illinois at Urbana-Champaign – Associate Professor in the Department of Electrical and Computer Engineering (August 1993 – July 1996)
University of Illinois at Urbana-Champaign – Senior Computer Scientist in the Center for Supercomputing Research and Development (November 1985 – August 1993)

HARRIS CORPORATION Palm Bay, FL
Associate Principal Engineer in the Government Aerospace Systems Division (July 1983 – November 1985)

UNIVERSITY OF ILLINOIS Urbana, IL
August 1979 – May 1983.
Graduate Research Assistant, Department of Computer Science, University of Illinois.

ARGONNE NATIONAL LABORATORY Argonne, IL
September 1977 – August 1979.
Resident Student Associate, Reactor Analysis and Safety Division.

Education

UNIVERSITY OF ILLINOIS Urbana, IL
Ph. D., Computer Science, 1983. Advisor: C. William Gear

Thesis Title: "An Algorithm for the Detection and Integration of Highly Oscillatory Ordinary Differential Equations Using a Generalized Unified Modified Divided Difference Representation".

M.S., Computer Science, 1981.

Thesis Title: "Detection and Integration of Oscillatory Differential Equations with Initial Stepsize, Order and Method Selection".

LEWIS UNIVERSITY Romeoville, IL
B.A. (with high honors), Mathematics and Computer Science, 1979.

Professional and Honor Society Memberships

Association for Computing Machinery (ACM), The Institute of Electrical and Electronics Engineers Computer Society (IEEE-CS), Society for Industrial and Applied

Mathematics (SIAM), Mathematical Optimization Society (MOS), American Association for the Advancement of Science (AAAS)

Papers In Review

[1] Shuyu Dong, Bin Gao, Wen Huang, Kyle A. Gallivan. *On the analysis of optimization with fixed-rank matrices: a quotient geometric view*, submitted, 2023

[2] Yijia Zhou, Kyle A. Gallivan, and Adrian Barbu. *Scalable Clustering: Large Scale Unsupervised Learning of Gaussian Mixture Models with Outliers*, submitted, 2023.

[3] Guillaume Olikier, Kyle A. Gallivan, and Pierre-Antoine Absil. *First-order Optimization on Stratified Sets*, submitted, 2023

Volumes Edited and Paper Collection

[4] **Proceedings of the 26th ACM International Conference on Supercomputing**, U. Banerjee, G. Bilardi, K. A. Gallivan, and M. Katevenis, Editors, ACM Press, 2012.

[5] M. W. Berry, K. A. Gallivan, E. Gallopoulos, A. Grama, B. Philippe, Y. Saad and F. Saied, Editors, **High Performance Scientific Computing: Algorithms and Applications**, Springer, 2012.

[6] **Proceedings of the 22nd ACM International Conference on Supercomputing**, U. Banerjee, T. Papatheodorou, K. A. Gallivan and A. Mendelson, Editors, ACM Press, 2008.

[7] **Proceedings of the 17th ACM International Conference on Supercomputing**, Utpal Banerjee, Kyle A. Gallivan and Antonio Gonzalez, Editors, ACM Press, 2003.

[8] **Proceedings of 1995 International Conference on Parallel Processing**, Vol. 3, *Algorithms and Applications*, K. Gallivan, Editor, CRC Press, 1995.

[9] K. Gallivan, M. Heath, E. Ng, B. Peyton, R. Plemmons, J. Ortega, C. Romine, A. Sameh and R. Voigt. **Parallel Algorithms for Matrix Computations**. SIAM, Philadelphia, 1990.

Book Chapters

[10] J. M. Brown, G. G. Mount, K. A. Gallivan, and J. Wilgenbusch J. *Tree Set Visualization, Exploration and Applications.* In: **Species Tree Inference: A Guide to Methods and Applications**. Laura Kubatko and Lacey Knowles. Princeton University Press, 2023.

[11] X. Yuan, W. Huang, P. A. Absil, and K. A. Gallivan. *Averaging Symmetric Positive Definite Matrices*. In **Springer Handbook on Variational methods for nonlinear geometric data and applications**, P. Grohs, M. Holler, A. Weinmann, Eds., Springer, 2020, pp. 555-575. (Invited Chapter)

[12] K. Gallivan, E. Gallopoulos, A. Grama, B.Philippe, E. Polizzi, Y. Saad, F. Saied, and D.Sorensen. *Parallel Numerical Computing from Illiac IV to Exascale -The Contributions of Ahmed H. Sameh*. In **High Performance Scientific Computing: Algorithms and Applications**, M. W. Berry, K. A. Gallivan, E. Gallopoulos, A. Grama, B. Philippe, Y. Saad and F. Saied, Eds., Springer, 2012, pp. 1-44. (Invited paper)

[13] Y. Chahlaoui, K. A. Gallivan, A. Vandendorpe, and P. Van Dooren. *Model Reduction of Second Order Systems*. In: **Dimension Reduction of Large-scale Systems**, Lecture Notes in Computational Science and Engineering, Vol. 45, Springer-Verlag, P. Benner, V. Mehrmann, D. Sorensen, Eds., 2005, pp. 149–172.

[14] Y. Chahlaoui, P. Van Dooren, and K. A. Gallivan. *Incremental Methods for Computing Dominant Singular Spaces*. In: **Computational Information Retrieval**, SIAM, Philadelphia, 2001, pp. 61 – 71, M. Berry, Ed.

[15] L. DeRose, B. Marsolf, K. Gallivan, E. Gallopoulos and D. Padua. *Design Issues in a MATLAB-based Environment for Numerical Program Development.* In: **Enabling Technologies For Computational Science: Frameworks, Middleware, and Enviroments**, Kluwer Academic, Boston, 2000, pp. 315-326, E. N. Houstis, J. R. Rice, E. Gallopoulos and R. Bramley, Eds. (Invited paper)

[16] K. A. Gallivan, E. Grimme and P. Van Dooren, *Model reduction of large-scale systems: rational Krylov versus balancing techniques*. In: **Error Control and Adaptivity in Scientific Computing**, Kluwer, Amsterdam, 1999, pp. 177–190, H. Bulgak and C. Zenger, Eds. (Invited paper for NATO summer school on error control.)

[17] A. Veidenbaum, P.C. Yew, D. J. Kuck, C. D. Polychronopoulos, D. H. Padua, E.S. Davidson, and K. Gallivan. *The Cedar System*. In: **25 Years of the International Symposia on Computer Architecture, Selected Papers.** ACM Press, 1998, pp. 89–91. (A retrospective paper invited based on a selection of influential computer architecture work of the past 25 years.)

[18] E. Grimme, K. A. Gallivan, P. M. Van Dooren. *On Some Recent Developments in Projection-based Model Reduction*. In: **ENUMATH 97, Second European Conference on Numerical Mathematics and Advanced Applications**, World Scientific, Singapore, 1998, pp. 98-113, H. Bock, G. Kanschat, R. Rannacher, F. Brezzi, R. Glowinsky, Eds. (Invited paper)

[19] B. Marsolf, K. Gallivan, and E. Gallopoulos. *The Interactive Restructuring of MATLAB Programs Using the FALCON Environment*. In: **Innovative Architecture for Future Generation High-Performance Processors and Systems**, IEEE Computer Society Press, 1998, pp. 3–12, A. Veidenbaum and K. Joe, Eds.

[20] A. Veidenbaum and K. A. Gallivan. *Decoupled Access DRAM Architecture*. In: **Innovative Architecture for Future Generation High-Performance Processors and Systems**, A. Veidenbaum and K. Joe, Eds., IEEE Computer Society Press, 1998, pp. 94–105.

[21] K. Gallivan, E. Grimme, D. Sorensen, and P. Van Dooren. *On some modifications of the Lanczos algorithm and the relation with Padé approximations*, In: **Mathematical Research Series, Vol. 7**, Akademie Verlag, Berlin, 1996, pp. 87-116.

[22] Kyle Gallivan, Srikanth Thirumalai, and Paul Van Dooren, *A Block Toeplitz Look-ahead Algorithm*. In: **SVD and Signal Processing III, Algorithms, Architectures and Applications**, Elsevier, Amsterdam, 1995, pp. 199-206, M. Moonen and B. De Moor, Eds.

[23] Tz.Ostromsky, Z.Zlatev, P.C.Hansen, and K.Gallivan. *Reordering of Sparse Matrices and Application to a Parallel Sparse Linear System Solver*. In: **Scientific Computation and Mathematical Modeling**, DATECS Publishing, Sofia, 1993, pp. 85-89, S. M. Markov, Ed.

[24] K. Gallivan, W. Jalby, A. Malony, and H. Wijshoff. *Performance Prediction for Parallel Numerical Algorithms*. In: **Parallel Computation**, Oxford University Press, Oxford, 1993, pp. 81–113, A. E. Finchman and B. Ford, Eds.

[25] L. DeRose, K. Gallivan and E. Gallopoulos. *Status Report: Parallel Ocean Circulation on Cedar*. In: **Parallel Supercomputing in Atmospheric Science**, World Scientific Publishers, Singapore, 1993 pp. 157-172, G.-R. Hoffmann and T. Kauranne, Eds.

[26] K. Gallivan, A. Sameh, and Z. Zlatev. *Parallel Direct Methods Codes For General Sparse Matrices*. In: **Computer Algorithms for Solving Linear Algebra Equations: The State of the Art (NATO ASI Il Ciocco 1990)** , NATO ASI Series F: Computer and Systems Sciences, Vol. 77, pp. 141-166, E. Spedicato, Ed., Springer-Verlag, 1991.

[27] K. Gallivan and A. Sameh. *Matrix Computations on Shared-Memory Multiprocessors*. In: **The Application of Advanced Computing Concepts and Techniques in Control Engineering, NATO ASI SERIES**, Springer-Verlag, Berlin, 1988, pp. 289-359, M.J. Denham and A.J. Laub, Eds. (Invited paper)

[28] K. Gallivan, W. Jalby, A. Malony and P.-C. Yew. *Performance Analysis on the CEDAR System*. In: **Performance Evaluation of Supercomputers**, Elsevier Science (North-Holland), Amsterdam, The Netherlands, 1988, pp. 109-142, J.L. Martin, Ed. (Invited paper)

[29] C. W. Gear and K. Gallivan. *Automatic Methods for Highly Oscillatory Ordinary Differential Equations*. **Lecture Notes in Mathematics No. 912: Numerical Analysis**, Springer-Verlag, Berlin, 1982, pp. 115-124, G. A. Watson, Ed. (Invited paper)

Journal Articles (Refereed)

[30] Wen Huang and Kyle Gallivan, *A limited-memory Riemannian symmetric rank-one trust-region method with a restart strategy*. Journal of Scientific Computing, Volume 93, Number 1, 2022, doi: `10.1007/s10915-022-01962-0`.

[31] X. Li, F. Bao, and K. Gallivan, A drift homotopy implicit particle filter method for nonlinear filtering problems. Discrete & Continuous Dynamical Systems - S, Volume 15, Number 4, pp. 727-746, 2022, doi: `10.3934/dcdss.2021097`.

[32] Melissa Marchand, Kyle Gallivan, Wen Huang, Paul Van Dooren. *Analysis of the neighborhood pattern similarity measure for the role extraction problem*. SIAM Journal on the Mathematics of Data Science, Volume 3, Number 2, pp. 736-757, 2021.

[33] S. Dong, P.-A. Absil, and K. A. Gallivan. *Riemannian Gradient Descent Methods for Graph-Regularized Matrix Completion*. Linear Algebra and its Applications, Volume 623, pp. 193-235, 2021.

[34] Xinru Yuan, Wen Huang, P.-A. Absil, and K. A. Gallivan. *Computing the matrix geometric mean: Riemannian vs Euclidean conditioning, implementation techniques, and a Riemannian BFGS method*. Numerical Linear Algebra with Applications, Volume 27, Number 5, pp. 1-23, 2020.

[35] Wen Huang, P.-A. Absil, Kyle Gallivan, Paul Hand. *ROPTLIB: an object-oriented C++ library for optimization on Riemannian manifolds*. ACM Transactions on Mathematical Software, Volume 44, Issue 4, Article 43, August 2018.

[36] Wen Huang, P.-A. Absil, K. A. Gallivan. *A Riemannian BFGS Method without Differentiated Retraction for Nonconvex Optimization Problems*. SIAM Journal on Optimization, Volume 28, Number 1, pp. 470-495, 2018.

[37] Wen Huang, K. A. Gallivan, and Xiangxiong Zhang. *Solving PhaseLift by low-rank Riemannian optimization methods for complex semidefinite constraints*. SIAM Journal on Scientific Computing, Volume 39, Number 5, pp. B840–B859, 2017.

[38] J. Wilgenbusch, W. Huang, K. A. Gallivan. *Visualizing Phylogenetic Tree Landscapes*, BMC Bioinformatics, 18:85, 2017, DOI: 10.1186/s12859-017-1479-1.

[39] Wen Huang, P.-A. Absil, and Kyle A. Gallivan. *Intrinsic representation of tangent vectors and vector transports on matrix manifolds*, **Numerische Mathematik**, Volume 136, Issue 2, pp 523543, 2017. (available 2016 at DOI:10.1007/s00211-016-0848-4)

[40] Wen Huang, Guifang Zhou, Melissa Marchand, Jeremy R. Ash, David Morris, Paul Van Dooren, Jeremy M. Brown, Kyle A. Gallivan, James C. Wilgenbusch. *TreeScaper: visualizing and extracting phylogenetic signal from sets of trees*, **Molecular Biology and Evolution**, Volume 33, Issue 12, December 2016. (available 2016 at DOI: 10.1093/molbev/msw196)

[41] Guifang Zhou, Wen Huang, Kyle Gallivan, Paul Van Dooren, and P.-A. Absil. *A Riemannian rank-adaptive method for low-rank optimization*, **Neurocomputing**, Volume 192, pp. 72-80, 2016.

[42] W. Huang, K. A. Gallivan, A. Srivastava and P.-A. Absil. *Riemannian Optimization for Registration of Curves in Elastic Shape Analysis*. **Journal of Mathematical Imaging and Vision**, Volume 54, Issue 3, pp. 320-343, March 2016.

[43] Wen Huang, K. A. Gallivan, and P.-A. Absil. *A Broyden Class of Quasi-Newton Methods for Riemannian Optimization*, **SIAM Journal on Optimization**, No. 25, Vol. 3, pp. 1660-1685, 2015.

[44] Wen Huang, P.-A. Absil, and K. A. Gallivan. *A Riemannian symmetric rank-one trust-region method*, **Mathematical Programming**, Vol. 150, Issue 2, pp. 179–216, 2015.

[45] Samuel A. Melchior, Paul Van Dooren, and Kyle A. Gallivan. *Model reduction of linear time-varying systems over finite horizons*, **Applied Numerical Mathematics**, Vol. 77, pp. 72 – 81, 2014.

[46] S. Easter Selvan, Umberto Amato, Kyle A. Gallivan, Chunhong Qi, and M. Francesca Carfora. *Descent Algorithms on Oblique Manifold for Source Adaptive ICA*, **IEEE Transactions on Neural Networks**, Vol. 23, No. 12, pp. 1930– 1947, 2012.

[47] L. Mathelin and K. A. Gallivan *A Compressed Sensing Approach for Partial Differential Equations with Random Input Data*, **Communications in Computational Physics**, Vol. 12, pp. 919-954, 2012.

[48] C. G. Baker, K. A. Gallivan, and P. Van Dooren. *Low-rank Incremental Methods for Computing Dominant Singular Subspaces*, **Linear Algebra and Its Applications**, Vol. 436, No. 8, pp. 2866-2888, 2012.

[49] P. Van Dooren, K. A. Gallivan, and P.-A. Absil. *$\mathcal{H}_2$-optimal Model Reduction with Higher Order Poles*, **SIAM Journal on Matrix Analysis and Applications**, Vol. 31, No. 5, pp. 2738-2753, 2010.

[50] P. A. Absil and K. A. Gallivan. *Accelerated Line-search and Trust-region Methods*, **SIAM Journal on Numerical Analysis**, Vol. 47, No. 2, pp. 997-1018, 2009.

[51] C. Baker, P.A. Absil and K. A. Gallivan, *An Implicit Trust-Region Method on Riemannian Manifolds*, **IMA Journal of Numerical Analysis**, Vol. 28, No. 4, pp. 665–689, October, 2008.

[52] P. Van Dooren, K. A. Gallivan, and P.-A. Absil, *H_2-optimal Model Reduction of MIMO Systems*, **Applied Mathematics Letters**, Vol. 21, No.12, pp. 1267-1273, December 2008.

[53] Y. Wu, X. Liu, W. Mio and K. Gallivan, *Two-stage Optimal Component Analysis via Dimensional Reduction*, **Computer Vision and Image Understanding**, Vol. 10, No. 1, pp. 91–101, 2008.

[54] P.-A. Absil, C. G. Baker, and K. A. Gallivan, *Trust-region Methods on Riemannian Manifolds*, **Foundations of Computational Mathematics**, Vol. 7, No. 3, pp. 303–330, 2007.

[55] Y. Chahlaoui, K. A. Gallivan, and P. Van Dooren, *Calculating the $H-\infty$-norm of Large Sparse Systems via Chandrasekhar Iterations and Extrapolation*, **European Series in Applied and Industrial Mathematics Proceedings**, Vol. 20, pp. 83–92, 2007.

[56] P. Kulkarni, W. Zhao, D. Whalley, X. Yuan, R. Van Engelen, K. Gallivan, J. Hiser, J. Davidson, B.Cai, M. Bailey, H. Moon, K. Cho, Y. Paek, and D. Jones, *VISTA: VPO Interactive System for Tuning Applications*. **ACM Transactions on Embedded Computing Systems**, Vol. 5, No. 4, pp. 819 - 863, 2006.

[57] R. Van Engelen, K. Gallivan, and B. Walsh. *Parametric Timing Estimation with the Newton-Gregory Formulae*. **Concurrency and Computation: Practice and Experience**, Vol. 18, pp. 1435 – 1463, 2006.

[58] K. Gallivan, X. Rao, and P. Van Dooren. *Singular Riccati Equations Stabilizing Large-scale Systems*. **Linear Algebra and Its Applications**, Vol. 415, pp. 359–372, 2006.

[59] P.-A. Absil, C. G. Baker, and K. A. Gallivan, *Trust-region Algorithms for the Generalized Symmetric Eigenvalue Problem*. **Journal of Computational and Applied Mathematics** Vol. 189, pp. 274-285, 2006.

[60] K. Gallivan, A. Vandendorpe, and P. Van Dooren. Model reduction of MIMO Systems via Tangential Interpolation. **SIAM Journal of Matrix Analysis and Applications**, Vol. 26, No. 2, pp. 328 – 349, 2004.

[61] K. Gallivan, A. Vandendorpe, and P. Van Dooren. *Sylvester Equations and Projection-based Model Reduction*, **Journal of Computational and Applied Mathematics**, Vol. 162, pp. 213–229, 2004.

[62] A. Srivastava, X. Liu and K. Gallivan. *Optimal Linear Representations of Images for Object Recognition*. **IEEE Transactions on Pattern Analysis and Machine Intelligence**, Vol. 26, Number 5, pp. 662 – 666, 2004.

[63] R. Soni, K. Jenkins, and K. Gallivan. *Low-complexity Data-reusing Methods in Adaptive Filtering*, **IEEE Transactions on Signal Processing**, Vol. 52, Number 2, pp. 394–405, 2004.

[64] P.M.W. Knijnenburg, T. Kisuki, K. Gallivan, and M. F. P. O'Boyle. *The Effect of Cache Models on Iterative Compilation for Combined Tiling and Unrolling*. **Concurrency and Computation: Practice and Experience**, Vol. 16, pp. 247–270, 2004.

[65] K. Gallivan, A. Vandendorpe, and P. Van Dooren. *Model Reduction via Truncation: An Interpolation Point of View*, **Linear Algebra and Its Applications**, Vol. 375, pp. 115 – 134, 2003.

[66] Y. Chahlaoui, K. A. Gallivan, and P. Van Dooren. *Recursive Calculation of Dominant Singular Subspaces*, **SIAM Journal of Matrix Analysis**, Vol. 25, No. 2, pp. 445–463, 2003.

[67] D. S. Weile, E. Michielssen, and K. Gallivan. *Reduced-Order Modeling of Multiscreen Frequency Selective Surfaces Using Krylov-Based Rational Interpolation*. **IEEE Trans. on Antennas and Propagation**, Vol. 49, No. 5, pp. 801-813, May 2001.

[68] K. A. Gallivan and Paul Van Dooren. *Rational Approximations of Pre-filtered Transfer Functions*, **Numerical Algorithms**, No. 20, pp. 331-342, 1999.

[69] B. A. Marsolf, K. A. Gallivan, and H. A. G. Wijshoff. *The Utilization of Matrix Structure to Generate Optimized Code from MATLAB Programs*, **International Journal of Parallel Programming**, Vol. 27, No. 2, pp. 73-96, 1999.

[70] D. S. Weile and E. Michielssen and E. Grimme and K. Gallivan. *A Method for Generating Rational Interpolant Reduced Order Models of Two Parameter Systems*, **Applied Mathematics Letters**. Vol. 12, pp. 93–102, 1999.

[71] U. M. Yang and K. A. Gallivan. *A new family of block methods*, **Applied Numerical Mathematics**, Vol. 30, pp. 155–173, 1999.

[72] X. Wang, K. Gallivan, and R. Bramley. *CIMGS: An incomplete orthogonal factorization preconditioner*. **SIAM Journal of Scientific Computing**, Vol. 18, No. 2, pp. 516–536, 1997.

[73] K. A. Gallivan, B. A. Marsolf and H. A. G. Wijshoff. *Solving large nonsymmetric sparse linear systems using MCSPARSE*, **Parallel Computing**, Vol. 22, pp. 1291-1333, 1996.

[74] K. A. Gallivan, E. Grimme, and P. Van Dooren. *A Rational Lanczos Algorithm for Model Reduction*. **Numerical Algorithms**, Vol. 12, pp. 33–63, 1996.

[75] K. A. Gallivan, S. Thirumalai, V. Vermaut and P. Van Dooren. *High performance algorithms for Toeplitz and Block Toeplitz matrices*. **Linear Algebra and Its Applications**, Vol. 241–243, pp. 343–388, 1996.

[76] K. Gallivan, E. Gallopoulos and A. Sameh, *CEDAR: An experiment in parallel computing*. **Computer Mathematics and its Applications**, Vol. 1, No. 1, pp. 77-98, 1995.

[77] U. Meier Yang and K. A. Gallivan. *A new family of preconditioned iterative solvers for nonsymmetric linear systems* . **Applied Numerical Mathematics**, Vol. 19, pp. 287–317, 1995.

[78] K. A. Gallivan, P. C. Hansen, T. Ostromsky and Z. Zlatev. *A Locally Optimized Reordering Algorithm and its Application to a Parallel Sparse Linear System Solver*. **Computing**, Vol. 54, No. 1, pp. 39–67, 1995.

[79] K. Gallivan, E. Grimme, and P. Van Dooren. *Asymptotic waveform evaluation via a Lanczos method*. **Applied Mathematics Letters**, Vol. 7, pp. 75–80, 1994.

[80] G.G. Hung, Y.C. Wen, K. Gallivan, and R. Saleh. *Improving the Performance of Parallel Relaxation-based Circuit Simulators*. **IEEE Transactions on CAD**, Vol. 12, No. 11, pp. 1762–1774, 1993.

[81] K. Gallivan, W. Jalby, A. Malony, and H. Wijshoff. *Performance Prediction for Parallel Numerical Algorithms*. **International Journal of High Speed Computing**, Vol. 3, No. 1, pp. 31-62, 1991.

[82] K. A. Gallivan, R. J. Plemmons and A. H. Sameh. *Parallel Algorithms for Dense Linear Algebra Computations*. **SIAM Review**, Vol. 32, No. 1, pp. 54-135, 1990.

[83] K. Gallivan, D. Gannon, W. Jalby, A. Malony and H. Wijshoff. *Behavioral Characterization of Multiprocessor Memory Systems: A Case Study*. **IEEE Transactions on Software Engineering**, Vol. 16, No. 2, pp. 216-223, 1990.

[84] K. Gallivan, A. Sameh and Z. Zlatev. *A Parallel Hybrid Sparse Linear System Solver*. **Computing Systems in Engineering**, Vol. 1, Nos. 2-4, pp. 183-195, 1990.

[85] R. Saleh, K. Gallivan, M. Chang, I. Hajj, D. Smart and T. Trick, *Parallel Circuit Simulation on Supercomputers*. **Proceedings of IEEE**, Vol. 77, No. 12, pp. 1915-1931, 1989.

[86] D. Gannon, W. Jalby and K. Gallivan. *Strategies for Cache and Local Memory Management by Global Program Transformation*. **Journal of Parallel and Distributed Computing**, Vol. 5, No. 5, pp. 587-616, 1988.

[87] K. Gallivan, W. Jalby, U. Meier and A. Sameh. *The Impact of Hierarchical Memory Systems on Linear Algebra Algorithm Design*. **International Journal of Supercomputer Applications**, Vol. 2, No. 1, pp. 12-48, 1988.

[88] K. Gallivan, W. Jalby and U. Meier. *The Use of BLAS3 in Linear Algebra on a Parallel Processor with a Hierarchical Memory System*. **SIAM Journal of Scientific and Statistical Computing**, Vol. 8, No. 6, pp. 1079-1084, 1987.

[89] J. Leung, K. Gallivan, R. Henry and S. Bankoff. *Prediction of Critical Heat Flux During Blowdown Transients*. **International Journal of Multiphase Flow**, Vol. 7, pp. 677-701, 1981.

Conference and Workshop Papers (Refereed)

[90] Wagner, R., Toups, B.S., Deng, Z., Gallivan, K.A., Brown, J.M. and Wilgenbusch, J.C., *Investigating the Genomic Distribution of Phylogenetic Signal with CloudForest*. PEARC '21: Practice and Experience in Advanced Research Computing, Article No.: 34, pp. 1-4, ACM International Conference Proceeding Series, `doi:https://doi.org/10.1145/3437359.3465605`, 2021.

[91] Wen Huang and Kyle A. Gallivan. *A limited-memory Riemannian symmetric rank-one trust-region method with an efficient algorithm for its subproblem*. International Federation on Automatic Control Papers Online, Volume 54, Issue 9, pp. 572-577, 2021, `https://doi.org/10.1016/j.ifaccol.2021.06.118`. Proceedings of 2020 Mathematical Theory of Networks Symposium. This biennial Conference was postponed until summer 2021 due to COVID restrictions.

[92] Meng Wei, Wen Huang, Kyle A. Gallivan, and Paul Van Dooren. *Community Detection by a Riemannian Projected Proximal Gradient Method*. International Federation on Automatic Control Papers Online, Volume 54, Issue 9, pp. 544-551, 2021, `https://doi.org/10.1016/j.ifaccol.2021.06.115`. Proceedings of 2020 Mathematical Theory of Networks Symposium. This biennial Conference was postponed until summer 2021 due to COVID restrictions.

[93] Zhe Su, Martin Bauer, Eric Klassen, and Kyle Gallivan. *Simplifying Transformations for a Family of Elastic Metrics on the Space of Surfaces*. Proceedings of Fifth IEEE CVPR International Workshop on Differential Geometry in Computer Vision and Machine Learning.(Part of Conference on Computer Vision and Pattern Recognition), pp. 3705-3714, 2020.

[94] Shuyu Dong, P.-A. Absil, and K. A. Gallivan. *Preconditioned Conjugate Gradient Algorithms for Graph Regularized Matrix Completion*. Proceedings of 27th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN), pp. 239 - 244, Ciaco – `i6doc.com`, 2019.

[95] Emilie Renard, P.-A. Absil, and K. A. Gallivan. *Minimax center to extract a common subspace from multiple datasets*. Proceedings of 27th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN), pp. 275 – 280, Ciaco – `i6doc.com`, 2019.

[96] Shuyu Dong, P.-A. Absil, and K. A. Gallivan. *Graph learning for regularized low rank matrix completion*. Proceedings of 2018 Mathematical Theory of Networks and Systems Symposium, pp. 460-467, 2018.

[97] Emilie Renard, Kyle A. Gallivan, and P.-A. Absil. *A Grassmanian minimum enclosing ball approach for common subspace extraction*. in Proceedings of the 14th Annual International Conference on Latent Variable Analysis and Signal Separation, Lecture Notes in Computer Science No. 10891, Y. Deville, S. Gannot, R. Mason, M. D. Plumbley, and D. Ward, Eds. Springer 2018, pp. 69-78.

[98] Melissa Marchand, Wen Huang, Arnaud Browet, Paul Van Dooren, Kyle A. Gallivan. *A Riemannian Optimization Approach for Role Model Extraction*. Proceedings of 2016 International Symposium on Mathematical Theory of Networks and Systems, pp. 58-64, 2016.

[99] Wen Huang, Kyle A. Gallivan, Xiangxiong Zhang. *Solving PhaseLift by low-rank Ri emannian optimization methods*. Procedia Computer Science, Volume 80, pp. 1125-1134, Elsevier, 2016 (Proceedings of the 2016 International Conference on Computational Science)

[100] Xinru Yuan, Wen Huang, P.-A. Absil, K. A. Gallivan.*A Riemannian Limited-memory BFGS Algorithm for Computing the Matrix Geometric Mean*. Procedia Computer Science, Volume 80, pp. 21472157, Elsevier, 2016 (Proceedings of the 2016 International Conference on Computational Science)

[101] Y. You, W. Huang, K. A. Gallivan and P.-A. Absil. *A Riemannian Approach for Computing Geodesics in Elastic Shape Analysis*. Proceedings of 3rd IEEE Global Conference on Signal and Information Processing, pp. 727 - 731, IEEE 2015.

[102] W. Huang and Y. You and K. Gallivan and P.-A. Absil. *Karcher Mean in Elastic Shape Analysis*, Proceedings of the 1st International Workshop on Differential Geometry in Computer Vision for Analysis of Shapes, Images and Trajectories (DIFF-CV 2015), Article No. 2, pp. 2.1-2.11, H. Drira and S. Kurtek and P. Turaga, Eds., BMVA Press, 2015.

[103] Guifang Zhou, Wen Huang, Kyle A. Gallivan, Paul Van Dooren, and P.-A. Absil. *Rank-Constrainted Optimization: A Riemannian Manifold Approach*, Proceedings of 23rd European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN), No. 1, pp. 249–254, 2015.

[104] Wen Huang, Kyle A. Gallivan, and P.-A. Absil. *A Riemannian BFGS Method for Nonconvex Optimization Problems*, Lecture Notes in Computational Science and Engineering, Volume 112, Springer, pp. 627–634, 2015. (Proceedings of ENUMATH 2015)

[105] W. Huang, K. A. Gallivan, A. Srivastava and P.-A. Absil. *Riemannian optimization for elastic shape analysis*. Proceedings of Symposium on Mathematical Theory of Networks and Systems, University of Groningen, pp. 784-791, July 2014 (electronic proceedings ISBN: 978-90-367-6321-9, also available online at `https://fwn06.housing.rug.nl/mtns2014-papers/fullPapers/0327.pdf`)

[106] Samuel A. Melchior, Paul Van Dooren, and Kyle A. Gallivan. *Finite Horizon Approximation of Linear Time-Varying Systems*, **Proceedings of 16th IFAC Symposium on System Identification**, Elsevier, pp. 734-738, 2012.

[107] K. A. Gallivan, C. Qi, and P.-A. Absil. *A Riemannian Dennis-Moré Condition*. In **High-Performance Scientific Computing - Algorithms and Applications**, M. W. Berry, K. A. Gallivan, E. Gallopoulos, A. Grama, B. Philippe, Y. Saad and F. Saied, Eds., Springer-Verlag London, pp. 281-293, 2012.

[108] Wilgenbusch, J. C., W. Huang, and K. Gallivan. *The Shape and Dimensionality of Phylogenetic Tree-Space Based on Mitochondrial Genomes*. Papers from **iEvoBio: Informatics for Phylogenetics, Evolution, and Biodiversity Conference, Portland, OR 2010** published online at Nature Precedings: `http://precedings.nature.com/documents/4605/version/1`. (extended abstract refereed), Nature Publishing Group, 2010.

[109] C. H. Qi, K. A. Gallivan, and P.-A. Absil, *Riemannian BFGS Algorithm with Applications*, Selected papers from 14th Belgian-French-German Conference on Optimization Recent Advances in Optimization and its Applications in Engineering, pp. 183–192, Springer-Verlag, 2010.

[110] C.-H. Qi, K. A. Gallivan, and P.-A. Absil. *An Efficient BFGS Algorithm for Manifold Optimization*, **Proceedings of the 19th International Symposium on Mathematical Theory of Networks and Systems (MTNS 2010)**, July 5-9, 2010, Budapest, Hungary, pp. 2221-2227, 2010. (extended abstract refereed)

[111] Q. Rentmeesters, P.-A. Absil, P. Van Dooren, K. A. Gallivan and A. Srivastava, *An Efficient Particle Filtering Technique on the Grassmann Manifold*, **Proceedings of 2010 International Conference on Acoustics, Speech and Signal Processing**, pp. 3838 – 3841, 2010.

[112] C. Samir, P. Van Dooren, D. Laurent, K. A. Gallivan, and P.-A. Absil, *Elastic Morphing of 2D and 3D Objects on a Shape Manifold*, **Proceedings of 2009 International Conference on Image Analysis and Recognition**. In Lecture Notes on Computer Science, Volume 5627, Springer, pp. 563–572, 2009.

[113] P. Tang, M. P. Turkia, and K. A. Gallivan, *Mining Web Access Patterns with First-Occurrence Linked WAP-Trees*, Proceedings of 16th International Conference on Software Engineering and Data Engineering, pp. 247 – 252, 2007, International Society for Computers and their Applications.

[114] Y. Wu, X. Liu, W. Mio and K. A. Gallivan, *Two-stage Optimal Component Analysis via Dimensional Reduction*, **Proceedings 2006 IEEE International Conference on Image Processing**, IEEE Press, pp. 2041–2044, 2006.

[115] K. A. Gallivan, A. Vandendorpe, and P. Van Dooren. *Model Reduction and Sylvester Equations*. **Proceedings 2006 International Symposium on the Mathematical Theory of Networks and Systems**, pp. 1652 – 1664, 2006. (Invited Paper, Refereed)

[116] J. Birch, R.A. van Engelen, K.A. Gallivan and Y. Shou. *An empirical evaluation of chains of recurrences for array dependence testing*, **PACT '06: Proceedings of the 15th International Conference on Parallel Architectures and Compilation Techniques**, ACM Press, pp. 295–304, 2006.

[117] C. G. Baker, P.-A. Absil, and K. A. Gallivan. *An Implicit Trust-region Method for the Symmetric Generalized Eigenproblem*, **Proceedings of 2006 International Conference on Computational Science**, LCNS Vol. 3991, Springer, pp. 210 – 217, 2006.

[118] P.-A. Absil and K. A. Gallivan. *Joint Diagonalization on the Oblique Manifold for Independent Component Analysis*, **Proceedings IEEE 2006 International Conferance on Acoustics, Speech and Signal Processing**, IEEE Press, Vol. 5., pp. V945 – V948, 2006.

[119] M. Kleffner, D. Jones, J. Hiser, P. Kulkarni, J. Parent, S. Hines, D. Whalley, J. Davidson, and K. Gallivan. *On the use of Compilers in DSP Laboratory Instruction*, **Proceedings IEEE 2006 International Conferance on Acoustics, Speech and Signal Processing**, IEEE Press, Vol. 2, pp. II977– II980, 2006.

[120] Y. Shou, R. A. van Engelen, J. Birch, and K. A. Gallivan. *Toward Efficient Flow-sensitive Induction Variable Analysis and Dependence Testing for Loop Optimization*, **Proceedings of 2006 ACM Southeastern Regional Conference**, pp. 1-6, 2006.

[121] P.A. Absil, C. G. Baker, K. A. Gallivan and A. Sameh. *Adaptive model trust region methods for generalized eigenvalue problems*, **Proceedings of 2005 International Conference on Computational Science Part I**, Lecture Notes in Computer Science No. 3514, Springer-Verlag, Vaidy S. Sunderam et al. Eds., pp. 33-41, 2005.

[122] P.-A. Absil, C. G. Baker, and K. A. Gallivan, *Trust-region Methods on Riemannian Manifolds with Applications in Numerical Linear Algebra*. **Proceedings of 2004 International Symposium on Mathematical Theory of Networks and Systems**, B. De Moor et al., Eds., 2004.

[123] Y. Chahlaoui, K. A. Gallivan, and P. Van Dooren. *The H_∞-norm Calculation for Large Sparse Systems*. **Proceedings of 2004 International Symposium on Mathematical Theory of Networks and Systems**, B. De Moor et al., Eds.

[124] R. A. van Engelen, J. Birch, Y. Shou, B. Walsh, and K. A. Gallivan, *A Unified Framework for Nonlinear Dependence Testing and Symbolic Analysis*. **Proceedings 2004 International Conference on Supercomputing**, pp. 106–115, P. Feautrier, J. Goodman, A. Seznec, Eds.

[125] J. Birch, R. Van Engelen, and K. Gallivan. *Value Range Analysis of Conditionally Updated Variables and Pointers*. **Proceedings of 2004 Compilers for Parallel Computing (CPC)**, pp. 265-276.

[126] R. Van Engelen, J. Birch, and K. Gallivan. *Array Dependence Testing with Chains of Recurrences Algebra*. **Proceedings of 2004 International Workshop on Innovative Architectures**, IEEE Computer Society Press, A. Veidenbaum et al., Eds., pp. 70 –81.

[127] A. Antoulas, D. Sorensen, K. A. Gallivan, P. Van Dooren, A. Grama, C. Hoffmann, and A. Sameh. *Model Reduction of Large-Scale Dynamical Systems*. **Proceedings 4th International Conference on Computational Science**, Krakow, Poland, June 6-9, 2004, Part III, Lecture Notes in Computer Science, Vol. 3038, Bubak, M., Albada, G.D.V., Sloot, P.M.A., Dongarra, J., Eds., pp. 740-747.

[128] Kyle A. Gallivan., Anuj Srivastava, Xiuwen Liu, and Paul Van Dooren. *Efficient Algorithms for Inferences on Grassmann Manifolds*. **Proceedings of 2003 IEEE Workshop on Statistical Signal Processing**, pp. 301– 304, 2003.

[129] X. Liu, A. Srivastava, and K. Gallivan. *Optimal Linear Representations of Images for Object Recognition*, **Proceedings of IEEE Computer Vision and Pattern Recognition**, Vol. 1, pp. 229 - 234, 2003.

[130] B. Walsh, R. Van Engelen, K. Gallivan, J. Birch, and Y. Shou. *Parametric Intra-Task Dynamic Voltage Scheduling*, **Proceedings of the 2003 Workshop on Compilers and Operating Systems for Low Power at 2003 International Conference on Parallel Architectures and Compilation Techniques**.

[131] P. Kulkarni, et al. *Finding Effective Optimization Phase Sequences*, **Proceedings ACM SIGPLAN Conference on Languages, Compilers, and Tools for Embedded Systems**, pp. 12 – 23, 2003.

[132] R. van Engelen, K. Gallivan, and B. Walsh. *Tight Timing Estimation With the Newton-Gregory Formulae*, **Proceedings of Compilers for Parallel Computers**, Leiden Institute for Advanced Computer Science, P. Knijnenberg and P. van der Mark, Eds., pp. 321 – 329, 2003.

[133] Kyle A. Gallivan, Ahmed H. Sameh and Zahari Zlatev. *Comparison of Ten Methods for the Solution of Large and Sparse Linear Algebraic Systems*, **Proceedings of Fifth (2002) International Conference on Numerical Methods and Applications**. In: **Numerical Methods and Applications**, Lecture Notes of Computer Science 2542. Springer, Berlin-Heidelberg, 2003, pp. 24-35, I. Dimov, I. Lirkov, S. Margenov and Z. Zlatev, Eds.

[134] R. Van Engelen and K. A. Gallivan. *Tight Nonlinear Loop Timing Estimation*. **Proceedings of 2002 International Workshop on Innovative Architectures**, IEEE Computer Society Press, A. Veidenbaum et al., Eds., pp. 21 – 26, 2002.

[135] P. van der Mark, R. van Engelen, K. Gallivan, and W. Dewar. *A Case Study for Automatic Code Generation on a Coupled Ocean-Atmosphere Model*, **Proceedings of International Conference on Computational Science**, Lecture Notes in Computer Science No. 2329, Springer-Verlag, P. M. A. Sloot et al., Eds., pp. 419 – 428, 2002.

[136] K. Gallivan, A. Vandendorpe and P. Van Dooren. *Model Reduction via Tangential Interpolation*, **Proceedings of International Symposium on Mathematical Theory of Networks and Systems**, 2002, University of Notre Dame, CD-ROM.

[137] A. Vandendorpe, K. Gallivan, and P. Van Dooren. *On the Generality of Multipoint Pade Approximations*, **Proceedings of 15th IFAC World Congress**, 2002, CD-ROM.

[138] W. Zhao, B. Cai, D. Whalley, M. Bailey, R. Van Engelen, X. Yuan, J. Hiser, J. Davidson, K. Gallivan, and D. Jones. *VISTA: A System for Interactive Code Improvement*, **Proceedings ACM SIGPLAN Conference on Languages, Compilers, and Tools for Embedded Systems**, pp. 155-164, 2002.

[139] R. Van Engelen and K. A. Gallivan. *The gSOAP Stub and Skeleton Compiler for Web Deployment of Legacy Applications*, **Proceedings of 2nd IEEE International Symposium on Cluster Computing and the Grid (CCGrid2002)**, pp 128 – 135.

[140] X. Rao, K. A. Gallivan, and P. Van Dooren. *Convergence Analysis of a Riccati-based Stabilization Method*, **Proceedings European Control Conference**, 2001, CD-ROM.

[141] R. Van Engelen and K. A. Gallivan. *An Efficient Algorithm for Pointer-to-array Access Conversion for Compiling and Optimizing DSP Applications.* **Proceedings of 2001 International Workshop on Innovative Architectures**, IEEE Computer Society Press, A. Veidenbaum et al., Eds., pp. 80 – 89, 2001.

[142] T. Kisuki, P. Knijnenburg, and K. Gallivan. *Cache models for Iterative Compilation.* **Proceedings of 7th ACM European Conference on Parallel Computing**, Springer, R. Sakellariou, et al., Eds., pp. 254 – 261, 2001.

[143] X. Rao, K. A. Gallivan, and P. Van Dooren. *Riccati Equation-based Stabilization of Large Scale Dynamical Systems.* **Proceedings IEEE 2000 Conference on Decision and Control**, Sydney Australia, December 2000. CD-ROM.

[144] T. Kisuki, P. Knijnenburg, K. Gallivan, and M.F.P. O'Boyle. *The Effect of Cache Models on Iterative Compilation for Combined Tiling and Unrolling.* **Proceedings of Third ACM Workshop on Feedback-Directed and Dynamic Optimization**, pp. 31 – 40, 2000.

[145] X. Rao, K. A. Gallivan, and P. Van Dooren. *Efficient Stabilization of Large Scale Dynamical Systems.* **Proceedings of IEEE International Symposium on Computer-aided Control System Design**, Anchorage USA, September 2000. CD-ROM.

[146] X. Rao, K. A. Gallivan, and P. Van Dooren. *Stabilization of Large Scale Dynamical Systems*, **Proceedings of International Symposium on Mathematical Theory of Networks and Systems**, June 2000, Perpignan, France. CD-ROM.

[147] R. van Engelen, K. Gallivan, G. Gupta, and G. Cybenko. *XML-RPC Agents for Distributed Scientific Computing*, **Proceedings of 2000 IMACS World Congress**. CD-ROM.

[148] R. A. Soni, W. K. Jenkins, and K. Gallivan. *Rapid Convergence in Fault Tolerant Adaptive Algorithms*, **Proceedings of the 1999 IEEE International Symposium on Circuits and Applied Systems**, CD-ROM.

[149] R. A. Soni, W. K. Jenkins, and K. Gallivan. *Affine Methods in Fault Tolerant Adaptive Filtering*, **Proceedings of the 1999 IEEE International Conference on Acoustics, Speech and Signal Processing**, CD-ROM.

[150] D. S. Weile, E. Michielssen, and K. Gallivan. *Two Parameter Generalized Krylov-Based Reduced Order Modeling of Multiscreen Frequency Selective Surfaces*, **Proceedings of USNC/URSI National Radio Science Meeting**, p. 110, 1998. (Refereed abstract published.)

[151] R. A. Soni, Kyle Gallivan, and W. K. Jenkins. *Acceleration of Normalized Data Reusing Methods using the Tchebyshev and Conjugate Gradient Methods*, **Proceedings of the 1998 IEEE International Symposium on Circuits and Applied Systems**, CD-ROM.

[152] R. A. Soni, Kyle Gallivan, and W. K. Jenkins. *Convergence Properties of Affine projection and normalized data reusing methods*, **Conference Record of the 32nd Asilomar Conference on Signals, Systems and Computers**, Vol. 2, pp. 1166–1170, 1998.

[153] D. S. Weile, E. Michielssen, and K. Gallivan. *Rational Krylov Reduced Order Modeling of Multiscreen Frequency Selective Surfaces*, **Proceedings of 14th Annual Review of Progress in Applied Computational Electromagnetics (ACES98)**, Vol 2, pp. 732–739, 1998. (Winner of Best Student Paper Award.)

[154] J. Dull, K. Gallivan, J.M.Song, W.C. Chew. *Parallel Fast Multipole Capacitance Solver*, **Proceedings of IEEE Antennas and Propagation Symposium**, Vol. 3, pp. 1766-1769, 1998.

[155] S.V.Velamparambil, J.M.Song, W.C.Chew,K.Gallivan, *ScaleME: A Portable Scalable Multipole Engine for Electromagnetic and Acoustic Integral Equation Solvers*, **Proceedings of IEEE Antennas and Propagation International Symposium** , Vol. 3, pp. 1774-1777, 1998.

[156] D. S. Weile, E. Michielssen, and K. Gallivan. *Rational Krylov Reduced Order Modeling of Multiscreen Frequency Selective Surfaces.* **Proceedings of IEEE Antennas and Propagation Society International Symposium**, Vol. 1, pp. 406–409, 1998.

[157] R. A. Soni, W. K. Jenkins, and K. Gallivan. *Projection Methods for Improved Performance in FIR Adaptive Filters* **Proceedings of the the 1997 IEEE Midwest Symposium on Circuits and Systems**, pp. 746–749, 1997.

[158] R. A. Soni, W. K. Jenkins, and K. Gallivan. *Applications of Row-Projection Methods for Improved Performance in Adaptive FIR Filtering*, **Proceedings of the European Conference on Circuit Theory and Design**, pp. 966-971, 1997.

[159] K. Gallivan, E. Grimme, V. De Clippel, P. Van Dooren. *Approximate Preconditioners in Krylov-based Modeling Methods*, **Proceedings of 36th Conference on Decision and Control**, pp. 3849–3854, 1997.

[160] U. M. Yang and K. A. Gallivan. *A new family of block methods*, **Proceedings of 15th IMACS World Congress**, Vol. 2, pp. 527-532, 1997.

[161] K. A. Gallivan, B. A. Marsolf, A. Bik, and H. A. G. Wijshoff. *The generation of optimized code using nonzero structure analysis*, **Proceedings of 1997 International Symposium on High Performance Computing**. In: **Lecture Notes on Computer Science No. 1336**, Springer-Verlag, Berlin, 1997, pp. 1-29.

[162] B. Marsolf, K. A. Gallivan, E. Gallopoulos. *On the Use of Algebraic and Structural Information in a Library Prototyping and Development Environment*, **Proceedings of 15th IMACS World Congress** , Vol. 4, pp. 565-570, 1997.

[163] L. DeRose, K. Gallivan, E. Gallopoulos, B. Marsolf, and D. Padua. *FALCON: A MATLAB Interactive Restructuring Compiler*. In: **Languages and Compilers for Parallel Computing**, Lecture Notes in Computer Science, Volume 1033, C.H. Huang, et al., Eds., Springer-Verlag, Berlin, 1996, pp. 269-288.

[164] L. DeRose, K. Gallivan, and E. Gallopoulos. *3-D Land Avoidance and Load Balancing in Regional Ocean Simulation*, **Proceedings of the 1996 International Conference on Parallel Processing**, Vol. II, CRC Press, pp. 158–165, 1996.

[165] Y. C. Wen, K. A. Gallivan, and R. A. Saleh. *Improving Parallel Circuit Simulation Using High-level Waveforms*. **Proceedings of 1995 IEEE International Symposium on Circuits and Systems**, Vol. I, pp. 728–731, 1995.

[166] L. DeRose, K. Gallivan, E. Gallopoulos, B. Marsolf, and D. Padua. *FALCON: An Environment for the Development of Scientific Libraries and Applications*. **Proceedings of KBUP'95 - First International Workshop on Knowledge-Based System for the (re)Use of Program Libraries**, pp. 149–160, 1995.

[167] M. Kuba, C. D. Polychronopoulos, and K. Gallivan. *The Synergistic Effect of Compiler, Architecture, and Manual Optimizations on the Performance of CFD on Multiprocessors*. **Proceedings of 1995 ACM/IEEE Conference on Supercomputing**, CD-ROM.

[168] U. Meier Yang and K. A. Gallivan. *Preconditioned Iterative Solvers based on rank-1 updates for nonsymmetric linear systems*. **Proceedings of the 14th IMACS World Conference**, pp. 1151–1154, 1994.

[169] K. Gallivan, S. Thirumalai, and P. Van Dooren. *A new look-ahead Schur algorithm*. **Proceedings of the Fifth SIAM Conference on Applied Linear Algebra**, SIAM Press, pp. 450–454, 1994.

[170] L. DeRose, K. Gallivan, E. Gallopoulos, B. Marsolf, and D. Padua. *An Environment for the Rapid Prototyping and Development of Numerical Programs and Libraries for Scientific Computation*. **Proceedings of the DAG'94 Symposium**, F. Makedon Ed., Dartmouth College, pp. 11–25, 1994.

[171] K. Gallivan and B. Marsolf. *Practical Issues Related to Developing Object-Oriented Numerical Libraries*. **OON-SKI'94: Proceedings of the Second Annual Object-Oriented Numerics Conference**, pp. 93–106, 1994.

[172] K. Gallivan, E. Grimme, and P. Van Dooren. *Padé approximation of large-scale dynamical systems with Lanczos methods*. **Proceedings IEEE 33rd Conference on Decision and Control**, pp. 443–448, 1994.

[173] K. A. Gallivan, B. A. Marsolf, and H. A. G. Wijshoff. *The parallel solution of nonsymmetric sparse linear systems using the H* reordering and an associated factorization*. **Proceedings of the ACM International Conference on Supercomputing**, ACM Press, pp. 419-430, 1994.

[174] K. Gallivan, S. Thirumalai, and P. Van Dooren. *On solving block Toeplitz matrices using a block Schur algorithm*. **Proceedings of the 1994 International Conference on Parallel Processing**, CRC Press, pp. 274–281, 1994. (Best Paper in Algorithms and Applications Award)

[175] Kuck, D., Davidson, E., Lawrie, D., Sameh, A., Zhu, C.-Q., Veidenbaum, A., Konicek, J., Yew, P., Gallivan, K., Jalby, W., Wijshoff, H., Bramley, R., Yang, U.M., Emrath, P., Padua, D., Eigenmann, R., Hoeflinger, J., Jaxon, G., Li, Z., Murphy, T., Andrews, J., and Turner, S. *The Cedar System and an Initial Performance Study*. **Proceedings of the 20th ACM/IEEE International Symposium on Computer Architecture**, ACM Press, pp. 213-223, 1993.

[176] L. DeRose, K. Gallivan and E. Gallopoulos. *Experiments with an Ocean Circulation Model on Cedar*. **Proceedings of 1992 ACM International Conference on Supercomputing**, ACM Press, pp. 397 - 408, 1992.

[177] L. DeRose, K. Gallivan, and E. Gallopoulos. *Parallel Ocean Circulation Modeling on Cedar*. **Proceedings of Fifth SIAM Conference on Parallel Processing for Scientific Computing**, J. Dongarra et al. Eds., pp. 401-405, SIAM Press, 1991.

[178] K. Gallivan, G. Hung, and R. Saleh. *Parallel Circuit Simulation Based on Nonlinear Relaxation Methods*. **Proceedings of IEEE International Symposium on Circuits and Systems**, pp. 2284-2287, 1991.

[179] K. Gallivan, W. Jalby, S. Turner, A. Veidenbaum, and H. Wijshoff. *Preliminary Performance Analysis of the Cedar Multiprocessor Memory System*. **Proceedings 1991 International Conference on Parallel Processing**, Vol. I, CRC Press, pp. 71-75, 1991.

[180] Y.C. Wen, K. Gallivan, and R. Saleh. *Parallel Event-Driven Waveform Relaxation*. **Proceedings of IEEE International Conference on Computer Design**, pp. 101-104, 1991.

[181] K. Gallivan, B. Marsolf and H. Wijshoff. *Large Grain Parallel Sparse System Solver*. **Proceedings of Fourth Siam Conference on Parallel Processing for Scientific Computing**, SIAM Press, pp. 23-28, Philadelphia, 1990.

[182] K. Gallivan, A. Sameh and Z. Zlatev. *Solving General Sparse Linear Systems Using Conjugate Gradient-type Methods*. **Proceedings of 1990 ACM International Conference on Supercomputing**, ACM Press, pp. 132-139, 1990.

[183] G. G. Hung, Y. C. Wen, K. Gallivan, and R. Saleh. *Parallel Circuit Simulation Using Hierarchical Relaxation*. **Proceedings 27th Design Automation Conference**, Orlando, FL, IEEE Press, pp. 394-399, 1990.

[184] K. Gallivan, W. Jalby, A. Malony and H. Wijshoff. *Performance Prediction of Loop Constructs on Multiprocessor Hierarchical Memory Systems*. **Proceedings ACM Third International Conference on Supercomputing**, ACM Press, pp. 433-442, 1989.

[185] K. Gallivan, D. Gannon, W. Jalby, A. Malony and H. Wijshoff. *Behavioral Characterization of Multiprocessor Memory Systems: A Case Study*. **Proceedings of 1989 ACM SIGMETRICS Conference on Measuring and Modeling Computer Systems**, ACM Press, pp. 79-88, 1989.

[186] K. Gallivan, W. Jalby and D. Gannon. *On the Problem of Optimizing Data Transfers for Complex Memory Systems*. **Proceedings of 1988 ACM International Conference on Supercomputing**, ACM Press, pp. 238-253, 1988.

[187] V. Bhavsar, T. Tassou, E. M. A. Hussein and K. Gallivan. *Monte Carlo Neutron Transport on the Alliant FX/8*. **Proceedings of 1987 International Conference on Parallel Processing**, CRC Press, pp. 421-423, 1987.

[188] D. Gannon, W. Jalby and K. Gallivan. *Strategies for Cache and Local Memory Management by Global Program Transformation*. **Lecture Notes in Computer Science No. 297: Proceedings of First International Conference on Supercomputing, Athens, Greece**, T.S. Papatheodorou E.N. Houstis C.D. Polychronopoulos, Eds., Springer-Verlag, pp. 229-254, 1987.

[189] M. Berry, K. Gallivan, W. Harrod, W. Jalby, S. Lo, U. Meier, B. Philippe and A. Sameh. *Parallel Algorithms on the CEDAR System*. In: **CONPAR 86, Lecture Notes in Computer Science**, W. Handler et al., Eds., Springer-Verlag, pp. 25–39, 1986.

[190] C. Zahm, G. Rassweiler and K. Gallivan. *Analysis of a VHSIC Implementation of the Gram-Schmidt Method for Adaptive Filtering*. **Proceedings of IEEE MILCOM Conference**, Vol. Classified, October 1985, manuscript length 6 pages. (The paper is unclassified but had restricted distribution due to ITAR. It was presented in a session that required SECRET clearance and therefore appeared in the classified volume of the proceedings.)

[191] K. Gallivan and C. Leiserson. *High-Performance Architectures for Adaptive Filtering Based on the Gram-Schmidt Algorithm*. **Proceedings of SPIE Conference on Real Time Signal Processing VII**, Vol. 495, pp. 30-38, 1984.

[192] J. Leung and K. Gallivan. *Thermal-Hydraulic Calculation During Blowdown Using a Simple 1-D Code*. **Transactions of the American Nuclear Society**, Vol. 34, pp. 896-898, 1980. (Proceedings of Annual Meeting of The American Nuclear Society.)

[193] J. Leung and K. Gallivan. *Prediction of Critical Heat Flux During Transients*. **Proceedings of the ANS Topical Meeting on Thermal Reactor Safety**. pp. 1229-1239, 1980.

[194] J. Leung and K. Gallivan. *Analysis of Blowdown Heat Transfer Experiments and Critical Heat Flux*. **Proceedings on Nuclear Reactor Thermal-Hydraulics (ANS/ASME)**, pp. 1142-1160, 1980.

State-of-the-art Software Packages

ROPTLIB W. Huang, K. A. Gallivan, P.-A. Absil and P. Hand. Riemannian optimization is the task of finding an optimum of a real-valued function defined on a Riemannian manifold. Riemannian optimization has been a topic of much interest over the past few years due to many applications including computer vision, signal processing, and numerical linear algebra. The substantial background required to successfully design and apply Riemannian optimization algorithms is a significant impediment for many potential users. Therefore, multiple packages, such as Manopt (in Matlab) and Pymanopt (in Python), have been developed. We have deveolped ROPTLIB, a C++ library for Riemannian optimization. Unlike prior packages, ROPTLIB simultaneously achieves the following goals: i) it has user-friendly interfaces in Matlab, Julia and C++; ii) users do not need to implement manifold- and algorithm-related objects; iii) it provides efficient computational time due to its C++ core; iv) it implements state-of-the-art generic Riemannian optimization algorithms, including quasi-Newton algorithms; and v) it is based on object-oriented programming, allowing users to rapidly add new algorithms and manifolds. ROPTLIB is the current state-of-the-art Riemannian optimization library. ROPTLIB is a free software and is distributed under the terms of the GNU General Public License (GPL) version 3 (or later) and can be downloaded from `https://www.math.fsu.edu/ROPTLIB`.

Treescaper W. Huang, G. Zhou, M. Marchand, K. A. Gallivan, J. Wilgenbusch, J. Brown, and P. Van Dooren. Modern phylogenomic analyses often result in large collections of phylogenetic trees representing uncertainty in individual gene trees, variation across genes, or both. Extracting phylogenetic signal from these tree sets can be challenging, as they are difficult to visualize, explore, and quantify. To overcome some of these challenges, we have developed TreeScaper, an application for tree set visualization as well as the identification of distinct phylogenetic signals. GUI and command-line versions of TreeScaper and a manual with tutorials can be downloaded from `https://github.com/Treescaper` and `https://github.com/TreeScaper/TreeScaper/tree/new_version/TreeScaper_Manual`. TreeScaper is distributed under the GNU General Public License. However, as noted below, Treescaper has been incorporated as a fundamental tool into CloudForest described next. It is recommended that CoudForest tools be used to access the most up-to-date and efficent Treescaper functionality (see the links below). This was funded by the National Science Foundation and support continues in the CloudForest project.

CloudForest J. Brown, Z. Deng, K. A. Gallivan, B. Toups, R. Wagner, J. Wilgenbusch. Supported by the National Science Foundation, we are currently developing CloudForest a portable, easy-to-deploy, and reproducible computational platform for phylogenomics. The goal of CloudForest is to serve as a bridge that allows researchers to span all steps of a phylogenomic analysis, in order to explore and better understand variation and structure in sets of phylogenetic trees. The tools available in CloudForest incorporate and extend those of Treescaper and have many applications, some examples include: Comparing the results of different

phylogenomic analyses; Exploring gene tree variation; Identifying outlier genes; Identifying species of hybrid origin; Community phylogenetics and biogeography; Sensitivity analyses (particularly for Bayesian inference). CloudForest is built on the Galaxy platform, which allows it to integrate seamlessly with various tools for phylogenetic inference and visualization. CloudForest runs inside a self-contained, customized Docker image, making it easily portable to different operating systems and computing architectures. To reduce local computing burden, CloudForest can automatically offload analyses to publicly available computing clusters (e.g., CIPRES) and download results for further analysis. Information on CloudForest including code is available at with code is available at `https://treescaper.github.io`.

Awards

- ICS Influential Paper: D. Gannon, W. Jalby and K. Gallivan. *Strategies for Cache and Local Memory Management by Global Program Transformation.* **Lecture Notes in Computer Science No. 297: Proceedings of First International Conference on Supercomputing, Athens, Greece**, T.S. Papatheodorou E.N. Houstis C.D. Polychronopoulos, Eds., Springer-Verlag, pp. 229-254, 1987; was selected as one of the most influential papers of the first 25 years of the International Conference on Supercomputing. The editor's introduction to the 2014 ACM International Conference on Supercomputing 25th Anniversary Volume, ACM Press,New York, NY, ISBN: 978-1-4503-2840-1 is at `http://dl.acm.org/citation.cfm?id=2591635&picked=prox`

- The 2012 Pascal Chair in the Faculty of Sciences of the University of Leiden, The Netherlands.

- Best Student Paper Award (Daniel S. Weile): "Rational Krylov Reduced-order Modeling of Multiscreen Frequency Selective Surfaces," D. S. Weile, E.Michielssen, K. A. Gallivan 1998 Annual Review of Progress in Applied Computational Electromagnetics, Monterey, CA (ACES Symposium)

- Outstanding Paper Award: , "On solving block Toeplitz matrices using a block Schur algorithm", S. Thirumalai, K. A. Gallivan and P. Van Dooren, 1994 International Conference on Parallel Processing, St. Charles IL.

Selected Presentations Without Papers By Gallivan, Collaborators and Students

- CloudForest outreach presentations and workshops conducted by the CloudForest research group:
  1. Jeremy Brown, Benjamin Toups, Neha Tiwari, and Reid Wagner, Workshop at the 2023 Meeting of the Society of Systematic Biology at UNAM, Ciudad Universitaria, Mexico City, `https://www.ib.unam.mx/ib/ssb2023/workshops`.
  2. Benjamin S. Toups, Jeremy M. Brown, Kyle A. Gallivan, Reid Wagner, Zhifeng Deng, and James C. Wilgenbusch. *CloudForest: A Framework for Intuitive and Flexible Analsysis of Phylogenetic Datasets.* Evolution 2022, Albuquerque, NM, USA. Refereed Poster. (presented by B. Toups).

3. Benjamin S. Toups and Jeremy M. Brown. *Investigating the Impact of Sequence Evolution Model Complexity on Gene Tree Discordance.* Refereed Talk – no paper – (presented by B. Toups).
4. Reid Wagner, Benjamin S. Toups, Zhifeng Deng, Thomas McGowan, Kyle A. Gallivan, Jeremy M. Brown, and James C. Wilgenbusch. *Visualization of Phylogenetic Data in Galaxy with CloudForest.* Refereed Presentation – no paper – (presented by R. Wagner).

- Emilie Renard, Kyle A. Gallivan, and P.-A. Absil. *A Grassmanian minimum enclosing ball approach for common subspace extraction.* 14th Annual International Conference on Latent Variable Analysis and Signal Separation 2018. (presented by E. Renard)

- Shuyu Dong, P.-A. Absil, K. A. Gallivan. *Graph learning for regularized low rank matrix completion.* 2018 Mathematical Theory of Networks and Systems Symposium. (presented by S. Dong)

- E. Renard, W., K. A. Gallivan, and P.-A. Absil. *Common Subspace Extraction Using a Grassmannian Minimum Enclosing Ball Approach.* Geometry in Machine Learning Workshop at the International Conference on Machine Learning, Stockholm, Sweden, 2018. (poster presentation by E. Renard)

- X. Yuan, W. Huang, K. A. Gallivan, and P.-A. Absil. *Riemannian Optimization and the Computation of the Divergences and the Karcher Mean of Symmetric Positive Definite Matrices.* SIAM Conference on Applied Linear Algebra, Hong Kong, May 2018. (presented by W. Huang)

- W. Huang, P.-A. Absil, K. A. Gallivan, and P. Hand. *Intrinsic Representation of Tangent Vectors and Vector Transport on Matrix Manifolds: A Technique in Implementations of Riemannian Optimization Algorithms.* International Linear Algebra Society Conference, Ames, Iowa, USA, July 34-38, 2017. (presented by W. Huang)

- Wen Huang, Pierre-Antoine Absil, Paul Hand, K. A. Gallivan and Xinru Yuan. Introduction to Riemannian BFGS Methods. SIAM Conference on Optimization, Vancouver, BC, Canada, May 22–25, 2017.(presented by W. Huang)

- Xinru Yuan, Wen Huang, Pierre-Antoine Absil and K. A. Gallivan. *A Riemannian Limited-Memory BFGS Algorithm for Computing the Matrix Geometric Mean.* Invited Talk at the Workshop in Honor of Paul Van Dooren, Catholic University of Louvain, Louvain-la-Neuve, Belgium, July 8, 2016. (presented by K. Gallivan)

- Wen Huang, Pierre-Antoine Absil and K. A. Gallivan. *A C++ Riemannian optimization library.* Meeting of the Riemannian and Nonsmooth Optimization Research Group, Liege, Belgium, May 2015. (presented by W. Huang)

- Wen Huang, K. A. Gallivan, and Xiangxiong Zhang. *Solving PhaseLift by low-rank Riemannian optimization methods for complex semidefinite constraints.* BENELUX Systems and Control Meeting, March 2015. (presented by W. Huang)

- Wen Huang, Guifang Zhou, Kyle A. Gallivan, Paul Van Dooren, and Pierre-Antoine Absil. *A Riemannian optimization technique for rank inequality constraints.* IAP DYSCO Study Day: Dynamical systems, control and optimization, University of Gent, Belgium, November 2014. (presented by W. Huang)

- Wen Huang, Jeremy Ash, Kyle Gallivan, James Wilgenbusch, Guifang Zhou, Jeremy Brown, Melissa Marchand. *Treescaper: Software to visualize and understand tree landscapes.* iEvoBio: Informatics for Phylogenetics, Evolution, and Biodiversity Conference, Raleigh, NC, USA, July 2014. (presented by W. Huang)

- Wen Huang, Jeremy Ash, Kyle Gallivan, James Wilgenbusch, Guifang Zhou, Jeremy Brown, Melissa Marchand. *Using networks to explore quantify, and summarize phylogenetic tree space.* Evolution 2014, Raleigh, NC, USA, July 2014. (presented by J. Brown)

- Wen Huang, Jeremy Ash, Kyle Gallivan, James Wilgenbusch, Guifang Zhou, Jeremy Brown, Melissa Marchand. *Community detection on networks of topologies and bipartitions identifies conflicting phylogenetic signals.* Evolution 2014, Raleigh, NC, USA, July 2014. (poster presentation by J. Ash)

- J.C. Wilgenbusch, W. Huang, K. A Gallivan G. Naylor, S. Corrigan, N. Straube, and C. Li. 2012. *Visualizing the Consequences of Model Mis-specification in Phylogenetic Landscapes.* Evolution 2012, Ottawa, Ontario, Canada (poster presentation by J. C. Wilgenbusch)

- C. G. Baker, K. A. Gallivan, P. Van Dooren. *Incremental Methods for Computing Extreme Singular Subspaces*, SIAM Conference on Linear Algebra, Valencia, Spain, 2012. (presented by C. G. Baker)

- K. A. Gallivan. *Introduction to Methods for Optimization on Riemannian Manifolds*, 2012 Pascal Lecture, Leiden University, The Netherlands

- J. C. Wilgenbusch, W. Huang, and K. Gallivan. 2011. *An Evaluation of Tree-to-Tree Distance Metrics used to Visualize Phylogenetic Tree Landscapes.* Evolution 2011, Norman, OK, (poster presentation by J. C. Wilgenbusch)

- K. A. Gallivan and P.-A. Absil. *Recent Results in Riemannian Optimization*, Conference on High Performance Scientific Computing: Architectures, Algorithms, and Applications, October 11-12, 2010, Purdue University. (invited talk presented by K. A. Gallivan)

- J. C. Wilgenbusch, W. Huang, and K. Gallivan. 2010. *The Evaluation of Dimensionality Reduction Methods to Characterize Phylogenetic Tree-Space.* Evolution 2010, Portland, OR, (poster presentation by W. Huang)

- K. A. Gallivan and P.-A. Absil. *Recent Results in Riemannian Optimization*, 2010 International Conference on Continuous Optimization, July 26 – July 29, 2010, Santiago, Chile. (invited talk presented by K. A. Gallivan)

- P. Van Dooren, K. A. Gallivan, and P.-A. Absil. *Multivariable $\mathcal{H}_2$-optimal Approximation of Linear Dynamical Systems*, SIAM Conference on Computational Science and Engineering, March 3 - March 6, 2009. (presented by K. A. Gallivan)

- C. G. Baker, P.-A. Absil, and K. A. Gallivan, *An Implicit Riemannian Trust-region Method*, SIAM Conference on Optimization, May 10 - May 13, 2008.(presented by C. G. Baker)

- P.-A. Absil, C. G. Baker, and K. A. Gallivan, *Implicit Riemannian Trust-region Method for Symmetric Generalized Eigenproblems*, SIAM Conference on Applied Linear Algebra, July 24-July 27, 2006.(presented by P.-A. Absil)

- P.-A. Absil, C. G. Baker, and K. A. Gallivan, *Model-based Methods for Computing Extreme Eigenpairs of Definite Matrix Pencils*, Foundations of Computational Mathematics 2004, Workshop on Numerical Linear Algebra, June 20-July 9, 2005, University of Cantabria, Santander Spain. (presented by P.-A. Absil)

- P.-A. Absil, C. G. Baker, and K. A. Gallivan, *Model-based Methods for Computing Extreme Eigenpairs of definite matrix pencils*, Householder Symposium XVI, May 23-27, 2005, Mountain Resort Champion, PA, USA. (presented by P.-A. Absil)

- P.-A. Absil, C. G. Baker, and K. A. Gallivan, *Adaptive Model Trust Region Methods for Generalized Eigenvalue Problems*, Householder Symposium XVI, May 23-27, 2005, Mountain Resort Champion, PA, USA. (presented by K. A. Gallivan)

- P.-A. Absil, C. G. Baker, and K. A. Gallivan, *A Truncated CG style method for Symmetric Generalized Eigenvalue Problems*, 2004 International Congress on Computational and Applied Mathematics, July 26-30, Catholic University, Leuven, Belgium. (presented by P.-A. Absil)

Current and Past Advisees

Postdoctoral Researchers

– W. Huang (Ph.D. Florida State University 2014) Department of Mathematics, Florida State University, 5/2014-8/2014

– N. Lynn (Ph.D. University of Tennssee Space Institute 2007) School of Computational Science, Florida State University, 5/2008 – 4/2009

– B. Uzunoglu (Ph.D. University of Southhampton 2001) School of Computational Science, Florida State University, 8/2006 – 2007

– A. Croicu (Ph.D. Florida State University 2005) School of Computational Science, Florida State University, 1/2006 – 8/2006
– N. Aslam (Ph.D. University of South Florida 2004) School of Computational Science, Florida State University, 8/2005 – 1/2006
– P. A. Absil (Ph.D. University of Liege 2003) School of Computational Science, Florida State University, 8/2003 – 8/2005
– Y. Chahlaoui (Ph.D. Catholic University Louvain 2003) School of Computational Science, Florida State University, 1/2004 – 7/2004

External Ph.D. Student Coadvisor or Collaborator
– Ph.D. co-advisor for S. Dong (Ph.D. 2021) Department of Mathematical Engineering, Catholic University Louvain, Louvain-La-Neuve, Belgium, Ph.D. advisor Prof. P. Absil
– Committee member and Research Collaborator for E. Renard (Ph.D., 2019) Department of Mathematical Engineering, Catholic University Louvain, Louvain-La-Neuve, Belgium, Ph.D. advisor Prof. P. Absil

Current Ph.D. Student Advisees at Florida State University
– Ph.D. co-advisor for X. Li (Ph.D. candidate, current) Department of Mathematics, Florida State University (with Prof. F. Bao, Florida State University)
– Ph.D. co-advisor for Z. Deng (Ph.D. candidate, current) Department of Mathematics, Florida State University (with Prof. P. Absil, Catholic University Louvain)
– Ph.D. co-advisor for S. Zhang (Ph.D. candidate, current) Department of Mathematics, Florida State University (with Prof. W. Huang, Xiamen University)
– Ph.D. co-advisor for Y. Shen (Ph.D. candidate, current) Department of Mathematics, Florida State University (with Prof. W. Huang, Xiamen University)

Completed Ph.D. Student Advisees at Florida State University
– Ph.D. co-advisor for Y. Zhou (Ph.D. 2023) Department of Mathematics, Florida State University (with Prof. A. Barbu, Statistics, Florida State University)
– Ph.D. co-advisor for M. Wei (Ph.D. 2023) Department of Mathematics, Florida State University (with Prof. W. Huang, Xiamen University)
– Ph.D. co-advisor for X. Yuan (Ph.D. 2018) Department of Mathematics, Florida State University (with Prof. P. Absil, Catholic University Louvain)
– Ph.D. co-advisor for Y. You (Ph.D. 2018) Department of Mathematics, Florida State University (with Prof. P. Absil, Catholic University Louvain)
– Ph.D. co-advisor for M. Marchand (Ph.D. 2017) Department of Mathematics, Florida State University (with Prof. P. Van Dooren, Catholic University Louvain)
– Ph.D. co-advisor for L. Tai (Ph.D. 2017) Department of Mathematics, Florida State University (with Prof. A. Srivastava, Statistics, FSU)
– Ph.D. co-advisor for G. Zhou (Ph.D. 2015) Department of Mathematics, Florida State University (with Prof. P. Van Dooren, Catholic University Louvain)
– Ph.D. co-advisor for W. Huang (Ph.D., 2014) Department of Mathematics,

Florida State University (with Prof. P. Absil, Catholic University Louvain)
– Ph.D. co-advisor for C.-H. Qi (Ph.D., 2011) Department of Mathematics, Florida State University (with Prof. P. Van Dooren, Catholic University Louvain)
– Ph.D. advisor for Y.-Y. Tang (Ph.D., did not complete) Department of Mathematics, Florida State University
– Ph.D. co-advisor for C. Baker (Ph.D., 2008) School of Computational Science, Florida State University (with Prof. P. Absil, Catholic University Louvain)
– Ph.D. co-advisor for B. Walsh (Ph.D. - did not complete) Department of Computer Science, Florida State University (with Prof. R. Van Engelen, CS FSU).

Completed Ph.D. Student Advisees at University of Illinois
– Ph.D. co-advisor for R. Soni (Ph.D., 1998), Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign. (with Prof. K. Jenkins, ECE UIUC)
– Ph.D. co-advisor for E. Grimme (Ph.D., 1997), Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign. (with Prof. P. Van Dooren, ECE UIUC)
– Ph.D. advisor for B. Marsolf (Ph.D., 1997), Department of Computer Science, University of Illinois at Urbana-Champaign.
– Ph.D. co-advisor for S. Thirumalai (Ph.D., 1996), Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign. (with Prof. P. Van Dooren, ECE UIUC)
– Ph.D. advisor for U. Meier Yang (Ph.D., 1995), Department of Computer Science, University of Illinois at Urbana-Champaign.
– Ph.D. co-advisor for Y.C. Wen (Ph.D., 1994), Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign. (with Prof. R. Saleh, ECE UIUC)
– Ph.D. co-advisor for G. G. Hung (Ph.D., 1993), Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign. (with Prof. R. Saleh, ECE UIUC)
– Ph.D. advisor for X. Wang (Ph.D., 1993), Department of Computer Science, University of Illinois at Urbana-Champaign.

M.S. Student Advisees
– Thesis advisor for C. Baker (M.S., 2004) Department of Computer Science, Florida State University.
Thesis co-advisor for D. Snyder (M.S., 2001), Department of Computer Science, Florida State University. (with Prof. R. Van Engelen, CS FSU)
– Thesis advisor for Y. Lebedev (M.S., did not complete), Department of Computer Science, Florida State University.
– Thesis advisor for Y-B. Liu (M.S., did not complete), Department of Computer Science, Florida State University.
– Thesis advisor for X. Rao (M.S., 1999), Department of Computer Science, Florida State University.
– Thesis advisor for J. Bordner (M.S., 1995), Department of Computer Science, University of Illinois at Urbana-Champaign.

– Thesis advisor for B. Marsolf (M.S., 1991), Department of Computer Science, University of Illinois at Urbana-Champaign.
– Thesis co-advisor for G. G. Hung (M.S., 1991), Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign. (with Prof. R. Saleh, ECE)
– Co-supervisor of research for L. DeRose (M.S., 1991), Department of Computer Science, University of Illinois at Urbana-Champaign. (with Prof. E. Gallopoulos, CS)

B.S. Student Advisees
– Undergraduate Honors Project Advisor (B.S., 2004) for J. Slone Department of Computer Science, Florida State University.
– Undergraduate Honors Project Advisor (B.S., 2001) for C. Baker Department of Computer Science, Florida State University.
– Undergraduate Honors Project co-advisor for G. Rebholz (B.S., 2000), Department of Computer Science, Florida State University. (with Prof. R. Van Engelen, CS FSU)

Courses Taught

Florida State University Fall 1997 – present:

Fall 2023
MAD 5420 (3 Hrs.) Numerical Optimization

Spring 2023
MAD 5932 (3 Hrs.) Numerical Linear Algebra
MAP 5611 (3 Hrs.) Introduction to Computational Finance

Fall 2022
MAD 5420 (3 Hrs.) Numerical Optimization

Spring 2022
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2

Fall 2021
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1
MAD 5932 (3 Hrs.) Numerical Linear Algebra

Spring 2021
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2
MAP 5611 (3 Hrs.) Introduction to Computational Finance

Fall 2020
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1
MAD 5420 (3 Hrs.) Numerical Optimization

Spring 2020
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2
MAP 5611 (3 Hrs.) Introduction to Computational Finance
MAD 5932 (3 Hrs.) Numerical Linear Algebra

Fall 2019
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1

Spring 2019
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2
MAP 5611 (3 Hrs.) Introduction to Computational Finance
MAD 5932 (3 Hrs.) Numerical Linear Algebra

Fall 2018
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1

Spring 2018
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2
MAP 5611 (3 Hrs.) Introduction to Computational Finance
MAD 5932 (3 Hrs.) Numerical Linear Algebra

Fall 2017
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1

Spring 2017
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2
MAP 5611 (3 Hrs.) Introduction to Computational Finance

Fall 2016
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1
MAP 5420 (3 Hrs.) Numerical Optimization

Spring 2016
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2

Fall 2015
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1

Spring 2015
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2
MAP 5207 (3 Hrs.) Optimization

Fall 2014
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1

Spring 2014
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2
MAP 5611 (3 Hrs.) Introduction to Computational Finance
MAD 5932 (3 Hrs.) Numerical Linear Algebra

Fall 2013
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1
MAT 5907 (3 Hrs.) DIS on Manifold Optimization (3 students)

Spring 2013
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2
MAP 5611 (3 Hrs.) Introduction to Computational Finance

Fall 2012
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1
MAD 5932-01 (3 Hrs.) Numerical Linear Algebra
MAT 5907 (3 Hrs.) DIS on Manifold Optimization (1 student)

Spring 2012
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2
MAP 4202/5207 (3 Hrs.) Optimization

Fall 2011
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1
MAD 5932-01 (3 Hrs.) Numerical Linear Algebra
MAT 5907 (3 Hrs.) DIS on Graph Algorithms (1 student)

Spring 2011
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2

Fall 2010
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1
MAD 5932-01 (3 Hrs.) Numerical Linear Algebra
MAT 5907 (3 Hrs.) DIS on Numerical Methods for Manifold Optimization (3 stu-

dents)

Spring 2010
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2

Fall 2009
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1
MAP 2302/3305 (3 Hrs.) Ordinary Differential Equations

Spring 2009
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2

Fall 2008
MAD 5403 (3 Hrs.) Foundations of Computational Mathematics 1
CIS 5930/MAT5932 (3 Hrs.) Numerical Linear Algebra 1

Spring 2008
MAD 5404 (3 Hrs.) Foundations of Computational Mathematics 2
ISC 5315 (3 Hrs.) Applied Computational Science 1 w/ additional 3 Hrs. Lab (co-instructor)

Fall 2007
CIS 5930/MAT5932 (3 Hrs.) Numerical Linear Algebra 1
ISC 5316 (3 Hrs.) Applied Computational Science 2 w/ additional 3 Hrs. Lab (co-instructor)

Spring 2007
ISC 5315 (3 Hrs.) Applied Computational Science 1 w/ additional 3 Hrs. Lab (co-instructor)
CIS 5900 (3 Hrs.) DIS on Solving Large Sparse Systems (2 students, w/ lectures)

Fall 2006
CIS 5930/MAT5932 (3 Hrs.) Numerical Linear Algebra 1
MAT 6908 (3 Hrs.) DIS on Optimization on Manifolds (1 student, w/ partial lectures)

Spring 2006
CIS 5930/MAT5932 (3 Hrs.) Numerical Linear Algebra 2
CIS 5930/MAT5932 (3 Hrs.) Numerical Linear Algebra for Signals, Systems and Control

Fall 2005
CIS 5930/MAT5932 (3 Hrs.) Numerical Linear Algebra 1

Spring 2005
CIS 5930/MAT5932 (3 Hrs.) Numerical Linear Algebra 2
CIS 5930/MAT5932 (3 Hrs.) Numerical Linear Algebra for Signals, Systems and Control

Fall 2004
CIS 5930/MAT5932 (3 Hrs.) Numerical Linear Algebra 1

Spring 2004
CIS 5930/MAT5932 (3 Hrs.) Numerical Linear Algebra 2

Fall 2003
CIS 5930/MAT5932 (3 Hrs.) Numerical Linear Algebra 1
CIS 4930 (3 Hrs.) Honors Project (J. Slone)

Spring 2003
CIS 3101 (3 Hrs.) Computer Organization
CIS 5900 (3 Hrs.) DIS on Linear Algebra (1 student)

CIS 4930 (3 Hrs.) Undergraduate Honors Project (J. Slone)

Fall 2002
CIS 5930 (3 Hrs.) Numerical Linear Algebra 1

Spring 2002
CDA 3101 (3 Hrs.) Computer Organization
CGS 5267 (3 Hrs.) Computer Organization (graduate section)
CIS 5900 (3 Hrs.) DIS on Parallel Programming (1 student)
CIS 5900 (3 Hrs.) DIS on Parallel Runtime Support (1 student)
CIS 5900 (3 Hrs.) DIS on Restructuring Compilers (1 student)

Fall 2001
CIS 5930 (3 Hrs.) Foundations of Computational Science 1
CIS 4930 (3 Hrs.) Undergraduate Honors Project (C. Baker)

Spring 2001
CIS 5930 (3 Hrs.) Foundations of Computational Science 1
CIS 4930 (3 Hrs.) Foundations of Computational Science 1 (undergraduate section)
CIS 5900 (3 Hrs.) DIS on Parallel Numerical Algorithms (1 student)
CIS 4900 (3 Hrs.) DIS on Numerical Algorithms for Image Processing 2 (1 student)

STAT 5906 (3 Hrs.) DIS on Filtering Algorithms for Large Scale Dynamical Systems (1 student)

Fall 2000

CIS 5930 (3 Hrs.) Parallel Programming, Algorithms, and Architectures
CIS 4900 (3 Hrs.) DIS on Numerical Algorithms for Image Processing 1 (1 student)

Spring 2000

CDA 4101 (3 Hrs.) Computer Organization
CGS 5267 (3 Hrs.) Computer Organization (graduate section)

Fall 1999

CIS 5930 (3 Hrs.) Introduction to Parallel Programming

Spring 1999

CDA 5155 (3 Hrs.) Computer Architecture
MAD 6408 (3 Hrs.) Practical Parallel Algorithms (co-instructor with D. Keyes, Gallivan responsible for approximately 50% of instruction)

Fall 1998

CIS 5930 (3 Hrs.) Introduction to Parallel Programming

Summer 1998

CIS 4900 (3 Hrs.) DIS on Visualization (1 student)
CIS 5900 (3 Hrs.) DIS on Numerical Linear Algebra (1 student)

Spring 1998

CDA 3120 (3 Hrs.) Digital Design
CGS 5266 (3 Hrs.) Digital Design (graduate section)
CIS 4900 (4 Hrs.) DIS Numerical Linear Algebra (1 student)

Fall 1997

CIS 5930 (3 Hrs.) Introduction to Computational Science
CIS 4900 (3 Hrs.) DIS Introduction to Computational Science (1 student)
MAT 5907 (3 Hrs.) DIS on Parallel Processing (1 student)
MAT 6908 (3 Hrs.) DIS on Parallel Processing (1 student)

University of Illinois:

Spring 1997

ECE 362 (3 Hrs.) Logic Design (graduate and undergraduate)

Fall 1996

CS 320 (3 Hrs.) Introduction to Parallel Programming (graduate and undergraduate)

Spring 1996

ECE 362 (3 Hrs.) Logic Design (graduate and undergraduate)

Fall 1995
ECE 497 (3 Hrs.) Numerical Linear Algebra for Signals, Systems and Control (graduate)

Spring 1995
ECE 362 (3 Hrs.) Logic Design (graduate and undergraduate)

Fall 1994
ECE 362 (3 Hrs.) Logic Design (graduate and undergraduate)

Spring 1994
ECE 362 (3 Hrs.) Logic Design (graduate and undergraduate)

Fall 1993
CS 454 (3 Hrs.) Parallel Numerical Linear Algebra (graduate)

Fall 1992
CS 454 (3 Hrs.) Parallel Numerical Linear Algebra (graduate)

Fall 1991
CS 454 (3 Hrs.) Parallel Numerical Linear Algebra (graduate)

Fall 1990
CS 454 (3 Hrs.) Parallel Numerical Linear Algebra (graduate)

Grant, Proposal, White-paper History and Activity

FSU Pending Support

No proposals are pending.

FSU Current and Recent Support:

National Science Foundation

NSF 1934157 *Collaborative Research: CIBR: CloudForest: A Portable Cyberinfrastructure Workflow to Advance Biological Insight from Massive Heterogeneous Phylogenetic Datasets*, Kyle Gallivan (PI) at Florida State University. Funding at Florida State University $231,564 for 36 months. Lead institution University of Minnesota, James Wilgenbusch (PI). Collaborating institution Louisiana State University, Jeremy Brown (PI). Total Funding $982,540. 8/19 – 8/23.

The Swedish Foundation for International Cooperation in Research and Higher Education

- Research Initiation Grant IB 2019-8164 The Swedish Foundation for International Cooperation in Research and Higher Education (STINT). K. A. Gallivan, M. Y. Hussaini, G. Okten at Florida State University and B. Uzunolgu at Uppsala University, Sweden. , Amount $16,000. This grant supports travel of faculty from Uppsala University to Florida State University and vice versa for two meetings aimed to define collaborative research in computational methods for power systems and to pursue a research grant from STINT in Sweden and an appropriate agency in the USA.

Catholic University of Louvain, Belgium

Support for visit to Department of Mathematical Engineering as a Visiting Professor: 2023 (4 weeks), 2019 (4 weeks), 2018 (4 weeks), 2017 (4 weeks).

Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO), The Netherlands

Support for visit to Department of Computer Science, Leiden University, 2018 (4 weeks)

Previous Support:

Northern Gulf Institute

Uncertainty Quantification of Oil Spill Transport K. A. Gallivan (PI) and S. Morey (Co-PI) at FSU. 3/11 - 5/12, $65,615.

National Science Foundation

NSF DBI 1262476 *Collaborative Research: ABI Innovation: Quantifying and Exploiting the Structure of Phylogenetic Tree Space Through Network Analyses*, J. Wilgenbusch (PI) and K. A. Gallivan (Co-PI) at FSU $256,012, 6/13 – 5/17.

NSF CCF 0702435 *Collaborative Research: Flow Sensitive Program Analysis for Speculative Parallelization* R. Van Engelen PI and K. A. Gallivan Co-PI, FSU, 8/07 – 8/11, $300,000 at FSU.

NSF 0430780 *Collaborative Research: A Modern Autofocus Methodology with Applications to Radar Imaging*, D. Munson PI at University of Michigan, M. Do PI at University of Illinois, K. Gallivan consultant at FSU, 8/06 – 8/09.

NSF ACI 0324944 *Collaborative Research: Model Reduction of Dynamical Systems for Real Time Control.* K. Gallivan PI at FSU, 9/03 – 8/08, budget $414,538 at FSU. Medium ITR with Purdue University (A. Sameh PI) and Rice University (D. Sorensen PI) with a total budget of $2.2M.

NSF CCR 0105422 *Improving Symbolic Analysis of Restructuring Compilers*, R. van Engelen PI and K. Gallivan Co-PI at FSU, 9/01 – 8/04, budget $260,000.

NSF CCR 9912415 *Efficient Algorithms for Large Scale Dynamical Systems*, K. Gallivan PI and P. Van Dooren Co-PI at FSU, 09/00–8/04, budget $230,000.

NSF EIA 0072043 *A Comprehensive Retargetable Embedded Systems Software Development Environment*, D. Whalley PI and K. Gallivan Co-PI at FSU, J. Davidson PI at University of Virginia, D. Jones PI at University of Illinois at Urbana-Champaign, 010/00–9/05, FSU portion of budget $800,000.

NSF ASC 9872140 *Interactive Concurrent Visualization of Unsteady Flow on Parallel Architectures* M. Y. Hussaini PI at FSU (CSIT group proposal – Erlebacher, Gallivan, Hussaini and Woodruff), Period: 1/99 – 12/02, Amount $450,566.

NSF CCR 9619596 *High Performance Computing for Large Scale Dynamical Systems* from the National Science Foundation. K.A. Gallivan (PI) and P. M. Van Dooren (Co-PI), Period: 02/97 – 02/01, Amount:$130,000 (renumbered CCR 9796315 on transfer to FSU)

NSF CCR 9120105 *Hierarchically Parallel Algorithms for Portable and Scalable Performance.* K.A. Gallivan and E. Gallopoulos (Co-PI's), Period: 05/92 – 04/96, Amount:$178,972, University of Illinois.

NSF CCR 9120105 *Hierarchically Parallel Algorithms for Portable and Scalable Performance.* Addendum to National Science Foundation grant for international travel and research cooperation – $8500.

Army Research Office

Innovative Computational Methods for Inverse Problems in Optical and SAR Imaging, Army Research Office, R. Plemmons PI at Wake Forest University, 07/00 – 4/02, budget $203,043. Gallivan was paid through Wake Forest University not FSU on this grant (1 month support per year).

DARPA

Grant 60NANB2D1272 *Computational Algorithms for Scalable Libraries.* Period: 08/92 – 07/97, Amount:$1,413,000 Multiple Co-PI grant involving the University of Minnesota and the University of Illinois. Gallivan was Co-PI and later PI on the University of Illinois portion.

Lawrence Livermore National Laboratory

Support for visits to Center for Advanced Scientific Computation, 2001 (2 weeks), 2000 (3 weeks), and 1999 (3 weeks)

NATO

Summer 1998 Support to attend NATO Advanced Study Institute on Error Control and Adaptivity in Scientific Computations, Antalya, Turkey.

IBM

1997 IBM Faculty Partnership Award : $20,000.

1995 IBM Faculty Partnership Award: $11,000.

Sandia National Laboratory

Support for visits to Computational Mathematics and Algorithms Department, 2006 (1 weeks) and 2005 (2 weeks)

Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO), The Netherlands

Support for visit to Department of Computer Science, Leiden University, 2012 (4 weeks), 2010 (2 weeks), 2007 (2 weeks), 2006 (2.5 weeks)

Catholic University of Louvain,Belgium

Support for visit to Department of Mathematical Engineering as Visiting Professor: 2016 (4 weeks), 2011 (4 weeks), 2010 (4 weeks), 2009 (4 weeks), 2008 (4 weeks), 2007 (4 weeks), 2006 (1 week), 1998 (1 week)

Leiden University, The Netherlands

Support for visit to Department of Computer Science, 2012 Pascal Chair in Faculty of Sciences (4 weeks)

Department of Computer Science, 2000(2.5 weeks), 1998 (2 weeks), 1995 (3 weeks), and 1994 (3 weeks)

Declined Proposals:

- National Science Foundation Proposal to DMS - AMPS Algorithms for Modern Power Systems **NSF DMS 1923149** *AMPS: Implicit particle filters for distributed multilevel state estimation of power systems*, K. A. Gallivan (PI), M. Y. Hussaini (Co-PI), B. Uzunolglu (Co-PI). Funding Request $355,236 for 36 months, DECLINED, 2019.

  Collaborative Research: ABI Development: Next-level phylogenetic insight through the integration of inference, data exploration, and supercomputing, K. A. Gallivan (PI) at FSU, National Science Foundation, $273, 931 for 3 years, DECLINED, 2018.

  Implicit Particle Filters for Multilevel Distributed State Estimation of Power Systems. K. A. Gallivan (PI), M. Y. Hussaini (CoPI), B. Uzunolglu (CoPI), National Science Foundation, $332,304 for 3 years, DECLINED, 2016.

  Optimization on manifolds: numerical techniques and applications, K. A. Gallivan (PI) and P.-A. Absil (Co-PI) at FSU, National Science Foundation, $232,396, DECLINED, 2011.

  AF: Medium: Collaborative Research: Sparse Matrix Computations for Exascale Architectures, K. A. Gallivan (PI) at FSU, National Science Foundation, $297,669, collaboration with A. H. Sameh (PI at Purdue), DECLINED, 2011.

  MRI-R2: Collaborative Acquisition of High-performance Storage and Visualization Infrastructure, K. A. Gallivan (Co-PI), E. Chassignet (Co-PI), T. M. Logan (Co-PI), R. Van Engelen (Co-PI), J. Wilgenbusch (Co-PI) at FSU, National Science Foundation, $414,153 DECLINED, 2009.

  Petascale-enabled simulation and control in aeroacoustics, M. Y. Hussaini (PI), K. A. Gallivan (Co-PI), R. Van Engelen (Co-PI) at FSU, National Science Foundation, $1,363,386, DECLINED, 2008.

  Optimization on manifolds: numerical techniques and applications, K. A. Gallivan (PI) and P.-A. Absil (Co-PI) at FSU, National Science Foundation, $299,123, DECLINED, 2008.

  Computation of geophysical flows using vorticity confinement, M. Y. Hussaini (PI), K. A. Gallivan (Co-PI), E. Chassignet (Co-PI) at FSU, National Science Foundation, $461,249, DECLINED, 2008.

  Petascale-enabled simulation and control in aeroacoustics, M. Y. Hussaini (PI), K. A. Gallivan (Co-PI), D. Kopriva (Co-PI), R. Van Engelen (Co-PI) at FSU, National Science Foundation, $1,324,055, DECLINED, 2007.

New Compiler Techniques for Run-time Analysis and Resource Management of Recursive and/or Divide and Conquer Applications. K. A. Gallivan (PI) and R. Van Engelen (Co-PI) at FSU, National Science Foundation, collaborative research with A. Veidenbaum PI at University of California at Irvine and C. polychronopoulos PI at University of Illinois at Urbana-Champaign, DECLINED, 2006.

Development of Mathematical Tools to Support Visual Data Analysis, K. A. Gallivan (PI) at FSU, subcontract from University of Tennessee, Department of Energy, $120,000, DECLINED, 2008.

University Service Activities

External Student Examination Committees

Ph.D. co-advisor for S. Dong (Ph.D. 2021) Department of Mathematical Engineering, Catholic University Louvain, Louvain-La-Neuve, Belgium, Ph.D. advisor Prof. P. Absil

External Examiner on Doctoral Committee for Emilie Renard, Department of Mathematical Engineering Catholic University of Louvain, Belgium, 2019.

External Examiner on Doctoral Committee for Mattias Holm, Leiden Institute for Advanced Computer Science, University of Leiden, Leiden, The Netherlands, 2013.

External Examiner on Doctoral Committee for Vu Van Thieu, Leiden Institute for Advanced Computer Science, University of Leiden, Leiden, The Netherlands, 2012.

External Examiner on Doctoral Committee for Tran Ngoc Minh, Leiden Institute for Advanced Computer Science, University of Leiden, Leiden, The Netherlands, 2012.

External Examiner on Doctoral Committee for Antoine Vandendorpe, Department of Mathematical Engineering, Catholic University of Louvain, Louvain-la-Neuve, Belgium, 2004.

External Examiner on Doctoral Committee for Michel Chaudron, Leiden Institute for Advanced Computer Science, University of Leiden, Leiden, The Netherlands, 1997.

Florida State University Department of Mathematics Examination Committees

Ph.D. Defense Committee co-chair for Y. Zhou (Ph.D., 2023), co-advisor with Prof. A. Barbu (Dept. of Statistics), Department of Mathematics, FSU, 2023.

Ph.D. Defense Committee chair for M. Wei (Ph.D., 2023) Department of Mathematics, FSU, 2023.

Candidacy Examination Committee chair for Y. Shen (Ph.D. candidate) Department of Mathematics, FSU, 2022.

Prospectus Examination Committee co-chair for Y. Zhou (Ph.D. candidate), co-advisor with Prof. A. Barbu (Dept. of Statistics), Department of Mathematics, FSU, 2022.

Ph.D. Defense Committee for Y. Chen, Department of Mathematics, chair Prof. G. Okten, Department of Mathematics, FSU, 2022.

Ph.D. Defense Examination Committee for H. Wang (Ph.D. 2022) chair Prof. L.

Zhu, Department of Mathematics, FSU, 2022.
Ph.D. Defense Examination Committee co-chair for H. Huang (Ph.D. 2021) advisor Prof. A. Barbu (Dept. of Statistics), Department of Mathematics, FSU, 2021.
Candidacy Examination Committee co-chair (w/ A. Barbu Dept. of Statistics) for Y. Zhou (Ph.D. candidate) Department of Mathematics, FSU, 2020.
Candidacy Examination Committee chair for T. Natu (Ph.D. candidate) Department of Mathematics, FSU, 2020.
Prospectus Examination Committee for H. Wang (Ph.D. candidate) chair Prof. L. Zhu, Department of Mathematics, FSU, 2020.
Prospectus Examination Committee co-chair for H. Huang (Ph.D. candidate) advisor Prof. A. Barbu (Dept. of Statistics), Department of Mathematics, FSU, 2020.
Ph.D. Defense Examination Committee co-chair for Y. Guo (Ph.D. 2020) advisor Prof. A. Barbu (Dept. of Statistics), Department of Mathematics, FSU, 2020.
Ph.D. Defense Examination Committee co-chair for O. Akal (Ph.D. 2020) advisor Prof. A. Barbu (Dept. of Statistics), Department of Mathematics, FSU, 2020.
Ph.D. Defense Examination Committee for Y. Liu (Ph.D. 2020) chair Prof. M. Sussman, Department of Mathematics, FSU, 2020.
Prospectus Examination Committee for Y. Liu (Ph.D. candidate) chair Prof. M. Sussman, Department of Mathematics, FSU, 2020.
Prospectus Examination Committee co-chair for O. Akal (Ph.D. candidate) advisor Prof. A. Barbu (Dept. of Statistics), Department of Mathematics, FSU, 2020.
Ph.D. Defense Examination Committee for F. Liu (Ph.D. 2019) advisor Prof. M. Sussman, Department of Mathematics, FSU, 2019.
Prospectus Examination Committee co-chair for Y. Guo (Ph.D. candidate) advisor Prof. A. Barbu (Dept. of Statistics), Department of Mathematics, FSU, 2019.
Candidacy Examination Committee co-chair (with F. Bao) for X. Li (Ph.D. candidate) Department of Mathematics, FSU, 2019.
Candidacy Examination Committee chair for Z. Deng (Ph.D. candidate) Department of Mathematics, FSU, 2019.
Candidacy Examination Committee chair for S. Zhang (Ph.D. candidate) Department of Mathematics, FSU, 2018.
Candidacy Examination Committee chair for M. Wei (Ph.D. candidate) Department of Mathematics, FSU, 2018.
Ph.D. Final Defense Examination Committee chair for X. Yuan (Ph.D., 2018) Department of Mathematics, FSU, 2018.
Ph.D. Final Defense Examination Committee chair for Y. You (Ph.D., 2018) Department of Mathematics, FSU, 2018.
Ph.D. Final Defense Examination Committee chair for G. Dawer (Ph.D. 2018) advisor Prof. A. Barbu (Dept. of Statistics), Department of Mathematics, FSU, 2018.
Prospectus Examination Committee chair for X. Yuan (Ph.D. candidate) Department of Mathematics, FSU, 2018.
Prospectus Examination Committee chair for G. Dawer (Ph.D. candidate) advisor Prof. A. Barbu (Dept. of Statistics), Department of Mathematics, FSU, 2018.
Prospectus Examination Committee chair for Y. You (Ph.D. candidate) Department of Mathematics, FSU, 2018.
Candidacy Examination Committee for H. Wang (Ph.D., candidate) advisor Prof. L. Zhu, Department of Mathematics, FSU, 2018.

Candidacy Examination Committee for Y. Chen (Ph.D., candidate) advisor Prof. G. Okten, Department of Mathematics, FSU, 2018.
Ph.D. Final Defense Examination Committee chair for M. Marchand (Ph.D., 2017) Department of Mathematics, FSU, 2017.
Ph.D. Final Defense Examination Committee for J. Li (Ph.D., 2017), chair Prof. N. Cogan, Department of Mathematics, FSU, 2017.
Candidacy Examination Committee for O. Akal (Ph.D., candidate) advisor Prof. A. Barbu, Department of Statistics, FSU, 2017.
Ph.D. Final Defense Examination Committee chair for L. Tai (Ph.D., 2017) Department of Mathematics, FSU, 2017.
Candidacy Examination Committee for Y. Liu (Ph.D., candidate) chair Prof. M. Sussman, Department of Mathematics, FSU, 2016.
Prospectus Examination Committee chair for L. Tai (Ph.D. candidate) Department of Mathematics, FSU, 2016.
Candidacy Examination Committee for G. Dawer (Ph.D. candidate) Department of Mathematics, FSU, 2016.
Candidacy Examination Committee chair for X. Yuan (Ph.D. candidate) Department of Mathematics, FSU, 2015.
Candidacy Examination Committee chair for Y. You (Ph.D. candidate) Department of Mathematics, FSU, 2015.
Ph.D. Final Defense Examination chair for G. Zhou (Ph.D., 2015), Department of Mathematics, FSU, 2015.
Ph.D. Final Defense Examination Committee for L. Xu¡ (Ph.D., 2015), chair Prof. G. Okten, Department of Mathematics, FSU, 2015.
Prospectus Examination Committee for D. Han (Ph.D. candidate) chair Prof. X. Wang, Department of Mathematics, FSU, 2015.
Candidacy Examination Committee for Z. Li chair Prof. C. Tam, Department of Mathematics, FSU, 2014.
Prospectus Examination Committee chair for G. Zhou (Ph.D. candidate) Department of Mathematics, FSU, 2014.
Ph.D. Final Defense Examination Committee for M. Jemison (Ph.D., 2014) chair Prof. M. Sussman, Department of Mathematics, FSU, 2014.
Candidacy Examination Committee for S. Lahiri (Ph.D. candidate) chair Prof. E. Klassen, Department of Mathematics, FSU, 2014.
Ph.D. Final Defense Examination Committee for A. Winters (Ph.D., 2014) chair Prof. D. Kopriva, Department of Mathematics, FSU, 2014.
Prospectus Examination Committee for M. Jemison (Ph.D. candidate) chair Prof. M. Sussman, Department of Mathematics, FSU, 2014.
Candidacy Examination Committee chair for M. Marchand (Ph.D. candidate) Department of Mathematics, FSU, 2013.
Candidacy Examination Committee chair for L. Tai (Ph.D. candidate) Department of Mathematics, FSU, 2013.
Ph.D. Final Defense Examination Committee chair for W. Huang (Ph.D., 2014) Department of Mathematics, FSU, 2013.
Candidacy Examination Committee member for O. Khanmohamadi, chair M. Y. Hussaini, Department of Mathematics, FSU, 2013.
Prospectus Examination Committee for J. Custer (Ph.D., did not complete) chair Prof. D. Kopriva, Department of Mathematics, FSU, 2012.

Candidacy Examination Committee for D. Han (Ph.D. candidate) chair Prof. X. Wang, Department of Mathematics, FSU, 2012.
Prospectus Examination Committee chair for W. Huang (Ph.D. candidate) Department of Mathematics, FSU, 2012.
Prospectus Examination Committee for C. Woordruff (Ph.D. candidate) chair Prof. X. Wang, Department of Mathematics, FSU, 2012.
Prospectus Examination Committee for A. Winters (Ph.D. candidate) chair Prof. D. Kopriva, Department of Mathematics, FSU, 2012.
Candidacy Examination Committee chair for G. Zhou (Ph.D. candidate) Department of Mathematics, FSU, 2012.
Candidacy Examination Committee for A. Winters (Ph.D. candidate) chair Prof. D. Kopriva, Department of Mathematics, FSU, 2011.
Candidacy Examination Committee for M. Jemison (Ph.D. candidate) chair Prof. M. Sussman, Department of Mathematics, FSU, 2011.
Candidacy Examination Committee for M. Arshad (Ph.D. candidate) chair Prof. P. Bowers, Department of Mathematics, FSU, 2011.
Ph.D. Final Defense Examination Committee for Q. Li (Ph.D., 2011) chair Prof. G. Erlebacher, Department of Mathematics FSU, 2011.
Ph.D. Final Defense Examination Committee chair for C.-H. Qi (Ph.D., 2011) Department of Mathematics, FSU, 2011.
Ph.D. Final Defense Examination Committee for P. Lepoudre (Ph.D., 2011) chair Prof. C. Tam, Department of Mathematics FSU, 2011.
Ph.D. Final Defense Examination Committee for A. Duffy (Ph.D., 2011) chair Prof. M. Sussman, Department of Mathematics, FSU, 2011.
Ph.D. Final Defense Examination Committee for M. Willyard (Ph.D., 2011) chair Prof. D. Kopriva, Department of Mathematics, FSU, 2011.
Candidacy Examination Committee chair for W. Huang (Ph.D. candidate) Department of Mathematics, FSU, 2010.
Candidacy Examination Committee for C. Woordruff (Ph.D. candidate) Department of Mathematics, FSU, 2010.
Prospectus Examination Committee chair for C.-H. Qi (Ph.D. candidate) Department of Mathematics, FSU, 2010.
Candidacy Examination Committee chair for Y.-Y. Tang (Ph.D. candidate) Department of Mathematics, FSU, 2008.
Prospectus Examination Committee for M. Willyard (Ph.D. candidate) chair Prof. D. Kopriva, Department of Mathematics, FSU, 2008.
Candidacy Examination Committee chair for C.-H. Qi (Ph.D. candidate) Department of Mathematics FSU, 2008.
Ph.D. Final Defense Examination Committee for J. Zhang (Ph.D., 2007) chair Prof. A. Kercheval, Department of Mathematics FSU, 2007.
Ph.D. Final Defense Examination Committee for C. Webster (Ph.D., 2007) chair Prof. M. Gunzburger, Department of Mathematics FSU, 2007.
Prospectus Examination Committee for J. Demarco (Ph.D. candidate) chair Prof. D. Kopriva, Department of Mathematics FSU, 2007.
Prospectus Examination Committee for P. Lepoudre (Ph.D. candidate) chair Prof. C. Tam, Department of Mathematics FSU, 2007.
Prospectus Examination Committee for C. Webster (Ph.D. candidate) chair Prof. M. Gunzburger, Department of Mathematics FSU, 2006.

Advanced Topic Examination Committee member for P. Lepoudre (Ph.D. candidate) chair Prof. C. Tam, Department of Mathematics FSU, 2006.

Florida State University Department of Mechanical Engineering Examination Committees

Ph.D. Final Defense Examination Committee member for P. Woemer (Ph.D., 2018), chair Prof. W. Oates, Department of Mechanical Engineering FSU, 2018.

Florida State University School of Computational Science and Department of Scientific Computing Examination Committees

Ph.D. Final Defense Examination Committee University Representative for N. Crock (Ph.D. 2020) Department of Scientific Computing, FSU, 2020.
Prospectus Examination Committee University Representative for N. Crock (Ph.D. candidate) Department of Scientific Computing, FSU, 2020.
Prospectus Examination Committee for H. Ashki (Ph.D. candidate) Department of Scientific Computing, FSU, 2012.
Ph.D. Final Defense Examination Committee for G. Womeldorff (Ph.D. 2011) Department of Scientific Computing, FSU, 2011.
Prospectus Examination Committee for G. Womeldorff (Ph.D. candidate) Department of Scientific Computing, FSU, 2009.
Ph.D. Final Defense Examination Committee chair for C. Baker (Ph.D., 2008) School of Computational Science, FSU, 2008.
Qualifying Examination Committee for P. Seleson, School of Computational Science FSU, 2008.
Qualifying Examination Committee for J. Hossen, School of Computational Science FSU, 2008.
Ph.D. Final Defense Examination Committee member for J. Burgy (Ph.D., 2003), chair Prof. E. Dagatto, Department of Physics, FSU.
Prospectus Examination Committee member for J. Burgy (Ph.D. candidate), chair Prof. E. Dagatto, Department of Physics, FSU, 2001.

Florida State University Department of Computer Science Examination Committees

Ph.D. Final Defense Examination Committee University Representative for A. Naser (Ph.D. 2022) chair Prof. X. Yuan, Department of Computer Science, FSU, 2022.
Ph.D. Final Defense Examination Committee University Representative for Z. Alzaid (Ph.D. 2020) chair Prof. X. Yuan, Department of Computer Science, FSU, 2020.
Prospectus Examination Committee University Representative for Z. Alzaid (Ph.D. candidate) chair Prof. X. Yuan, Department of Computer Science, FSU, 2020.
Area Examination Committee University Representative for A. Naser, chair Prof. X. Yuan, Department of Computer Science, FSU, 2020.
Area Examination Committee University Representative for Z. Alzaid, chair Prof. X. Yuan, Department of Computer Science, FSU, 2018.
Ph.D. Final Defense Examination Committee University Representative for W.

Nienaber (Ph.D. 2013) chair Prof. X. Yuan, Department of Computer Science, FSU, 2013.
Prospectus Examination Committee University Representative for W. Nienaber (Ph.D. candidate) chair Prof. X. Yuan, Department of Computer Science, FSU, 2013.
Area Examination Committee University Representative for W. Nienaber chair Prof. X. Yuan, Department of Computer Science, FSU, 2012.
Ph.D. Final Defense Examination Committee member for A. Faraj (Ph.D., 2006) chair Prof. X. Yuan, Department of Computer Science, FSU, 2006.
Prospectus Examination Committee member for P. Patarasuk (Ph.D. candidate) chair Prof. X. Yuan, Department of Computer Science, FSU, 2006.
Prospectus Examination Committee for B. Walsh (Ph.D. candidate) co-chair with Prof. R. Van Engelen, Department of Computer Science, FSU, 2006.
Ph.D. Final Defense Examination Committee member for G. Jakimoski (Ph.D., 2006) chair Prof. Y. Desmedt, Department of Computer Science, FSU, 2006.
Prospectus Examination Committee member for A. Faraj (Ph.D. candidate) chair Prof. X. Yuan, Department of Computer Science, FSU, 2005.
Area Examination Committee chair for C. Baker, Department of Computer Science, FSU, 2005.
Examination Committee for Q. Zhang (M.S., 2005) chair Prof. X. Liu, Department of Computer Science, FSU, 2004.
Prospectus Examination Committee member for G. Jakimoski (Ph.D. candidate) chair Prof. Y. Desmedt, Department of Computer Science, FSU, 2004.
Examination Committee chair for C. Baker¡ (M.S., 2004) Department of Computer Science, FSU, 2004.
Examination Committee chair for J. Slone (B.S. with honors, 2004) Department of Computer Science, FSU, 2004.
Examination Committee member for S. Kulkarni (M.S., 2004) chair Prof. R. Van Engelen, Department of Computer Science, FSU, 2004.
Area Survey Examination Committee member for Y. Shou, chair Prof. R. Van Engelen, Department of Computer Science, FSU, 2004.
Area Survey Examination Committee member for G. Jakimoski, chair Prof. Y. Desmedt, Department of Computer Science, FSU, 2004.
Ph.D. Final Defense Examination Committee member for T. Le (Ph.D., 2004) chair Prof. Y. Desmedt, Department of Computer Science, FSU, 2004.
Area Survey Examination Committee member for J. Birch, chair Prof. R. Van Engelen, Department of Computer Science, FSU, 2003.
Area Survey Examination Committee member for B. Walsh, co-chair with Prof. R. Van Engelen, Department of Computer Science, FSU, 2003.
Examination Committee member for P. Kulkarni (M.S., 2003) chair Prof. D. Whalley, Department of Computer Science, FSU.
Examination Committee member for A. Karwande (M.S., 2003) chair Prof. X. Yuan, Department of Computer Science, FSU.
Examination Committee member for C. Hesher (M.S., 2003) co-chairs Prof. G. Erlebacher and Prof. A. Srivastava, Department of Computer Science, FSU.
Ph.D. Final Defense Examination Committee member for A. Strotmann (Ph.D., 2003) chair Prof. L. Kohout, Department of Computer Science, FSU.
Area Survey Examination Committee member for W. Zhao, chair Prof. D. Whal-

ley, Department of Computer Science, FSU, 2003.
Examination Committee member for A. Faraj (M.S., 2002) chair Prof. X. Yuan, Department of Computer Science, FSU.
Examination Committee member for J. Birch (M.S., 2002) chair Prof. R. Van Engelen, Department of Computer Science, FSU.
Prospectus Examination Committee member for A. Strotmann (Ph.D. candidate) chair Prof. L. Kohout, Department of Computer Science, FSU, 2002.
Prospectus Examination Committee member for T. Le (Ph.D. candidate) chair Prof. Y. Desmedt, Department of Computer Science, FSU, 2002.
Area Survey Examination Committee member for T. Le, chair Prof. Y. Desmedt, Department of Computer Science, FSU, 2001.
Examination Committee member for C. Chi (M.S., 2001) chair Prof. R. Van Engelen, Department of Computer Science, FSU.
Examination Committee member for S. Pant (M.S., 2001) chair Prof. R. Van Engelen, Department of Computer Science, FSU.
Area Survey Examination (first attempt) Committee member for Y. Li, chair Prof. M. Mascagni, Department of Computer Science, FSU, 2001.
Examination Committee member for D. Snyder (M.S., 2001) co-chair with Prof. R. Van Engelen, Department of Computer Science, FSU.
Examination Committee member for G. Gupta (M.S., 2000) chair Prof. R. Van Engelen, Department of Computer Science, FSU.
Examination Committee member for Y. Li (M.S., 2000) chair Prof. M. Mascagni Department of Computer Science, FSU.
Ph.D. Final Defense Examination Committee member for S. Eaves(Ph.D., 2000), chair Prof. G. Riccardi, Department of Computer Science, FSU.
Ph.D. Final Defense Examination Committee member for H. Tu (Ph.D. 1999), chair Prof. Lois Hawkes, Department of Computer Science, FSU.
Ph.D. Final Defense Examination Committee member for C. Healy (Ph.D. 1999), chair Prof. D. Whalley, Department of Computer Science, FSU.
Examination Committee member for M. Yang (M.S. 1997), chair Prof. D. Whalley, Department of Computer Science, FSU.

Florida State University Department of Statistics Examination Committees

Prospectus Examination Committee for K. Han (Ph.D. candidate), chair Prof. A. Barbu, Department of Statistics, FSU, 2023.
Ph.D. Final Defense Examination Committee member for S. Chung (Ph.D. 2014), chair Prof. X. Niu, Department of Statistics, FSU, 2014.
Ph.D. Final Defense Examination Committee member for D. Bryner (Ph.D. 2014), chair Prof. A. Srivastava, Department of Statistics, FSU, 2013.
Prospectus Examination Committee member for D. Bryner (Ph.D. candidate), chair Prof. A. Srivastava, Department of Statistics, FSU, 2013.
Prospectus Examination Committee member for S. Chung (Ph.D. candidate), chair Prof. X. Niu, Department of Statistics, FSU, 2012.

Florida State University Department of Electrical Engineering Examination Committees

Prospectus Examination Committee for W. Wang (Ph.D. candidate) chair Prof. V. DeBrunner , Department of Electrical Engineering FSU, 2022.

Ph.D. Final Defense Examination Committee member for P. Xi (Ph.D., 2017), chair Prof. V. DeBrunner , Department of Electrical Engineering FSU, 2017.

Prospectus Examination Committee for P. Xi (Ph.D. candidate) chair Prof. V. DeBrunner , Department of Electrical Engineering FSU, 2016.

Florida State University College and University Service

2023 Promotion and Tenure Committee for the College of Arts and Sciences
2023 Promotion and Tenure Committee for the Science Area
2019 FSU High Performance Computing Advisory Panel
2018 FSU High Performance Computing Advisory Panel
2017 FSU High Performance Computing Advisory Panel
2016 FSU High Performance Computing Advisory Panel
2015 FSU High Performance Computing Advisory Panel
2014 FSU High Performance Computing Advisory Panel
2013 FSU Postdoctoral Research Symposium Poster Judge
2013 Science Area Promotion and Tenure Committee
2012 Science Area Promotion and Tenure Committee
2012 College of Arts and Sciences Promotion and Tenure Committee
2012 University Promotion and Tenure Committee
2012 FSU High Performance Computing Advisory Panel
2011 FSU High Performance Computing Advisory Panel
2010 FSU High Performance Computing Advisory Panel
2009 Dean of Arts and Sciences Committee of Inquiry (chair)
2009 FSU High Performance Computing Advisory Panel
2008 FSU High Performance Computing Advisory Panel
2007 FSU High Performance Computing Advisory Panel
2003/04 Graduate Policy Committee – subcommittee to review the Department of Statistics
2003/04 Science Area Doctoral Directive Status Committee
2003/04 Science Area Promotion and Tenure Committee
2001/02 Science Area Doctoral Directive Status Committee
2001/02 Science Area Promotion and Tenure Committee
2001/02 College of Arts and Sciences Promotion and Tenure Committee
2001/02 University Promotion and Tenure Committee
2000/01 Science Area Promotion and Tenure Committee
2000/01 College of Arts and Sciences Promotion and Tenure Committee
2000/01 University Promotion and Tenure Committee

Florida State University Department of Mathematics Service

Faculty Evaluation Committee (2023)
Senator (2023) Executive Committee (2022)
Senator (2022)

Faculty Evaluation Committee (2022)
Executive Committee (2021)
Faculty Evaluation Committee (2021)
2021 January, April and August Foundations of Computational Mathematics Qualifying Examination Committee (3 sessions due to COVID accommodations)
2020 (Spring 2020 only) Director of Applied and Computational Mathematics
2020 Spring and Fall Foundations of Computational Mathematics Qualifying Examination Committee
2020 ACM Graduate Admissions Committee
Executive Committee (begining Fall 2020)
Faculty Evaluation Committee (begining Fall 2020)
2019 ACM Graduate Admissions Committee (chair)
2019 Spring and Fall Foundations of Computational Mathematics Qualifying Examination
2019 Director of Applied and Computational Mathematics
2019 ACM Graduate Admissions Committee (chair)
2018 Spring and Fall Foundations of Computational Mathematics Qualifying Examination
2018 Director of Applied and Computational Mathematics
2018 ACM Hiring Committee (chair)
2018 ACM Graduate Admissions Committee (chair)
2017 ACM Graduate Admissions Committee (chair)
2017 Fall Foundations of Computational Mathematics Qualifying Examination Committee
2017 Spring Foundations of Computational Mathematics Qualifying Examination Committee
2017 Director of Applied and Computational Mathematics
2016 Director of Applied and Computational Mathematics
2016 (Spring) Executive Committee
2016 Fall Foundations of Computational Mathematics Qualifying Examination Committee
2016 Spring Foundations of Computational Mathematics Qualifying Examination Committee
2015 Executive Committee
2015 Director of Applied and Computational Mathematics
2015 Spring Foundations of Computational Mathematics Qualifying Examination Committee
2015 Applied and Computational Mathematics Search Committee (chair)
2014 Director of Applied and Computational Mathematics
2014 Executive Committee
2014 Chair Nomination Committee (chair)
2014 Fall Foundations of Computational Mathematics Qualifying Examination Committee
2014 Applied and Computational Mathematics Search Committee
2014 Spring Foundations of Computational Mathematics Qualifying Examination Committee
2013 Analysis/Computational Mathematics Search Committee (chair)
2013 Fall Foundations of Computational Mathematics Qualifying Examination

Committee
2013 Executive Committee
2013 Director of Applied and Computational Mathematics
2013 Faculty Evaluation Committee
2012 Director of Applied and Computational Mathematics
2012 Executive Committee
2012 Provost's Quality Enhancement Review Committee
2012 Faculty Evaluation Committee
2012 Fall Foundations of Computational Mathematics Qualifying Examination Committee
2012 Spring Foundations of Computational Mathematics Qualifying Examination Committee
2011 Fall Foundations of Computational Mathematics Qualifying Examination Committee
2011 Spring Foundations of Computational Mathematics Qualifying Examination Committee
2010 Fall Foundations of Computational Mathematics Qualifying Examination Committee
2010 Spring Foundations of Computational Mathematics Qualifying Examination Committee
2011 Chair Nominating Committee
2011/12 Graduate Admissions Committee
2010/11 Graduate Admissions Committee
2010/11 Faculty Senate Representative
2010 Fall Foundations of Computational Mathematics Qualifying Examination Committee
2010 Spring Foundations of Computational Mathematics Qualifying Examination Committee
2010 Chair Nominating Committee
2009/10 Faculty Senate Representative
2009 Fall Foundations of Computational Mathematics Qualifying Examination Committee
2009 Spring Foundations of Computational Mathematics Qualifying Examination Committee
2008 Fall Foundations of Computational Mathematics Qualifying Examination Committee

Florida State University, School of Computational Science Service
2007/08 Qualifying Examination Committee
2007/08 Faculty General Committee (chair)
2007/08 Local Systems Committee
2006/07 SCS and Department of Statistics Search Committee (chair)
2006/07 Department of Statistics Search Committee
2006/07 Local Systems Committee
2006/07 Faculty General Committee (chair)
2005/06 Faculty General Committee (chair)
2005/06 Author of Draft of SCS By-laws

2005/06 Mechanical Engineering/SCS Search Committee
2005/06 Local Systems Committee
2005/06 Supercomputer Users Committee
2004/05 Academic Activities Committee
2004/05 Supercomputer Users Committee
2004/05 SCS By-laws Committee (chair)
2004/05 Faculty Development Committee
2004/05 Local Systems Committee
2003/04 Supercomputer Users Committee
2003/04 CSIT Local Systems Committee
2002/03 CSIT/Meterology Search Committee
2002/03 CSIT/Statistics Search Committee
2002/03 Applied Mathematics Curriculum Committee (CSIT representative during curriculum modification activity)
2002/03 Supercomputer Users Committee
2001/02 Supercomputer Users Committee
Computing Sciences Program Director
Co-associate Director for Education
2000/01 Computational Biochemistry Search Committee
2000/01 National Science Foundation Institute for Mathematical Science Proposal Committee
1999/00 Supercomputer Acquisition Committee
1999/00 CSIT Fellowship Selection Committee
1999/00 CSIT Curriculum Committee
1998/99 Department of Psychology Computational Psychology Hiring Committee

Florida State University Department of Computer Science Service

2007/08 Department of Computer Science Graduate Curriculum Committee
2006/07 Department of Computer Science Graduate Curriculum Committee
2005/06 Department of Computer Science Graduate Curriculum Committee
2004/05 Department of Computer Science Chair Review Committee
2004/05 Department of Computer Science Graduate Curriculum Committee
2001/02 Department of Computer Science Ph.D. Portfolio Review Committee
2001/02 Department of Computer Science Curriculum Committee
2000/01 Department of Computer Science Faculty Evaluation Committee (chair)
2000/01 Department of Computer Science Curriculum Committee
2000/01 Department of Computer Science Space Committee
2000/01 Department of Computer Science Ph.D. Portfolio Review Committee
1999/00 Department of Computer Science Faculty Recruiting Committee
1999/00 Department of Computer Science Faculty Evaluation Committee
1999/00 Department of Computer Science Curriculum Committee
1999/00 Department of Computer Science Ph.D. Portfolio Review Committee
1999/00 Department of Computer Science Space Committee
1998/99 Department of Computer Science Faculty Recruiting Committee
1998/99 Department of Computer Science TA/RA Salary Committee

University of Illinois Committees

University Senate Library Committee
College of Engineering Computational Science and Engineering Committee
Chair of College of Engineering Ad Hoc Committee to review proposed courses CS 320, CS 370, and CS 450
Department of Electrical and Computer Engineering Fellowship Committee
Department of Electrical and Computer Engineering Computational Science and Engineering Area Chair
Department of Electrical and Computer Engineering Computer Resources and Education Committee
Spokesman for Center for Supercomputing Research and Development Steering Committee
Examination Committee member for G. Harikumar (Ph.D., 1997), chairman Prof. Y. Bresler, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign.
Examination Committee member for P. Feng (Ph.D., 1997), chairman Prof. Y. Bresler, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign.
Examination Committee member for A. Kulkarni (Ph.D., 1996), chairman Prof. M. A. Pai, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign.
Examination Committee member for L. DeRose (Ph.D., 1996), chairman Prof. D. Padua, Department of Computer Science, University of Illinois at Urbana-Champaign.
Examination Committee member for J. Robichaux (Ph.D.,1995), chairman Prof. P. Vanka, Department of Mechanical Engineering, University of Illinois at Urbana-Champaign.
Examination Committee member for C. Lu (Ph.D., 1995), chairman Prof. W. Chew , Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign.
Examination Committee member for T. Davis (Ph.D., 1989), chairman Prof. P.C. Yew, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign.
Examination Committee member for F.-L. Juang (Ph.D., 1989), chairman Prof. C. W. Gear, Department of Computer Science, University of Illinois at Urbana-Champaign.

Professional Service Activities

Conference and Workshop Organization:
General Co-chair of ACM International Conference on Supercomputing 2023.
Co-organizer for the Workshop on Energy Security and Hurricane Disaster Resilience for Florida's Power System, January 21 and 22, 2020. Funding from STINT (Sweden), MREP – Department of Mathematics, College of Arts and Sciences, Center for Ocean and Atmospheric Prediction Studies, Department of Civil Engineering, City of Tallahassee. First part held January 21 and 22, 2020 at FSU.

Second part at Uppsala University delayed due to COVID restrictions
http://www.computationalrenewables.com/Florida%20Power%20System%20Hurricane.html

Promotion/Tenure/Faculty Evaluation Referree:
University of Arkansas at Little Rock, Department of Computer Science, 2012
Wilfrid Laurier University, Department of Physics and Computer Science, Waterloo, Ontario, Canada, 2009
Texas A and M University, Department of Computer Science, 2004
University of Maryland, Baltimore County, Department of Mathematics and Statistics, 2004
University of Wyoming, Department of Mathematics, 2004
College of William and Mary, Department of Computer Science, 2003
University of Maryland, Baltimore County, Department of Mathematics and Statistics, 2003

Grant Proposal Referree:
Reviewer for the National Research and Development Agency of the Ministry of Science, Technology, Knowledge and Innovation of Chile, 2023 Reviewer for the European Research Council Starting Grants in the Exascale Computing category, 2022
Reviewer for Research Council of Katholieke Universiteit (KU) Leuven, Belgium, 2021

Publication Referree:
Reviewer for Mathematical Programing Computation, 2023
Reviewer for SIAM Journal of Scientific Computing, 2020
Plagiarism Review Referee for SIAM Journal of Scientific Computing, U. Ruede, editor, 2010
Various technical journals

Committee Memberships:
Steering Committee for ACM International Conference on Supercomputing 2023.
Steering Committee for ACM International Conference on Supercomputing 2022.
Steering Committee for ACM International Conference on Supercomputing 2021.
Steering Committee for ACM International Conference on Supercomputing 2020.
Steering Committee for ACM International Conference on Supercomputing 2019.
Steering Committee for ACM International Conference on Supercomputing 2018.
Steering Committee for ACM International Conference on Supercomputing 2017.
Steering Committee for ACM International Conference on Supercomputing 2016.
Steering Committee for ACM International Conference on Supercomputing 2015.
National Science Foundation Review Panel for XPS Program , Applications and Distributed Systems Panel, May 2014.
Steering Committee for ACM International Conference on Supercomputing 2014.
Extended Program Committee for ACM International Conference on Supercomputing 2014.

Steering Committee for ACM International Conference on Supercomputing 2013.
Program Committee for ACM International Conference on Supercomputing 2013.
Program Committee for International Parallel and Distributed Processing Symposium 2013.
Co-organizer of 2012 Advances in Computational Mathematics and Engineering, Florida State Univerity.
General Co-chair of ACM International Conference on Supercomputing 2012.
Steering Committee for ACM International Conference on Supercomputing 2012.
Program Committee for the 2011 International Workshop on Innovative Architecture for Future Generation High-Performance Processors and Systems.
Steering Committee for ACM International Conference on Supercomputing 2011.
Organizing Committee for Conference on High Performance Scientific Computing: Architectures, Algorithms, and Applications (Ahmed Sameh Birthday Conference), Purdue University, October 11-12, 2010.
Session Chair for Ahmed Sameh Birthday Conference, Purdue University, October 11-12, 2010.
Program Committee for the 2010 International Workshop on Innovative Architecture for Future Generation High-Performance Processors and Systems.
Program Committee for ACM International Conference on Supercomputing 2010.
Steering Committee for ACM International Conference on Supercomputing 2010.
Program Committee for Text Mining 2010 Workshop (held in conjunction with 2010 SIAM International Conference on Data Mining)
Steering Committee for ACM International Conference on Supercomputing 2009.
Program Committee for ACM Computing Frontiers 2009
Program Committee for Text Mining 2009 Workshop (held in conjunction with 2009 SIAM International Conference on Data Mining)
Steering Committee for ACM International Conference on Supercomputing 2008.
Program Co-chair for ACM International Conference on Supercomputing 2008.
Program Committee for the 2008 International Workshop on Innovative Architecture for Future Generation High-Performance Processors and Systems.
Program Committee for Text Mining 2008 Workshop (held in conjunction with 2008 SIAM International Conference on Data Mining)
Steering Committee for ACM International Conference on Supercomputing 2007.
Program Committee for ACM International Conference on Supercomputing 2007.
Program Committee for the 2007 International Workshop on Innovative Architecture for Future Generation High-Performance Processors and Systems.
Program Committee for Text Mining 2007 Workshop (held in conjunction with 2007 SIAM International Conference on Data Mining)
Program Committee for 2006 IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems.
Steering Committee for ACM International Conference on Supercomputing 2006.
Program Committee for Text Mining 2006 Workshop (held in conjunction with 2006 SIAM International Conference on Data Mining)
Program Committee for the 2006 International Workshop on Innovative Architecture for Future Generation High-Performance Processors and Systems.
Program Committee for ACM International Conference on Supercomputing 2006.
Steering Committee for ACM International Conference on Supercomputing 2005.
Program Committee for 2005 IEEE International Symposium on Modeling, Anal-

ysis, and Simulation of Computer and Telecommunication Systems.
National Science Foundation Review Panel for ITR Program , Panel IT4-MS-FT, May 2004.
Session Chair for Banff International Research Station Workshop on Model Reduction and Matrix Methods 2004
Program Committee for ACM Conference on Languages, Compilers and Tools for Embedded Systems 2004
Program Committee for 2004 IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems.
Steering Committee for ACM International Conference on Supercomputing 2004.
Referree for ACM Symposium on Applied Computing 2004
Program Committee for Text Mining 2003 Workshop (held in conjunction with 2003 SIAM International Conference on Data Mining)
Program Co-chair for ACM International Conference on Supercomputing 2003.
Program Committee for the 2003 International Workshop on Innovative Architecture for Future Generation High-Performance Processors and Systems.
Program Committee for the 17th Annual International Symposium on High Performance Computing Systems and Applications (2003)
National Science Foundation Review Panel for the IGERT prepropsals, Panel CSE2 December 2002.
Program Committee for ACM International Conference on Supercomputing 2002.
Program Committee Text Mining 2002 Workshop (held in conjunction with 2002 SIAM International Conference on Data Mining)
Program Committee for the 16th Annual International Symposium on High Performance Computing Systems and Applications (2002)
Program Committee for the 2002 International Workshop on Innovative Architecture for Future Generation High-Performance Processors and Systems.
Program Committee Text Mine 2001 Workshop (held in conjunction with 2001 SIAM International Conference on Data Mining)
Program Committee for 2001 IEEE International Conference on Control Applications.
Program Committee for ACM International Conference on Supercomputing 2001.
National Science Foundation Proposal Review Panel for the Numeric, Symbolic and Geometric Computing Program, November 2000.
Referee for 2000 International Conference on Parallel Processing.
Program Committee for IEEE/ACM Supercomputing 2000.
Program Committee for the 1999 International Workshop on Innovative Architecture for Future Generation High-Performance Processors and Systems.
Program Committee for the 2000 ACM International Conference on Supercomputing.
Program Committee for the 1999 ACM International Conference on Supercomputing.
Program Committee for the 1998 ACM International Conference on Supercomputing.
Program Committee for the 1998 International Workshop on Innovative Architecture for Future Generation High-Performance Processors and Systems.
National Science Foundation Proposal Review Panel for the Numeric, Symbolic and Geometric Computing Program, December 1997.

Program Committee for Fifth ACM Symposium on the Frontiers of Massively Parallel Computation, 1995.
Co-chairman for Applications and Algorithms, 1995 International Conference on Parallel Processing.
Vice-chairman for Applications and Algorithms, 1994 ACM International Conference on Supercomputing.