

# Kyle A. GALLIVAN

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Department of Mathematics  
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## 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 implementation of large-scale libraries to support Riemannian optimization and its applications (ROPTLIB), network analysis for phylogenetics (Treescap 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 2026, 2025, 2024, 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 Step size, 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)

## In Preparation for Submission

- [1] Zhifeng Deng, Pierre-Antoine Absil, Kyle A. Gallivan, and Wen Huang. *The Exponential of Skew-Symmetric Matrices: A Nearby Inverse and Efficient Computation of Derivatives*
- [2] Simon Matainge and Kyle A. Gallivan. *Eigenvalue Decomposition of Normal Matrices by the Skew-symmetric Part*

## Papers In Review

- [3] Zhifeng Deng, Pierre-Antoine Absil, Kyle A. Gallivan, and Wen Huang. *The Exponential of Skew-Symmetric Matrices: A Nearby Inverse and Efficient Computation of Derivatives*
- [4] Simon Matainge and Kyle A. Gallivan. *Eigenvalue Decomposition of Normal Matrices by the Skew-symmetric Part*

## Volumes Edited and Paper Collection

- [5] **Proceedings of the 26th ACM International Conference on Supercomputing**, U. Banerjee, G. Bilardi, K. A. Gallivan, and M. Katevenis, Editors, ACM Press, 2012.
- [6] 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.
- [7] **Proceedings of the 22nd ACM International Conference on Supercomputing**, U. Banerjee, T. Papatheodorou, K. A. Gallivan and A. Mendelson, Editors, ACM Press, 2008.
- [8] **Proceedings of the 17th ACM International Conference on Supercomputing**, Utpal Banerjee, Kyle A. Gallivan and Antonio Gonzalez, Editors, ACM Press, 2003.
- [9] **Proceedings of 1995 International Conference on Parallel Processing**, Vol. 3, *Algorithms and Applications*, K. Gallivan, Editor, CRC Press, 1995.
- [10] 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

- [11] J. M. Brown, G. G. Mount, K. A. Gallivan, and J. Wilgenbusch. *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.
- [12] 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)
- [13] 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)
- [14] 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.
- [15] 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.
- [16] 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 Environments**, Kluwer Academic, Boston, 2000, pp. 315-326, E. N. Houstis, J. R. Rice, E. Gallopoulos and R. Bramley, Eds. (Invited paper)
- [17] 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.)
- [18] 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.)
- [19] 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)
- [20] 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.

- [21] 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.
- [22] 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.
- [23] 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.
- [24] 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.
- [25] 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.
- [26] 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.
- [27] 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 II Ciocco 1990)** , NATO ASI Series F: Computer and Systems Sciences, Vol. 77, pp. 141-166, E. Spedicato, Ed., Springer-Verlag, 1991.
- [28] 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)
- [29] 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)
- [30] 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)

- [31] Guillaume Olikier, Kyle A. Gallivan, and Pierre-Antoine Absil. *Low-rank optimization methods based on projected-projected gradient descent that accumulate at Bouligand stationary points*. *Mathematics of Operations Research*, 2026, to appear.

- [32] Meng Wei, Wen Huang, Kyle A. Gallivan, and Paul Van Dooren. *A Riemannian Approach to Clustering*. Journal of Scientific Computing, Volume 103, No 8, 2025, published online <https://doi.org/10.1007/s10915-025-02806-3>
- [33] Yijia Zhou, Kyle A. Gallivan, and Adrian Barbu. *Scalable Clustering: Large Scale Unsupervised Learning of Gaussian Mixture Models with Outliers*. Journal of Computational and Graphical Statistics., 112, 2024, published online <https://doi.org/10.1080/10618600.2024.2414889>
- [34] 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.
- [35] 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.
- [36] 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.
- [37] 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.
- [38] 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.
- [39] 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.
- [40] 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.
- [41] 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.
- [42] J. Wilgenbusch, W. Huang, K. A. Gallivan. *Visualizing Phylogenetic Tree Landscapes*, BMC Bioinformatics, 18:85, 2017, DOI: 10.1186/s12859-017-1479-1.
- [43] 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)
- [44] 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)

- [45] 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.
- [46] 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.
- [47] 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.
- [48] 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.
- [49] 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.
- [50] 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.
- [51] 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.
- [52] 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.
- [53] 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.
- [54] 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.
- [55] 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.
- [56] 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.
- [57] 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.

- [58] 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.
- [59] 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.
- [60] 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.
- [61] 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.
- [62] 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.
- [63] 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.
- [64] 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.
- [65] 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.
- [66] 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.
- [67] 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.
- [68] 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.
- [69] 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.
- [70] 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.

- [71] 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.
- [72] K. A. Gallivan and Paul Van Dooren. *Rational Approximations of Pre-filtered Transfer Functions*, **Numerical Algorithms**, No. 20, pp. 331-342, 1999.
- [73] 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.
- [74] 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.
- [75] U. M. Yang and K. A. Gallivan. *A new family of block methods*, **Applied Numerical Mathematics**, Vol. 30, pp. 155-173, 1999.
- [76] 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.
- [77] 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.
- [78] K. A. Gallivan, E. Grimme, and P. Van Dooren. *A Rational Lanczos Algorithm for Model Reduction*. **Numerical Algorithms**, Vol. 12, pp. 33-63, 1996.
- [79] 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.
- [80] 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.
- [81] 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.
- [82] 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.
- [83] K. Gallivan, E. Grimme, and P. Van Dooren. *Asymptotic waveform evaluation via a Lanczos method*. **Applied Mathematics Letters**, Vol. 7, pp. 75-80, 1994.
- [84] 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.

- [85] 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.
- [86] 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.
- [87] 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.
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- [89] 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.
- [90] 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.
- [91] 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.
- [92] 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.
- [93] 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)

- [92] 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.
- [93] 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.ifacol.2021.06.118>. Proceedings of 2020 Mathematical Theory of Networks Symposium. This biennial Conference was postponed until summer 2021 due to COVID restrictions.

- [94] 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.ifacol.2021.06.115>. Proceedings of 2020 Mathematical Theory of Networks Symposium. This biennial Conference was postponed until summer 2021 due to COVID restrictions.
- [95] 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.
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## 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 developed 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](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 CloudForest tools be used to access the most up-to-date and efficient 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](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 Analysis 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 Grassmannian 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. *Treescapers: 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 Tennessee Space Institute 2007) School of Computational Science, Florida State University, 5/2008 – 4/2009
- B. Uzunoglu (Ph.D. University of Southampton 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

- S. Mataigne, Ph.D. Student (current), Department of Mathematical Engineering, Catholic University Louvain, Louvain-La-Neuve, Belgium, Ph.D. advisor Prof. P. Absil
- 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

### Completed Ph.D. Student Advisees at Florida State University

- Ph.D. co-advisor for Y. Shen (Ph.D. 2025) Department of Mathematics, Florida State University (with Prof. W. Huang, Xiamen University)
- Ph.D. co-advisor for Z. Deng (Ph.D. 2024) Department of Mathematics, Florida State University (with Prof. W. Huang, Xiamen University )
- Ph.D. co-advisor for S. Zhang (Ph.D. 2024) Department of Mathematics, Florida State University (with Prof. W. Huang, Xiamen 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. Absil, 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:**

#### **Spring 2026**

MAD 5932 (3 Hrs.) Numerical Linear Algebra

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

#### **Fall 2025**

MAD 5420 (3 Hrs.) Numerical Optimization

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

#### **Spring 2025**

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

**Fall 2024**

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

**Spring 2024**

MAD 5932 (3 Hrs.) Numerical Linear Algebra  
MAS 4106 (3 Hrs.) Applied Linear Algebra 2

**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 students)

**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 Cyber-infrastructure 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. Uzunoglu (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. Uzunolgu (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 chair for Yue Shen (Ph.D., 2025), co-advisor with Prof. W. Huang (Xiamen University), Department of Mathematics, FSU, 2024.

Ph.D. Defense Committee for M. Abushoshah (Ph.D., 2025), advisor Prof. M. Sussman, Department of Mathematics, FSU, 2025.

Ph.D. Defense Committee chair for Shuguang Zhang (Ph.D., 2024), co-advisor with Prof. W. Huang (Xiamen University), Department of Mathematics, FSU, 2024.

Candidacy Examination Committee for Seungmin Lee (Ph.D. candidate) advisor Prof. S. Lee, Department of Mathematics, FSU, 2024.

Candidacy Examination Committee for Jonathan Valyou (Ph.D. candidate) advisor Prof. S. Lee, Department of Mathematics, FSU, 2024.

Ph.D. Defense Committee chair for Zhifeng Deng (Ph.D., 2024), co-advisor with Prof. W. Huang (Xiamen University), Department of Mathematics, FSU, 2024.

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

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 co-chair for Meng Wei (Ph.D., 2023), co-advisor with Prof. W. Huang (Xiamen University), Department of Mathematics, FSU, 2023.

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

Prospectus Examination Committee co-chair for Yijia 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 Yijia Zhou (Ph.D. candidate) Department of Mathematics, FSU, 2020.

Candidacy Examination Committee chair for Tejas 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. Heshner (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. Whalley,

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**

Ph.D. Final Defense Committee for W. Wang (Ph.D. 2025) chair Prof. V. DeBrunner , Department of Electrical Engineering FSU, 2025.

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**

2025 University Committee on Faculty Sabbaticals

2024 University Committee on Faculty Sabbaticals

2024 Promotion and Tenure Committee for the University

2024 Promotion and Tenure Committee for the College of Arts and Sciences

2024 Promotion and Tenure Committee for the Science Area

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**

Foundations of Computational Mathematics Qualifying Examination (Spring and Fall 2025)

Acting ACM Director Fall 2025

Faculty Evaluation Committee (2025)

Faculty Evaluation Committee (2024)

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 (beginning Fall 2020)

Faculty Evaluation Committee (beginning 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/Meteorology 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 Referee:

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 Referee:

Review for Fonds de la Recherche Scientifique (FNRS), Belgium, 2024

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 Referee:

Reviewer for Numerical Algorithms, 2025

Reviewer for Mathematical Programming Computation, 2023, 2024

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 2025.  
Steering Committee for ACM International Conference on Supercomputing 2024.  
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 University.  
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 Architec-

ture 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, Analysis, 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.  
Referee 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 preproposals, 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.