

# George Ostrouchov

Statistics and Data Sciences Group  
Computer Science and Mathematics Division  
Oak Ridge National Laboratory  
1 Bethel Valley Road  
Oak Ridge, Tennessee 37831-6367

Tel: (865) 574-3137  
Fax: (865) 574-0680  
ost at ornl dot gov  
<http://www.csm.ornl.gov/~ost>

## Education

### Ph.D., Statistics

**Iowa State University**, Ames, IA, May 1984

Dissertation: *Large Sparse Least Squares Computations*

Advisor: William J. Kennedy, Jr.

### M.Sc., Statistics

**Iowa State University**, Ames, IA, May 1981

Project: *Accuracy of Approximate Confidence Bounds Computed from Interval Censored Weibull and Lognormal Data*

Advisor: William Q. Meeker, Jr.

### B.Math., Honours Co-op, Mathematics/Statistics

**University of Waterloo**, Waterloo, Canada, May 1978

## Current Appointments

- Since 2003      **Senior Research Staff Member**  
Statistics and Data Sciences Group, Computer Science and Mathematics  
Division, Oak Ridge National Laboratory
- Since 2006      **Scientific Computing Research Affiliate**  
Joint Institute for Computational Sciences, The University of Tennessee  
and Oak Ridge National Laboratory
- Since 2006      **Statistics and Data Sciences Research Affiliate**  
Joint Institute for Computational Sciences, The University of Tennessee  
and Oak Ridge National Laboratory
- Since 2003      **Adjunct Professor of Statistics**  
Department of Statistics, Operations, and Management Science, The  
University of Tennessee, Knoxville

## Past Appointments

- 1993-2003      **Research Staff Member II**  
Statistics and Data Sciences Group (previously Statistics Group in  
Mathematical Sciences Section) Computer Science and Mathematics Di-  
vision (previously Engineering Physics and Mathematics Division), Oak  
Ridge National Laboratory
- 1983-1993      **Research Staff Member I**

Statistics Group, Mathematical Sciences Section (initially Mathematics and Statistics Research Section), Engineering Physics and Mathematics Division (initially in Computer Sciences Division), Oak Ridge National Laboratory

1994-1996 **Adjunct Faculty**, Great Lakes Colleges Association  
1983-1983 **Instructor**, Department of Statistics, Iowa State University  
1981-1983 **Free-lance software consultant**, Computing Center, Iowa State University  
1979-1983 **Research Assistant**, Department of Statistics, Iowa State University  
1978-1979 **Statistician/Analyst**, Informetrica Ltd., Ottawa, Canada

## Memberships

American Statistical Association (Section on Physical and Engineering Sciences, Section on Statistical Computing, and Section on Statistical Graphics)  
International Association for Statistical Computing  
Society for Industrial and Applied Mathematics  
R Foundation for Statistical Computing  
National Ski Patrol

## Recognitions

Fellow, American Statistical Association, 2010  
Certificate of Appreciation from US Undersecretary of Energy “*For exemplary performance in ensuring the success of the Terrorism Prevention Measures Optimization Project conducted on behalf of the Department of Energy’s Office of Science*”, 2007  
Martin Marietta Energy Systems government-use invention award for “Cost Matrix Software using Sparse Matrix Technology” 1994.  
Phi Kappa Phi, Mu Sigma Rho

## Professional Activities

**Organizer and Chair:** Minisymposium on Matrix Computations in Statistics at The Third SIAM Conference on Applied Linear Algebra, Madison, WI, 1988.  
**Associate Editor:** Journal of Statistical Computation and Simulation, 1988–1994.  
**Associate Editor:** Technometrics, 1995–2002.  
**Organizer and Chair:** Dimension Reduction for Simulation Science Data at the Joint Statistical Meetings, Atlanta, GA, 2001.  
**Program Committee:** C. Warren Neel Conference on Statistical Data Mining, Knoxville, 2002.  
**Organizer and Chair:** Distributed Data Mining at C. Warren Neel Conference on Statistical Data Mining, Knoxville, June 22-25, 2002.  
**Panelist:** Interagency Working Group on High End Computing (HEC IWG), Washington, DC, June 16-18, 2003.

**Program Committee:** 6th International Workshop on High Performance Data Mining: Pervasive and Data Stream Mining, 2003.

**Panelist:** Science Case for Large Scale Simulation (SCaLeS) Workshop, Washington, DC, June 24-25, 2003

**Management Committee:** Spring Research Conference on Statistics series co-sponsored by the Section on Physical and Engineering Sciences of the American Statistical Association and the Institute of Mathematical Statistics, 2003-2005.

**Conference Co-Chair:** 13th Spring Research Conference (SRC) on Statistics in Industry and Technology (held as Joint Research Conference on Statistics in Quality, Industry, and Technology), Knoxville, TN, 2006

**Task Force:** American Statistical Association Presidential Task Force on Interactions with Other Organizations, 2006–2007

**Co-Chair:** Search Committee for Governor’s Chair in Statistics at ORNL/UT, 2007-2008

**Organizing Committee:** 1st International Workshop on Knowledge Discovery from Sensor Data at KDD 2007, August 12, 2007, San Jose, CA

**Program Committee:** SIAM Conference on Data Mining, April 24-26, 2008, Atlanta, GA

**Program Committee:** Workshop on Resiliency in High Performance Computing (Resilience 2008) at CCGrid, May 19-22, 2008, Lyon, France

**Panelist and Moderator:** Workshop on Mathematics for Analysis of Petascale Data, sponsored by the Department of Energy’s Office of Advanced Scientific Computing Research, 2008

**Program Committee:** Workshop on Radiation Effects and Fault Tolerance in Nanometer Technologies at ACM ICCF, May 5-7, 2008, Ischia, Italy

**Program Committee:** Workshop on Resiliency in High Performance Computing (Resilience 2009) at HPDC, June 9-13, 2009, Munich, Germany

**Program Committee:** 3rd International Workshop on Knowledge Discovery from Sensor Data at KDD 2009, June 28-July 1, 2009, Paris, France

**Program Chair-Elect:** ASA SPES, Joint Statistical Meetings, August 2-6, 2009, Washington, DC

**Program Committee:** Workshop on Knowledge Discovery from Climate Data: Prediction, Extremes, and Impacts at ICDM 2009, December 6-9, 2009, Miami, Florida

**Program Committee:** Workshop on Resiliency in High Performance Computing (Resilience 2010) at IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid 2010), May 17-20, 2010, Melbourne, Australia

**Program Committee:** 4th International Workshop on Knowledge Discovery from Sensor Data at KDD 2010, July 25-28, 2010, Washington, DC

**Program Chair:** ASA SPES, Joint Statistical Meetings, July 31 - August 5, 2010, Vancouver, Canada

## Grants and Awards

**Principal Investigator:** National Institutes of Health grant, “Dose Estimation from Daily and Weekly Dosimetry Data,” 1996-1997, \$150,000.

**Principal Investigator:** DOD/DOE/EPA Strategic Environmental Research and Devel-

opment Program (SERDP), “Spatial Statistical Models and Optimal Survey Design for Rapid Geophysical Characterization of UXO Sites,” 2001-2002, \$663,000.

**Principal Investigator:** ORNL Laboratory Directed Research and Development Program (LDRD), “Computing Transition States on High Dimensional Potential Surfaces with Application to Chemistry in Nanospaces,” 2001-2002, \$100,000.

**Principal Investigator:** ORNL Laboratory Directed Research and Development Program (LDRD), “Scalable Tools for Petascale Distributed Data Analysis,” 2002-2003, \$630,000.

**Technical Co-PI, ORNL:** DOE Scientific Data Management Integrated Software Infrastructure Center (DOE SciDAC), 2002-2004, \$1,660,000.

**Principal Investigator:** ORNL Laboratory Directed Research and Development Program (LDRD), “Bringing Statistical Visualization to the Terascale and Beyond: Visual Analysis in Full Context,” 2004-2005, \$565,000.

**Technical Co-PI, ORNL:** DOE SciDAC Center for Enabling Technologies, “Visualization and Analytics Center for Enabling Technologies (VACET),” 2007-2011, \$11,000,000 (\$2,000,000 for ORNL)

**Co-PI:** ORNL Computational Science Initiative, *Petascale Enabled Discovery*, 2008-2009, \$62,000.

**Data Analysis Services Lead:** NSF/OCI Grant “NICS Remote Data Analysis and Visualization Center” NSF 2009-2013, \$10,000,000.

## Mentoring Activities

**Linda Keleher, B.S.**, Ohio Northern University, Oak Ridge Science and Engineering Research Semester 1989

**Eric Sedlacek, B.S.**, Ohio Northern University, Oak Ridge Science and Engineering Research Semester 1990

**John Pospisil, B.S.**, Nebraska Wesleyan University, Oak Ridge Science and Engineering Research Semester 1991

**Asim YarKhan, M.S.**, University of Tennessee, Graduate Research Assistant 1993-1994

**DeMarkus V. Webb, B.S.**, University of Tennessee, Research Alliance for Minorities Summer, 2000

**Yongming Qu, Ph.D.**, Iowa State University, DOE Higher Education Research Experience, 2001

**Ade Ola, Ph.D.**, Virginia State University, Minority Educational Institution Summer Faculty Research Program 2002

**Bryan Hathorn, Ph.D.**, California Institute of Technology, Postdoctoral Appointment, 2001-2002

**David A. Bauer, B.Sc.**, Georgia Institute of Technology, Energy Research Undergraduate Laboratory Fellowship 2002

**Byung Hoon Park, Ph.D.** University of Maryland, Postdoctoral Appointment, 2002-2004

**Jennifer Golek, Ph.D.**, University of Tennessee, DOE Higher Education Research Experience 2002-2003

**Ian Watkins, M.S.**, University of Tennessee, DOE Higher Education Research Experi-

ence 2002-2003

**Alan Parks, Ph.D.**, Lawrence University, Oak Ridge Science Semester 2003

**Rajesh V. Munavalli, M.S.**, DOE Higher Education Research Experience 2003-2004

**Aruna Buddana, M.S.**, University of Tennessee, DOE Higher Education Research Experience, 2004

**Abdelhamid Meziani, Ph.D.**, Florida International University, Minority Educational Institution Summer Faculty Research Program, 2004

**Lionel Lovett, B.Sc.**, Jackson State University, ORNL Research Alliance in Math and Science 2005

**Houssain Kettani, Ph.D.**, Jackson State University, DOE Higher Education Research Experience, 2005, 2006

**James R. Wilcox**, Tennessee Governors Academy, 2008-2009

**Fernando E. Fuentes, B.Sc.**, Polytechnic University of Puerto Rico, ORNL Research Alliance in Math and Science 2009

**Yael M Camacho-Bonaparte, B.Sc.**, Polytechnic University of Puerto Rico, FaST, 2009

**Shamir J Quinones Dueno, B.Sc.**, Polytechnic University of Puerto Rico, FaST, 2009

**Emmanuel Aviles Saez, B.Sc.**, Polytechnic University of Puerto Rico, FaST, 2009

# Publications

## Refereed and Solicited Publications

- [1] George Ostrouchov. Symbolic Givens reduction and row-ordering in large sparse least squares problems. *SIAM J. Scientific and Statistical Computation*, 8:248–264, 1987.
- [2] George Ostrouchov and W. Q. Meeker, Jr. Accuracy of approximate confidence bounds computed from interval censored Weibull and log-normal data. *J. Statistical Computation and Simulation*, 29:43–76, 1988.
- [3] George Ostrouchov. ANOVA model fitting via sparse matrix computations: a fast direct method. *SIAM J. Scientific and Statistical Computation*, 10:58–71, 1989.
- [4] George Ostrouchov. Computer communication: electronic bulletin boards. *Statistical Computing & Graphics*, 1(1):14–15, 1990.
- [5] George Ostrouchov. Computer communication: software distribution libraries. *Statistical Computing & Graphics*, 1(2):17–18, 1990.
- [6] George Ostrouchov. Computer communication: anonymous ftp. *Statistical Computing & Graphics*, 2(1):15–16, 1991.
- [7] George Ostrouchov. Computer communication: what’s your e-mail address? *Statistical Computing & Graphics*, 2(2):22–23, 1991.
- [8] George Ostrouchov. Computer communication: alternate connections and white pages. *Statistical Computing & Graphics*, 3(2):22–23, 1992.
- [9] George Ostrouchov. Computer communication: resource discovery. *Statistical Computing & Graphics*, 3(1):21–22, 1992.
- [10] George Ostrouchov and Edward L. Frome. A model search procedure for hierarchical models. *Computational Statistics & Data Analysis*, 15:285–296, 1993.
- [11] George Ostrouchov. Gopher and other resource discovery tools. *Statistical Computing & Graphics*, 4(1):16–17, 1993.
- [12] Toby J. Mitchell, George Ostrouchov, Edward L. Frome, and George D. Kerr. A method for estimating occupational radiation dose to individuals, using weekly dosimetry data. *Radiation Research*, 147:195–207, 1997.
- [13] George Ostrouchov. Accounting for bias and measurement error in occupational studies. *Radiation Research*, 151:107–108, 1999.
- [14] Jingqian Jiang, Michael W. Berry, June M. Donato, George Ostrouchov, and Nancy W. Grady. Mining consumer product data via latent semantic indexing. *Intelligent Data Analysis*, 3:377–398, 1999.
- [15] D. J. Downing, V. V. Fedorov, W. F. Lawkins, M. D. Morris, and G. Ostrouchov. Large data series: Modeling the usual to identify the unusual. *Computational Statistics & Data Analysis*, 32:245–258, 2000.

- [16] Nagiza F. Samatova, George Ostrouchov, G. Al Geist, and Anatoli Melechko. RACHET: A new algorithm for clustering multi-dimensional distributed datasets,. In *SIAM Third Workshop on Mining Scientific Datasets*, pages 16–24, 2001.
- [17] Nagiza F. Samatova, G. Al Geist, George Ostrouchov, and Anatoli Melechko. Parallel out-of-core algorithm for genome-scale enumeration of metabolic systemic pathways. In *Proceedings of the International Parallel and Distributed Processing Symposium (IPDPS.02)*, pages 8–17, 2002.
- [18] Faisal N. Abu-Khzam, Nagiza Samatova, George Ostrouchov, Michael A. Langston, and Al Geist. Distributed dimension reduction algorithms for widely dispersed data. In *Parallel and Distributed Computing and Systems*, pages 174–178. ACTA Press, 2002.
- [19] Yong Ming Qu, George Ostrouchov, Nagiza F. Samatova, and G. A. Geist III. Principal component analysis for dimension reduction in massive distributed data sets. In *Workshop on High Performance Data Mining at the Second SIAM International Conference on Data Mining*, pages 4–9, 2002.
- [20] Nagiza F. Samatova, George Ostrouchov, G. Al Geist, and Anatoli Melechko. RACHET: An efficient cover-based merging of clustering hierarchies from distributed datasets. *Distributed and Parallel Databases*, 11:157–180, 2002.
- [21] Gong-Xin Yu, George Ostrouchov, Al Geist, and Nagiza F. Samatova. An SVM-based algorithm for identification of photosynthesis-specific genome features. *Computational Systems Bioinformatics Conference, International IEEE Computer Society*, 0:235, 2003.
- [22] Byung-Hoon Park, Nagiza Samatova, George Ostrouchov, and G. A. Geist III. XMap: Fast dimension reduction algorithms for multivariate streamline data. In *Proceedings of the 6th International Workshop on High Performance Data Mining: Pervasive and Data Stream Mining*, pages 1–6, 2003.
- [23] George Ostrouchov and Nagiza F. Samatova. Embedding methods and robust statistics for dimension reduction. In Jaromir Antoch, editor, *COMPSTAT2004*, pages 359–370. Physica-Verlag, 2004.
- [24] Byung-Hoon Park, George Ostrouchov, and Nagiza F. Samatova. Reservoir-based random sampling with replacement from a data stream. In *Proceedings of the 2004 SIAM International Conference on Data Mining*, pages 492–496, 2004.
- [25] George Ostrouchov and Nagiza F. Samatova. On FastMap and the convex hull of multivariate data: Toward fast and robust dimension reduction. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 27:1340–1343, 2005.
- [26] W Bethel, C Johnson, C Hansen, S Parker, A Sanderson, C Silva, X Tricoche, V Pascucci, H Childs, J Cohen, M Duchaineau, D Laney, P Lindstrom, S Ahern, J Meredith, G Ostrouchov, K Joy, and B Hamann. VACET: Proposed SciDAC2 visualization and analytics center for enabling technologies. *Journal of Physics: Conference Series*, 46:561–569, 2006.
- [27] S. Ahern, J. R. Daniel, J. Gao, G. Ostrouchov, R. J. Toedte, and C. Wang. Multi-scale data visualization for computational astrophysics and climate dynamics at Oak Ridge National Laboratory. *Journal of Physics: Conference Series*, 46:550–555, 2006.

- [28] S. Khan, A. R. Ganguly, S. Bandyopadhyay, S. Saigal D. J. Erickson III, V. Protopopescu, and G. Ostrouchov. Nonlinear statistics reveals stronger ties between ENSO and the tropical hydrological cycle. *Geophysical Research Letters*, 33, 2006. L24402, doi:10.1029/2006GL027941.
- [29] Byung-Hoon Park, George Ostrouchov, and Nagiza F. Samatova. Sampling streaming data with replacement. *Computational Statistics & Data Analysis*, 52:750–762, 2007.
- [30] E. W. Bethel, C. Johnson, K. Joy, S. Ahern, V. Pascucci, H. Childs, J. Cohen, M. Duchaineau, B. Hamann, C. Hansen, D. Laney, P. Lindstrom, J. Meredith, G. Ostrouchov, S. Parker, C. Silva, A. Sanderson, and X. Tricoche. SciDAC visualization and analytics center for enabling technology. *Journal of Physics: Conference Series*, 78:012032 (5pp), 2007.
- [31] S. Khan, G. Kuhn, A. R. Ganguly, III D. J. Erickson, and G. Ostrouchov. Spatio-temporal variability of daily and weekly precipitation extremes in South America. *Water Resources Research*, 43, 2007. W11424, doi:10.1029/2006WR005384.
- [32] E. W. Bethel, C. Johnson, C. Aragon, Prabhat, O. Rübel, G. Weber, V. Pascucci, H. Childs, P.-T. Bremer, B. Whitlock, S. Ahern, J. Meredith, G. Ostrouchov, K. Joy, B. Hamann, C. Garth, M. Cole, C. Hansen, S. Parker, A. Sanderson, C. Silva, and X. Tricoche. DOE’s SciDAC visualization and analytics center for enabling technologies - strategy for petascale visual data analysis success. *CTWatch Quarterly*, 3(4), November 2007.
- [33] S. Khan, S. Bandyopadhyay, A. R. Ganguly, S. Saigal D. J. Erickson III, V. Protopopescu, and G. Ostrouchov. Relative performance of mutual information estimation methods for quantifying the dependence among short and noisy data. *Physical Review E*, 76:1–15, 2007.
- [34] Kenneth I Joy, Mark Miller, Hank Childs, E Wes Bethel, John Clyne, George Ostrouchov, and Sean Ahern. Frameworks for visualization at the extreme scale. *Journal of Physics: Conference Series*, 78:012035 (10pp), 2007.
- [35] N. Taerat, N. Naksinehaboon, C. Chandler, J. Elliott, C. Leangsuksun, G. Ostrouchov, and S. L. Scott. Using log information to perform statistical analysis on failures encountered by large-scale HPC deployments. In *High Availability and Performance Computing Workshop (HAPCW 2008)*, page (6pp), 2008.
- [36] George Ostrouchov, William E. Doll, Les P. Beard, Max D. Morris, and Dennis A. Wolf. Multiscale structure of UXO site characterization: Spatial estimation and uncertainty quantification. *Stochastic Environmental Research and Risk Assessment*, 23(2):215–225, 2009.
- [37] N. Taerat, N. Naksinehaboon, C. Chandler, J. Elliott, C. Leangsuksun, G. Ostrouchov, S. L. Scott, and C. Engelmann. Blue Gene/L log analysis and time to interrupt estimation. In *Availability, Reliability and Security, International Conference on*, pages 173–180, Los Alamitos, CA, USA, 2009. IEEE Computer Society.
- [38] George Ostrouchov. A matrix computation view of FastMap and RobustMap dimension reduction algorithms. *SIAM Journal on Matrix Analysis and Applications*, 31(3):1351–1360, 2009.



- [39] E W Bethel, C Johnson, S Ahern, J Bell, P-T Bremer, H Childs, E Cormier-Michel, M Day, E Deines, T Fogal, C Garth, C G R Geddes, H Hagen, B Hamann, C Hansen, J Jacobsen, K Joy, J Kruger, J Meredith, P Messmer, G Ostrouchov, V Pascucci, K Potter, Prabhat, D Pugmire, O Rubel, A Sanderson, C Silva, D Ushizima, G Weber, B Whitlock, and K Wu. Occam’s razor and petascale visual data analysis. *Journal of Physics: Conference Series*, 180:012084 (18pp), 2009.
- [40] G. Ostrouchov, T. Naughton, C. Engelmann, G. Vallée, and S. L. Scott. Nonparametric multivariate anomaly analysis in support of HPC resilience. In *Proceedings of the 2009 5th IEEE International Conference on E-Science Workshops*, pages 80–85, December 2009.

## Other Publications

- [1] George Ostrouchov. *Large sparse least squares computations*. PhD thesis, Iowa State University, 1984.
- [2] George Ostrouchov. Parallel computing on a hypercube: an overview of the architecture and some applications. In Richard M. Heiberger, editor, *Proceedings of the 19th Symposium on the Interface of Computer Science and Statistics*, pages 27–32. American Statistical Association, 1987.
- [3] George Ostrouchov and Edward L. Frome. A model search procedure for hierarchical log-linear models. In *1989 Proceedings of the Statistical Computing Section*, pages 277–282. American Statistical Association, 1989.
- [4] George Ostrouchov. Minimum-size samples in model-based sampling. Technical report, Oak Ridge National Laboratory, Oak Ridge, TN 37830, 1991.
- [5] T. A. Vineyard, D. J. Downing, R. C. Durfee, J. J. Edwards, D. M. Flanagan, M. C. Fletcher, R. T. Goeltz, G. Ostrouchov, J. A. Rome, M. J. Saltmarsh, J. L. Smyre, and W. R. Wing. Assessment of en route sector and terminal air traffic control performance. Technical Report K/DSRD-733, limited distribution, Martin Marietta Energy Systems, Oak Ridge, TN 37831, 1991.
- [6] George Ostrouchov. HModel: An X tool for global model search. In Yadolah Dodge and Joe Whittaker, editors, *Computational Statistics, Volume 1*, pages 269–274. Physica-Verlag, 1992.
- [7] Sallie Keller-McNulty and George Ostrouchov. Error-free least squares based on LU factorization applicable to sparse problems. Technical Report I-95-1, Department of Statistics, Kansas State University, 1995.
- [8] D. J. Downing, W. F. Lawkins, M. D. Morris, and G. Ostrouchov. A method for detecting changes in long time series. Technical Report ORNL/TM-12879, Oak Ridge National Laboratory, Oak Ridge, TN 37831, 1995.
- [9] D. J. Downing, V. Fedorov, W. F. Lawkins, M. D. Morris, and G. Ostrouchov. Large datasets: Segmentation, feature extraction, and compression. Technical Report ORNL/TM-13114, Oak Ridge National Laboratory, 1996.

- [10] D. J. Downing, V. V. Fedorov, W. F. Lawkins, M. D. Morris, and G. Ostrouchov. Analysing perturbations and nonstationarity in time series using techniques motivated by the theory of chaotic nonlinear dynamical systems. Technical Report ORNL/TM-13115, Oak Ridge National Laboratory, Oak Ridge, TN 37831, 1996.
- [11] D. J. Downing, V. V. Fedorov, W. F. Lawkins, M. D. Morris, and G. Ostrouchov. Large data series: Modeling the usual to identify the unusual. *Computing Science and Statistics*, 29(2):8–14, 1997.
- [12] George Ostrouchov. Review of: “S+SpatialStats: User’s Manual for Windows and Unix” by Stephen P. Kaluzny, Silvia C. Vega, Tamre P. Cardoso, and Alice A. Shelby. *Short Book Reviews*, 18(2):26–27, August 1998.
- [13] George Ostrouchov, Gregory P. Zimmerman, John J. Beauchamp, Valerii V. Fedorov, and Darryl J. Downing. Evaluation of statistical methodologies used in U.S. Army ordnance and explosive work. Technical Report ORNL/TM-13588, Oak Ridge National Laboratory, Oak Ridge, TN 37830, 1998.
- [14] George Ostrouchov, Edward L. Frome, and George D. Kerr. Dose estimation from daily and weekly dosimetry data. Technical Report ORNL/TM-1999/282, Oak Ridge National Laboratory, Oak Ridge, TN 37831, 1999.
- [15] W. M. Putman, J.B. Drake, and G. Ostrouchov. Statistical downscaling of United States regional climate from transient GCM scenarios. In *15th Conference on Probability and Statistics in the Atmospheric Sciences, Asheville, North Carolina*, pages J8–J11, 2000.
- [16] Thomas H. Dunigan and George Ostrouchov. Flow characterization for intrusion detection. Technical Report ORNL/TM-2001/115, Oak Ridge National Laboratory, Oak Ridge, TN 37831, 2001.
- [17] R.D. Burris, S. Cholia, T.H. Dunigan, F.M. Fowler, M.K. Gleicher, H.H. Holmes, N.E. Johnston, N.L. Meyer, D.L. Million, G. Ostrouchov, and N.F. Samatova. Probe project status and accomplishments - year two. Technical Report ORNL/TM-TBD, Oak Ridge National Laboratory, Oak Ridge, TN 37831, 2002.
- [18] George Ostrouchov, William E. Doll, Dennis A. Wolf, Max D. Morris, L. P. Beard, D. K. Butler, and J. E. Simms. Spatial statistical model and optimal survey design for rapid geophysical characterization of uxo sites. Technical Report Project CU-1201, SERDP, 2003.
- [19] A. Martino, A. Gorin, T. Lane, S. Plimpton, N. Samatova, Y. Xu, H. Al-Hashimi, C. Strauss, B.-H. Park, G. Ostrouchov, A. Geist, W. Hart, and D. Roe. Analysis of protein complexes from a fundamental understanding of protein binding domains and protein-protein interactions in *synechococcus wh8102*. Technical report, Genomes to Life Contractor-Grantee Workshop I, Arlington, Virginia, February 9-12 2003.
- [20] Byung-Hoon Park, George Ostrouchov, Gong-Xin Yu, G. A. Geist III, Andrey Gorin, and Nagiza F. Samatova. Inference of protein-protein interactions by unlikely profile pair. In *Third IEEE International Conference on Data Mining*, pages 735–738, 2003.

- [21] R.D. Burris, S. Cholia, T.H. Dunigan, F.M. Fowler, M.K. Gleicher, H.H. Holmes, N.E. Johnston, N.L. Meyer, D.L. Million, G. Ostrouchov, and N.F. Samatova. Probe project status and accomplishments. Technical Report ORNL/TM-2003/140, Oak Ridge National Laboratory, Oak Ridge, TN 37831, 2003.
- [22] A. R. Ganguly, S. Khan, D. J. Erickson, R. W. Katz, G. Ostrouchov, V. A. Protopopescu, S. Bandyopadhyay, and S. Saigal. Multivariate dependence in complex systems. In *Fifth Symposium on Understanding Complex Systems*. University of Illinois at Urbana-Champaign, 2005.
- [23] R. Ganguly, T. Hsing, R. Katz, D. Erickson, G. Ostrouchov, T. Wilbanks, and N. Cressie. Multivariate dependence among extremes, abrupt change and anomalies in space and time for climate applications. In *Workshop on Data Mining for Anomaly Detection at The Eleventh ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD-05)*, pages 25–26, 2005.
- [24] George Ostrouchov. Inner layer threat with two layer protection systems. Technical report, OUO report to DOE/SC Office of Safety, Security and Infrastructure (SC-31), Oak Ridge, TN, 37831, 2006.
- [25] George Ostrouchov. Odds of more math articles increase. *ORNL Reporter*, page 3, 2006. (A note on probability of football score matching winning lottery numbers).
- [26] George Ostrouchov. Analysis by threat decomposition. Technical report, OUO report to DOE/SC Office of Safety, Security and Infrastructure (SC-31), Oak Ridge, TN, 37831, 2007.
- [27] M. Anitescu, G. Ostrouchov, and L. Pytak-Nolte. Priority research direction: Improved media parameterization and reconstruction. In *Report of the Computational Subsurface Sciences Workshop*, pages 242–250. DOE Office of Science, 2007.
- [28] S. L. Scott, C. Engelmann, H. H. Ong, G. R. Vallée, T. Naughton, A. Tikotekar, G. Ostrouchov, C. (Box) Leangsuksun, N. Naksinehaboon, R. Nassar, M. Paun, F. Mueller, C. Wang, A. B. Nagarajan, J. Varma, X. (Ben) He, L. Ou, and X. Chen. Resiliency for high-performance computing systems. Poster at the <http://www.hpcsw.org> 1<sup>st</sup> High-Performance Computer Science Week (HPCSW) 2008, Denver, CO, USA, March 30 - April 5, 2008.
- [29] George Ostrouchov. Mid-life failure rate estimation in complex repairable systems. Technical report, A report to USEC review board, Oak Ridge, TN, 37831, 2009.
- [30] S. L. Scott, C. Engelmann, G. R. Vallée, T. Naughton, A. Tikotekar, G. Ostrouchov, C. (Box) Leangsuksun, N. Naksinehaboon, R. Nassar, M. Paun, F. Mueller, C. Wang, A. B. Nagarajan, and J. Varma. A tunable holistic resiliency approach for high-performance computing systems. Poster at the <http://institute.lanl.gov/resilience/conferences/2009> National HPC Workshop on Resilience 2009, Arlington, VA, USA, August 12-14, 2009.

## Invited Presentations

- [1] George Ostrouchov. Symbolic Givens reduction in large sparse least squares problems. SIAM Summer Meeting, Seattle, Washington, July 16-20, 1984.

- [2] George Ostrouchov. Parallel computing on a hypercube: An overview of the architecture and some applications. 19th Symposium on the Interface of Computer Science and Statistics, Philadelphia, PA, March 8-11, 1987.
- [3] George Ostrouchov. Sparse matrix computations in analysis of variance. Department of Statistics, University of Tennessee, February 25, 1988.
- [4] George Ostrouchov. Statistical computing on a hypercube. Kansas State University, Manhattan, Kansas, April 5, 1988.
- [5] George Ostrouchov. Sparse matrix computations in analysis of variance. Kansas State University, Manhattan, Kansas, April 7, 1988.
- [6] George Ostrouchov. Statistical computing on a hypercube. 20th Symposium on the Interface of Computing Science and Statistics, Reston, VA, April 21-23, 1988.
- [7] George Ostrouchov. Sparse matrix computations in analysis of variance. Numerical Linear Algebra Year Lectures on Least Squares Computations, University of Tennessee, April, 1988.
- [8] George Ostrouchov and Sallie Keller-McNulty. Error-free computation in sparse least squares. Third SIAM Conference on Applied Linear Algebra, Madison, Wisconsin, May 23-26, 1988.
- [9] George Ostrouchov. Sparse matrix computations in analysis of variance. Third SIAM Conference on Applied Linear Algebra, Madison, Wisconsin, May 23-26, 1988.
- [10] George Ostrouchov. Sparse least squares computations in statistical applications. Numerical Linear Algebra Year Lectures on Least Squares Computations, University of Tennessee, May, 1988.
- [11] George Ostrouchov and Nagiza F. Samatova. Can dimension reduction be fast and robust? FastMap and the convex hull of multivariate data. Department of Statistics, University of Tennessee, December 6, 2002.
- [12] George Ostrouchov and Nagiza F. Samatova. Combining distributed local principal component analyses into a global analysis. C. Warren Neel Conference on Statistical Data Mining and Knowledge Discovery, June 22-25, 2002, Knoxville, Tennessee.
- [13] George Ostrouchov and Nagiza F. Samatova. Multivariate analysis of massive distributed data sets. Spring Research Conference on Statistics May 20-22, 2002, Ann Arbor, Michigan.
- [14] N. F. Samatova, G. A. Geist, and G. Ostrouchov. Rachet: Petascale distributed data analysis suite. SPEEDUP Workshop on Distributed Supercomputing Data Intensive Computing, March 4-6, 2002, Leukerbad, Valais, Switzerland.
- [15] George Ostrouchov. Spatial point process models and geophysics for accurate remediation decisions at uxo sites. 5th EPA/COE Conceptual Site Model Meeting, March 6-7, 2002, Seattle, Washington.
- [16] George Ostrouchov and Nagiza F. Samatova. Analysis and visualization of massive simulation data sets at ORNL. Spring Research Conference on Statistics, Dayton, Ohio, June 4-6, 2003.

- [17] George Ostrouchov and Nagiza F. Samatova. Toward fast and robust dimension reduction: FastMap and the convex hull of multivariate data. COMPSTAT 2004, 16th Symposium of the International Association of Statistical Computing, Prague, August 23-27, 2004.
- [18] N. F. Samatova, G.-X. Yu, B.-H. Park, A. Geist, and G. Ostrouchov. From genomics to functional proteomics: In silico approach. SIAM Conference on Parallel Processing for Scientific Computing, February 25-27, 2004, San Francisco, CA.
- [19] George Ostrouchov. Uncertainty quantification: Barriers and challenges for multiscale mathematics. DOE Multiscale Mathematics Workshop, Alexandria, VA, May 3-5, 2004.
- [20] George Ostrouchov. Data intensive analysis and visualization projects at ORNL. National Institute of Standards, Washington, DC, May 6, 2004.
- [21] George Ostrouchov. Data from long-running simulations on high performance computers. Workshop on Statistical Issues in Data Acquisition, The National Academies Board of Mathematical Sciences and Their Applications, Committee on Applied and Theoretical Statistics, Berkeley, CA, July 16, 2004, 2004.
- [22] George Ostrouchov. From distance-based dimension reduction to robust statistics and matrix computation. Department of Statistics, University of Georgia, October 2005.
- [23] A. R. Ganguly, S. Khan, D. J. Erickson, R. W. Katz, G. Ostrouchov, V. A. Protopopescu, S. Bandyopadhyay, and S. Saigal. Multivariate dependence in complex systems. In *Fifth Symposium on Understanding Complex Systems*, University of Illinois at Urbana-Champaign, May 2005.
- [24] George Ostrouchov. Stalking the interactive terabyte with R: Data-parallel statistical computing. Department of Statistics, Operations, and Management Science, University of Tennessee, April 29, 2008.
- [25] George Ostrouchov. Data-parallel analysis and graphics with R. DOE Computer Graphics Forum, April 28-30, 2008, Duck, NC.
- [26] George Ostrouchov. Fast simultaneous dimension reduction and clustering: Viewing data from extremes. Spring Research Conference on Statistics in Industry and Technology, Vancouver, British Columbia, May 27-29, 2009.
- [27] George Ostrouchov. Statistics and high performance computing: Petabytes of data and millions of processors. Conference CELEBRATING 75 Years of STATISTICS at Iowa State, Ames, Iowa, June 3-5, 2009.
- [28] George Ostrouchov, Thomas J. Naughton, and Stephen L. Scott. Reliability in supercomputing: A million processors cooperating to solve one problem. Joint Statistical Meetings, Washington, DC, August 2-6, 2009.
- [29] George Ostrouchov. Data analysis for HPC resilience: A perspective from statistics. National HPC Workshop on Resilience, Washington, DC, August 12-14, 2009.
- [30] George Ostrouchov. Data-parallel statistical computing: a model based clustering example. Joint Research Conference on Statistics in Quality, Industry, and Technology, Gaithersburg, MD, May 25-27, 2010.

## **Reviewer and Referee Activities**

Technometrics

Journal of the American Statistical Association

Computational Statistics and Data Analysis

SIAM Journal on Scientific and Statistical Computing

Journal of Statistical Computation and Simulation

Communications in Statistics: Simulation and Computation

Journal of Computational and Graphical Statistics

High Performance Computing (HPC) Review

Analytical Chemistry

Bit

Parallel Computing and Statistics

The American Statistician

IEEE Transactions on Systems Man and Cybernetics

Stochastic Environmental Research and Risk Assessment

National Science Foundation

Department of Energy, Office of Science

Jack Youden Prize for best expository paper in Technometrics

## **Languages**

Fluent in English, Russian, and Czech. Can function in German, Polish, and Ukrainian.