George Ostrouchov

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Education

Ph.D., Statistics
Iowa State University, Ames, IA, December 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, Statistics
University of Waterloo, Waterloo, Canada, May 1978

Current Appointments

Since 2003	**Senior Research Staff Member** Scientific Data Group (previously Statistics and Data Sciences Group), Computer Science and Mathematics Division, Oak Ridge National Laboratory
Since 2009	**Joint Faculty Professor of Statistics** Department of Business Analytics and Statistics, The University of Tennessee, Knoxville
Since 2008	**Computational and Applied Mathematics Staff** The University of Tennessee and Oak Ridge National Laboratory Joint Institute for Computational Sciences

Past Appointments

2003-2009	**Adjunct Professor of Statistics** Department of Statistics, Operations, and Management Science (initially Department of Statistics), The University of Tennessee, Knoxville
1993-2003	**Research Staff Member II** Statistics and Data Sciences Group (previously Statistics Group in Mathematical Sciences Section) Computer Science and Mathematics Division (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

American Association for the Advancement of Science

Association for Computing Machinery Special Interest Group on High Performance Computing

National Ski Patrol

Recognitions

Distinguished Contributor, Computer Science and Mathematics Division, Oak Ridge National Laboratory, September 2012

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

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

Organizing Committee: Conference on Data Analysis (CoDA2012), February 29 - March 2, 2012, Santa Fe, NM

Guest Associate Editor Technometrics, Special Issue on Data-Focused Research across the Department of Energy, 2012-2013

Organizing Committee: Conference on Data Analysis (CoDA2014), March 5-7, 2014, Santa Fe, NM

Guest Associate Editor Statistical Analysis and Data Mining, Special Issue on Data-Focused Research across the Department of Energy, 2014-2015

Grants and Awards

PI: National Institutes of Health grant,"Dose Estimation from Daily and Weekly Dosimetry Data," 1996-1997, $150,000.

PI: DOD/DOE/EPA Strategic Environmental Research and Development Program (SERDP), "Spatial Statistical Models and Optimal Survey Design for Rapid Geophysical Characterization of UXO Sites," 2001-2002, $663,000.

PI: 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.

PI: ORNL Laboratory Directed Research and Development Program (LDRD), "Scalable Tools for Petascale Distributed Data Analysis," 2002-2003, $630,000.

Senior Personnel: DOE Scientific Data Management Integrated Software Infrastructure Center (DOE SciDAC), 2002-2004, $1,660,000.

PI: 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.

Senior Personnel: 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" 2009-2013, $10,000,000.

PI NSF/DMS Grant "Harnessing Scalable Libraries for Statistical Computing on Modern Architectures and Bringing Statistics to Large Scale Computing" 2014-2017, $600,000

Publications

Refereed and Solicited Publications

[1] George Ostrouchov, Joshua New, Jibonananda Sanyal, and Pragneshkumar Patel. "Uncertainty Analysis of a Heavily Instrumented Building at Different Scales of Simulation". In: *3rd International High Performance Buildings Conference*. 3561 (10pp). Pudue University, Lafayette, IN, July 2014.

[2] Wei-Chen Chen, George Ostrouchov, David Pugmire, Prabhat, and Michael Wehner. "A Parallel EM Algorithm for Model-Based Clustering Applied to the Exploration of Large Spatio-Temporal Data". In: *Technometrics* 55.4 (2013), pp. 513–523. DOI: 10.1080/00401706.2013.826146.

[3] George Ostrouchov, Drew Schmidt, Wei-Chen Chen, and Pragneshkumar Patel. "Combining R with Scalable Libraries to Get the Best of Both for Big Data". In: *IASC Satellite Conference for the 59th ISI WSC & the 8th Conference of IASC-ARS*. 2013, pp. 85–90.

[4] Robert Sisneros, Jian Huang, George Ostrouchov, Sean Ahern, and B. David Semeraro. "Contrasting Climate Ensembles: A Model-Based Visualization Approach for Analyzing Extreme Events". In: *Procedia Computer Science* 18 (2013). 2013 International Conference on Computational Science, pp. 2347–2356. DOI: http://dx.doi.org/10.1016/j.procs.2013.05.406.

[5] Lei Jiang, Pragneshkumar B. Patel, George Ostrouchov, and Ferdinand Jamitzky. "OpenMP-style parallelism in data-centered multicore computing with R". In: *SIGPLAN Not.* 47.8 (Feb. 2012), pp. 335–336. ISSN: 0362-1340. DOI: 10.1145/2370036.2145882. URL: http://doi.acm.org/10.1145/2370036.2145882.

[6] Jeremy Logan, Scott Klasky, Hasan Abbasi, Qing Liu, George Ostrouchov, Manish Parashar, Norbert Podhorszki, Yuan Tian, and Matthew Wolf. "Understanding I/O Performance Using I/O Skeletal Applications". In: *Euro-Par 2012 Parallel Processing*. Ed. by Christos Kaklamanis, Theodore Papatheodorou, and PaulG. Spirakis. Vol. 7484. Lecture Notes in Computer Science. Springer Berlin Heidelberg, 2012, pp. 77–88. ISBN: 978-3-642-32819-0. DOI: 10.1007/978-3-642-32820-6_10. URL: http://dx.doi.org/10.1007/978-3-642-32820-6_10.

[7] Drew Schmidt, George Ostrouchov, Wei-Chen Chen, and Pragneshkumar Patel. "Tight Coupling of R and Distributed Linear Algebra for High-Level Programming with Big Data". In: *High Performance Computing, Networking, Storage and Analysis (SCC), 2012 SC Companion:* 2012, pp. 811–815. DOI: 10.1109/SC.Companion.2012.113.

[8] Robert Sisneros, Jian Huang, George Ostrouchov, and Forrest M. Hoffman. "Visualizing Life Zone Boundary Sensitivities Across Climate Models and Temporal Spans". In: *Procedia CS* 4 (2011), pp. 1582–1591.

[9] F. Fuentes, H. Kettani, G. Ostrouchov, M. Stoitsov, and H.A. Nam. "Exploration of High-Dimensional Nuclei Data". In: *Communication Software and Networks, 2010. ICCSN '10. Second International Conference on*. Feb. 2010, pp. 521 –524. DOI: 10.1109/ICCSN.2010.105.

[10] 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". In: *Journal of Physics: Conference Series* 180 (2009), 012084 (18pp). URL: http://stacks.iop.org/1742-6596/180/012084.

[11] George Ostrouchov. "A Matrix Computation View of FastMap and RobustMap Dimension Reduction Algorithms". In: *SIAM Journal on Matrix Analysis and Applications* 31.3 (2009), pp. 1351–1360. DOI: 10.1137/070710767.

[12] 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". In: *Stochastic Environmental Research and Risk Assessment* 23.2 (2009), pp. 215–225.

[13] 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 5th IEEE International Conference on E-Science Workshops*. Dec. 2009, pp. 80–85. DOI: 10.1109/ESCIW.2009.5407992.

[14] 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*. Los Alamitos, CA, USA: IEEE Computer Society, 2009, pp. 173–180. ISBN: 978-0-7695-3564-7. DOI: http://doi.ieeecomputersociety.org/10.1109/ARES.2009.105.

[15] 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)*. 2008, (6pp).

[16] 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". In: *CTWatch Quarterly* 3.4 (Nov. 2007). URL: http://www.ctwatch.org/quarterly/articles/2007/11/does-scidac-visualization-and-analytics-center-for-enabling-technologies-strategy-for-petascale-visual-data-analysis-success/.

[17] 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". In: *Journal of Physics: Conference Series* 78 (2007), 012032 (5pp). URL: http://stacks.iop.org/1742-6596/78/012032.

[18] Kenneth I Joy, Mark Miller, Hank Childs, E Wes Bethel, John Clyne, George Ostrouchov, and Sean Ahern. "Frameworks for visualization at the extreme scale". In: *Journal of Physics: Conference Series* 78 (2007), 012035 (10pp). URL: http://stacks.iop.org/1742-6596/78/012035.

[19] 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". In: *Physical Review E* 76 (2007), pp. 1–15.

[20] S. Khan, G. Kuhn, A. R. Ganguly, III D. J. Erickson, and G. Ostrouchov. "Spatiotemporal variability of daily and weekly precipitation extremes in South America". In: *Water Resources Research* 43 (2007). W11424, doi:10.1029/2006WR005384.

[21] Byung-Hoon Park, George Ostrouchov, and Nagiza F. Samatova. "Sampling Streaming Data with Replacement". In: *Computational Statistics & Data Analysis* 52 (2007), pp. 750–762.

[22] S. Ahern, J. R. Daniel, J. Gao, G. Ostrouchov, R. J. Toedte, and C. Wang. "Multiscale data visualization for computational astrophysics and climate dynamics at Oak Ridge National Laboratory". In: *Journal of Physics: Conference Series* 46 (2006), pp. 550–555. URL: `http://stacks.iop.org/1742-6596/46/550`.

[23] 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". In: *Journal of Physics: Conference Series* 46 (2006), pp. 561–569. URL: `http://stacks.iop.org/1742-6596/46/561`.

[24] 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". In: *Geophysical Research Letters* 33 (2006). L24402, doi:10.1029/2006GL027941.

[25] George Ostrouchov and Nagiza F. Samatova. "On FastMap and the Convex Hull of Multivariate Data: Toward Fast and Robust Dimension Reduction". In: *IEEE Transactions on Pattern Analysis and Machine Intelligence* 27 (2005), pp. 1340–1343.

[26] George Ostrouchov and Nagiza F. Samatova. "Embedding methods and robust statistics for dimension reduction". In: *COMPSTAT2004*. Ed. by Jaromir Antoch. Physica-Verlag, 2004, pp. 359–370.

[27] 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*. 2004, pp. 492–496.

[28] 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*. 2003, pp. 1–6.

[29] Gong-Xin Yu, George Ostrouchov, Al Geist, and Nagiza F. Samatova. "An SVM-based Algorithm for Identification of Photosynthesis-specific Genome Features". In: *Computational Systems Bioinformatics Conference, International IEEE Computer Society* (2003), p. 235. DOI: `http://doi.ieeecomputersociety.org/10.1109/CSB.2003.1227323`.

[30] 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*. ACTA Press, 2002, pp. 174–178.

[31] 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*. 2002, pp. 4–9.

[32] 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)*. 2002, pp. 8–17.

[33] Nagiza F. Samatova, George Ostrouchov, G. Al Geist, and Anatoli Melechko. "RACHET: An Efficient Cover-Based Merging of Clustering Hierarchies from Distributed Datasets". In: *Distributed and Parallel Databases* 11 (2002), pp. 157–180.

[34] 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*. 2001, pp. 16–24.

[35] 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". In: *Computational Statistics & Data Analysis* 32 (2000), pp. 245–258.

[36] Jingqian Jiang, Michael W. Berry, June M. Donato, George Ostrouchov, and Nancy W. Grady. "Mining consumer product data via latent semantic indexing". In: *Intelligent Data Analysis* 3 (1999), pp. 377–398.

[37] George Ostrouchov. "Accounting for bias and measurement error in occupational studies". In: *Radiation Research* 151 (1999), pp. 107–108.

[38] 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". In: *Radiation Research* 147 (1997), pp. 195–207.

[39] George Ostrouchov. "Gopher and other resource discovery tools". In: *Statistical Computing & Graphics* 4(1) (1 1993), pp. 16–17.

[40] George Ostrouchov and Edward L. Frome. "A model search procedure for hierarchical models". In: *Computational Statistics & Data Analysis* 15 (1993), pp. 285–296.

[41] George Ostrouchov. "Computer communication: alternate connections and white pages". In: *Statistical Computing & Graphics* 3 (2 1992), pp. 22–23.

[42] George Ostrouchov. "Computer communication: resource discovery". In: *Statistical Computing & Graphics* 3 (1 1992), pp. 21–22.

[43] George Ostrouchov. "Computer communication: anonymous ftp". In: *Statistical Computing & Graphics* 2 (1 1991), pp. 15–16.

[44] George Ostrouchov. "Computer communication: what's your e-mail address?" In: *Statistical Computing & Graphics* 2 (2 1991), pp. 22–23.

[45] George Ostrouchov. "Computer communication: electronic bulletin boards". In: *Statistical Computing & Graphics* 1 (1 1990), pp. 14–15.

[46] George Ostrouchov. "Computer communication: software distribution libraries". In: *Statistical Computing & Graphics* 1 (2 1990), pp. 17–18.

[47] George Ostrouchov. "ANOVA model fitting via sparse matrix computations: a fast direct method". In: *SIAM J. Scientific and Statistical Computation* 10 (1989), pp. 58–71.

[48] George Ostrouchov and W. Q. Meeker, Jr. "Accuracy of approximate confidence bounds computed from interval censored Weibull and log-normal data". In: *J. Statistical Computation and Simulation* 29 (1988), pp. 43–76.

[49] George Ostrouchov. "Symbolic Givens reduction and row-ordering in large sparse least squares problems". In: *SIAM J. Scientific and Statistical Computation* 8 (1987), pp. 248–264.

Other Publications

[1] George Ostrouchov and. "Computation and Volume Rendering of Large-Scale EOF Coherent Modes in Rotating Turbulent Flow Data". In: *AGU Fall Meeting*. Poster. San Francisco, CA, 2014.

[2] Pragneshkumar Patel, Drew Schmidt, Wei-Chen Chen, and George Ostrouchov. "High-Level Analytics with R and pbdR on Cray Systems". In: *Cray User Group Conference Proceedings*. Lugano, Switzerland, 2014.

[3] S Ahern, A Shoshani, K-L Ma, A Choudhary, T Critchlow, S Klasky, V Pascucci, J Ahrens, EW Bethel, H Childs, J Huang, K Joy, Q Koziol, G Lofstead, J Meredith, K Moreland, G Ostrouchov, M Papka, V Vishwanath, M Wolf, N Wright, and K Wu. "Scientific discovery at the exascale. Report from the DOE ASCR 2011 Workshop on Exascale Data Management". In: *Analysis, and Visualization* (Feb. 2011).

[4] Jeremy Bejarano, Koushiki Bose, Tyler Brannan, Anita Thomas, Kofi Adragni, Nagaraj K. Neerchal, and George Ostrouchov. *Sampling within k-Means Algorithm to Cluster Large Datasets*. Tech. rep. HPCF–2011–12. (HPCF machines used: tara.) UMBC High Performance Computing Facility, University of Maryland, Baltimore County, 2011. URL: `http://www.umbc.edu/hpcreu/2011/projects/team2.html`.

[5] Kary Myers, George Ostrouchov, and Stephanie Pickle. "Section Highlights JSM 2010: Looks Ahead". In: *Amstat News* (Nov. 2011), p. 24. URL: `http://magazine.amstat.org/blog/2010/11/01/spes/`.

[6] George Ostrouchov. "Highlights from Vancouver: SPES Invited and Contributed Program at JSM 2010". In: *SPES & QP Newsletter* 18.2 (Apr. 2011), p. 9.

[7] George Ostrouchov. "Physical and Engineering Sciences JSM Invited Program Outlined". In: *Amstat News* (June 2010), p. 53.

[8] George Ostrouchov. "Call for SPES Sponsored Contributed Posters and Papers at JSM 2010". In: *SPES & QP Newsletter* 17.2 (Dec. 2009), p. 6.

[9] George Ostrouchov. "Invited Sessions for SPES Program at JSM 2010". In: *SPES & QP Newsletter* 17.2 (Dec. 2009), pp. 5–6.

[10] George Ostrouchov. "JSM 2009 Roundtables Roundup". In: *SPES & QP Newsletter* 17.2 (Dec. 2009), p. 5.

[11] George Ostrouchov. *Mid-Life Failure Rate Estimation in Complex Repairable Systems*. Tech. rep. Oak Ridge, TN, 37831: A report to USEC review board, 2009.

[12] Stephen L. Scott, Christian Engelmann, Geoffroy R. Vallée, Thomas Naughton, Anand Tikotekar, George Ostrouchov, Chokchai Leangsuksun, Nichamon Naksinehaboon, Raja Nassar, Mihaela Paun, Frank Mueller, Chao Wang, Arun B. Nagarajan, and Jyothish Varma. "A tunable holistic resiliency approach for high-performance computing systems". In: *PPoPP '09: Proceedings of the 14th ACM SIGPLAN symposium on Principles and practice of parallel programming*. Raleigh, NC, USA: ACM, New York, NY, USA, 2009, pp. 305–306. ISBN: 978-1-60558-397-6. DOI: `http://doi.acm.org/10.1145/1504176.1504227`.

[13] 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.org1st High-Performance Computer Science Week (HPCSW) 2008, Denver, CO, USA. Mar. 30–Apr. 5, 2008.

[14] M. Anitescu, G. Ostrouchov, and L. Pytak-Nolte. "Priority Research Direction: Improved Media Parameterization and Reconstruction". In: *Report of the Computational Subsurface Sciences Workshop*. DOE Office of Science, 2007, pp. 242–250.

[15] George Ostrouchov. *Analysis by Threat Decomposition*. Tech. rep. Oak Ridge, TN, 37831: OUO report to DOE/SC Office of Safety, Security and Infrastructure (SC-31), 2007.

[16] George Ostrouchov. *Inner Layer Threat with Two Layer Protection Systems*. Tech. rep. Oak Ridge, TN, 37831: OUO report to DOE/SC Office of Safety, Security and Infrastructure (SC-31), 2006.

[17] George Ostrouchov. "Odds of more math articles increase". In: *ORNL Reporter* (2006). (A note on probability of football score matching winning lottery numbers), p. 3.

[18] 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.

[19] 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)*. 2005, pp. 25–26.

[20] 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*. Tech. rep. ORNL/TM-2003/140. Oak Ridge, TN 37831: Oak Ridge National Laboratory, 2003.

[21] 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*. Tech. rep. Arlington, Virginia: Genomes to Life Contractor-Grantee Workshop I, Feb. 9–12, 2003, pp. 16–17.

[22] 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*. Tech. rep. Project CU-1201. SERDP, 2003.

[23] George Ostrouchov and Nagiza F. Samatova. *High end computing for full-context analysis and visualization: when the experiment is done*. White paper accepted by the High End Computing Revitalization Task Force (HECRTF) Washington, DC. June 2003.

[24] 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*. 2003, pp. 735–738.

[25] 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*. Tech. rep. ORNL/TM-TBD. Oak Ridge, TN 37831: Oak Ridge National Laboratory, 2002.

[26] Thomas H. Dunigan and George Ostrouchov. *Flow Characterization for Intrusion Detection*. Tech. rep. ORNL/TM-2001/115. Oak Ridge, TN 37831: Oak Ridge National Laboratory, 2001.

[27] 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*. 2000, J8–J11.

[28] George Ostrouchov, Edward L. Frome, and George D. Kerr. *Dose estimation from daily and weekly dosimetry data*. Tech. rep. ORNL/TM-1999/282. Oak Ridge, TN 37831: Oak Ridge National Laboratory, 1999.

[29] 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". In: *Short Book Reviews* 18.2 (Aug. 1998), pp. 26–27.

[30] 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*. Tech. rep. ORNL/TM-13588. Oak Ridge, TN 37830: Oak Ridge National Laboratory, 1998.

[31] 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". In: *Computing Science and Statistics* 29.2 (1997), pp. 8–14.

[32] Richard L. Schmoyer and George Ostrouchov. "Multinomial Likelihood Ratio Test for Trend in Count Data". Unpublished report, Computer Science and Mathematics Division, Oak Ridge National Laboratory. 1997.

[33] D. J. Downing, V. Fedorov, W. F. Lawkins, M. D. Morris, and G. Ostrouchov. *Large Datasets: Segmentation, Feature Extraction, and Compression*. Tech. rep. ORNL/TM-13114. Oak Ridge National Laboratory, 1996.

[34] 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*. Tech. rep. ORNL/TM-13115. Oak Ridge, TN 37831: Oak Ridge National Laboratory, 1996.

[35] D. J. Downing, W. F. Lawkins, M. D. Morris, and G. Ostrouchov. *A Method for Detecting Changes in Long Time Series*. Tech. rep. ORNL/TM-12879. Oak Ridge, TN 37831: Oak Ridge National Laboratory, 1995.

[36] Sallie Keller-McNulty and George Ostrouchov. *Error-Free Least Squares Based on LU Factorization Applicable to Sparse Problems*. Tech. rep. I-95-1. Department of Statistics, Kansas State University, 1995.

[37] George Ostrouchov. "HModel: An X tool for global model search". In: *Computational Statistics, Volume 1*. Ed. by Yadolah Dodge and Joe Whittaker. Physica-Verlag, 1992, pp. 269–274.

[38] George Ostrouchov. *Minimum-size samples in model-based sampling*. Tech. rep. Oak Ridge, TN 37830: Oak Ridge National Laboratory, 1991.

[39] 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*. Tech. rep. K/DSRD-733, limited distribution. Oak Ridge, TN 37831: Martin Marietta Energy Systems, 1991.

[40] George Ostrouchov and Edward L. Frome. "A model search procedure for hierarchical log-linear models". In: *1989 Proceedings of the Statistical Computing Section*. American Statistical Association, 1989, pp. 277–282.

[41] George Ostrouchov. "Parallel computing on a hypercube: an overview of the architecture and some applications". In: *Proceedings of the 19th Symposium on the Interface of Computer Science and Statistics*. Ed. by Richard M. Heiberger. American Statistical Association, 1987, pp. 27–32.

[42] George Ostrouchov. "Large sparse least squares computations". PhD thesis. Iowa State University, 1984.

Software

[1] Drew Schmidt, Wei-Chen Chen, George Ostrouchov, and Pragneshkumar Patel. *pbdDEMO: Programming with Big Data - Demonstrations of pbd Packages*. R Package. 2013. URL: `http://cran.r-project.org/package=pbdDEMO`.

[2] Drew Schmidt, Wei-Chen Chen, Pragneskumar Patel, and George Ostrouchov. *Speaking Serial R with a Parallel Accent: pbdR Package Examples and Demonstrations*. `http://cran.r-project.org/web/packages/pbdDEMO /vignettes/pbdDEMO-guide.pdf`. CRAN Vignette. 2013.

[3] W.C. Chen, G. Ostrouchov, D. Schmidt, P. Patel, and H. Yu. "A Quick Guide for the pbdMPI Package". In: *CRAN Vignette* (2012). URL: `http://cran.r-project.org/web/packages/pbdMPI/vignettes/pbdMPI-guide.pdf`.

[4] WC Chen, G Ostrouchov, D Schmidt, P Patel, and H Yu. *pbdMPI: Programming with Big Data–Interface to MPI*. R Package. 2012. URL: `http://cran.r-project.org/package=pbdMPI`.

[5] W.C. Chen, D. Schmidt, G. Ostrouchov, and P. Patel. "A Quick Guide for the pbdSLAP Package". In: *CRAN Vignette* (2012). URL: http://cran.r-project.org/web/packages/pbdSLAP/vignettes/pbdSLAP-guide.pdf.

[6] WC Chen, D Schmidt, G Ostrouchov, and P Patel. *pbdSLAP: Programming with Big Data - Scalable Linear Algebra Packages*. R Package. 2012. URL: http://cran.r-project.org/package=pbdSLAP.

[7] P. Patel, G. Ostrouchov, W.-C. Chen, D. Schmidt, and D. Pierce. "A Quick Guide for the pbdNCDF4 Package". In: *R Vignette* (2012). URL: http://cran.r-project.org/web/packages/pbdSLAP/vignettes/pbdNCDF4-guide.pdf.

[8] Pragneshkumar Patel, George Ostrouchov, Wei-Chen Chen, Drew Schmidt, and David Pierce. *pbdNCDF4: Programming with Big Data - Interface to Parallel Unidata NetCDF4 Format Data Files*. R Package. 2012. URL: http://cran.r-project.org/package=pbdNCDF4.

[9] D. Schmidt, W.C. Chen, G. Ostrouchov, and P. Patel. "A Quick Guide for the pbdBASE package". In: *CRAN Vignette* (2012). URL: http://cran.r-project.org/web/packages/pbdBASE/vignettes/pbdBASE-guide.pdf.

[10] D. Schmidt, W.C. Chen, G. Ostrouchov, and P. Patel. "A Quick Guide for the pbdDMAT Package". In: *CRAN Vignette* (2012). URL: http://cran.r-project.org/web/packages/pbdDMAT/vignettes/pbdDMAT-guide.pdf.

[11] Drew Schmidt, Wei-Chen Chen, George Ostrouchov, and Pragneshkumar Patel. *pbdBASE: Programming with Big Data – Base Wrappers for Distributed Matrices*. R Package. 2012. URL: http://cran.r-project.org/package=pbdBASE.

[12] Drew Schmidt, Wei-Chen Chen, George Ostrouchov, and Pragneshkumar Patel. *pbdDMAT Programming with Big Data - Distributed Matrix Methods*. R Package. 2012. URL: http://cran.r-project.org/package=pbdDMAT.

Invited Presentations

[1] George Ostrouchov. "pbdR: A Sustainable Path for Scalable Statistical Computing". Workshop on Distributed Computing in R. Palo Alto, CA, Jan. 26–27, 2015.

[2] George Ostrouchov. "R and pbdR: An Overview". Faculty of Mathematics and Physics, Charles University. Praha, Czech Republic, Jan. 16, 2015.

[3] George Ostrouchov. "Elevating R to Supercomputers with Scalable Libraries". Institute of Statistical Mathematics. Tokyo, Japan, Feb. 17, 2014.

[4] George Ostrouchov. "pbdR: Bringing R Analytics to Large Distributed Architectures". Swiss Supercomputing Center. Lugano, Switzerland, June 20, 2014.

[5] George Ostrouchov. "Taking R to Big Platforms and Supercomputers with pbdR". Bioconductor Developer Day Keynote. Boston, MA, July 30, 2014.

[6] Sean Ahern, David Pugmire, George Ostrouchov, and Scott Klasky. "Data Analysis and Visualization of Big Data from HPC". SOS17 Conference. Jekyll Island, GA, Mar. 25–28, 2013.

[7] Wei-Chen Chen and George Ostrouchov. "Distributed Parallel Clustering in R with Large Data". 59th World Statistics Congress. Hong Kong, PRC, Aug. 25–30, 2013.

[8] George Ostrouchov. "Optimizing Data Layout in Distributed Parallel Statistical Computing". REU Site: Interdisciplinary Program in High Performance Computing. University of Maryland, Baltimore County, MD, June 20, 2013.

[9] George Ostrouchov. "pbdR: Programming with Big Data in R". Department of Biostatistics. Virginia Commonwealth University, Richmond, VA, Nov. 15, 2013.

[10] George Ostrouchov, Wei-Chen Chen, Drew Schmidt, and Pragneshkumar Patel. "Programming with Big Data in R". Joint Statistical Meetings. Montreal, Canada, Aug. 4–8, 2013.

[11] George Ostrouchov and Drew Schmidt. "pbdR: Programming with big data in R". Workshop on Processing and Analysis of Very Large Data Sets. Knoxville, TN, Aug. 6–8, 2013.

[12] George Ostrouchov, Drew Schmidt, Wei-Chen Chen, and Pragneshkumar Patel. "Bringing Exploratory Analytics to Big Data on Leadership Class HPC Platforms". SIAM Conference on Computational Science and Engineering. Boston, MA, Feb. 25–Mar. 1, 2013.

[13] George Ostrouchov, Drew Schmidt, Wei-Chen Chen, and Pragneshkumar Patel. "Combining R with Scalable Libraries to Get the Best of Both for Big Data". In: *IASC Satellite Conference for the 59th ISI WSC & the 8th Conference of IASC-ARS*. 2013, pp. 85–90.

[14] George Ostrouchov. "Data Parallel Statistical Computing and R". Conference on Data Analysis. Santa Fe, NM, Feb. 29–Mar. 2, 2012.

[15] George Ostrouchov. "Statistical Computing with Big Data". SAMSI Massive Data Working Group. WebEx, Nov. 13, 2012.

[16] George Ostrouchov. "Data and Statistics in High Performance Computing". International Conference on Software and Intelligent Information (ICSII 2011). Keynote. San Juan, Puerto Rico, Oct. 22, 2011. URL: `http://www.iacsit.org`.

[17] George Ostrouchov. "Tools for Sampling Large Distributed Data". REU 2011. University of Maryland Baltimore County, Baltimore, MD, June 30, 2011.

[18] 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.

[19] George Ostrouchov. "Data, Statistics, and High Performance Computing". International Conference on Software Technology and Engineering. Keynote. San Juan, Puerto Rico, Oct. 3–5, 2010.

[20] George Ostrouchov. "Parallel statistical computing: Are we embracing the scalable concurrency revolution?" Joint Statistical Meetings. Vancouver, Canada, Aug. 1–6, 2010.

[21] George Ostrouchov. "Statistics and High Performance Computing: Focus on Data". University of Maryland Baltimore County, Baltimore, MD, Dec. 3, 2010.

[22] George Ostrouchov. "Data Analysis for HPC Resilience: A Perspective from Statistics". National HPC Workshop on Resilience. Washington, DC, Aug. 12–14, 2009.

[23] 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.

[24] 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.

[25] 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, Aug. 2–6, 2009.

[26] George Ostrouchov. “Data-Parallel Analysis and Graphics with R”. DOE Computer Graphics Forum. Duck, NC, Apr. 28–30, 2008.

[27] George Ostrouchov. “Stalking the Interactive Terabyte with R: Data-Parallel Statistical Computing”. Department of Statistics, Operations, and Management Science, University of Tennessee, Apr. 29, 2008.

[28] 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”. Fifth Symposium on Understanding Complex Systems. University of Illinois at Urbana-Champaign, May 2005.

[29] George Ostrouchov. “From Distance-Based Dimension Reduction to Robust Statistics and Matrix Computation”. Department of Statistics, University of Georgia, Oct. 2005.

[30] George Ostrouchov. “Data from long-running simulations on high performance computers”. Symposium 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.

[31] George Ostrouchov. “Data Intensive Analysis and Visualization Projects at ORNL”. National Institute of Standards. Washington, DC, May 6, 2004.

[32] George Ostrouchov. “Uncertainty Quantification: Barriers and Challenges for Multiscale Mathematics”. DOE Multiscale Mathematics Workshop. Alexandria, VA, May 3–5, 2004.

[33] 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, Czech, Aug. 23, 2004–Aug. 27, 2008.

[34] 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. San Francisco, CA, Feb. 25–27, 2004.

[35] 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.

[36] George Ostrouchov. “Spatial Point Process Models and Geophysics for Accurate Remediation Decisions at UXO Sites”. 5th EPA/COE Conceptual Site Model Meeting. Seattle, Washington, Mar. 6–7, 2002.

[37] 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, Dec. 6, 2002.

[38] 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. Knoxville, Tennessee, June 22–25, 2002.

[39] George Ostrouchov and Nagiza F. Samatova. "Multivariate Analysis of Massive Distributed Data Sets". Spring Research Conference on Statistics. Ann Arbor, Michigan, Mar. 20–22, 2002.

[40] N. F. Samatova, G. A. Geist, and G. Ostrouchov. "RACHET: Petascale Distributed Data Analysis Suite". SPEEDUP Workshop on Distributed Supercomputing Data Intensive Computing. Leukerbad, Valais, Switzerland, Mar. 4–6, 2002.

[41] George Ostrouchov. "Sparse Least Squares Computations in Statistical Applications". Numerical Linear Algebra Year Lectures on Least Squares Computations. University of Tennessee, May 1988.

[42] George Ostrouchov. "Sparse Matrix Computations in Analysis of Variance". Department of Statistics, University of Tennessee, Feb. 25, 1988.

[43] George Ostrouchov. "Sparse Matrix Computations in Analysis of Variance". Kansas State University, Manhattan, Kansas, Apr. 7, 1988.

[44] George Ostrouchov. "Sparse Matrix Computations in Analysis of Variance". Numerical Linear Algebra Year Lectures on Least Squares Computations. University of Tennessee, Apr. 1988.

[45] George Ostrouchov. "Sparse Matrix Computations in Analysis of Variance". Third SIAM Conference on Applied Linear Algebra. Madison, Wisconsin, May 23–26, 1988.

[46] George Ostrouchov. "Statistical Computing on a Hypercube". Kansas State University, Manhattan, Kansas, Apr. 5, 1988.

[47] George Ostrouchov. "Statistical Computing on a Hypercube". 20th Symposium on the Interface of Computing Science and Statistics. Reston, VA, Apr. 21–23, 1988.

[48] 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.

[49] 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, Mar. 8–11, 1987.

[50] George Ostrouchov. "Symbolic Givens Reduction in Large Sparse Least Squares Problems". SIAM Summer Meeting. Seattle, Washington, July 16–20, 1984.

Languages

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