Currículum Vitae Summary

Sara J. Graves, Ph.D.

Director, Information Technology & Systems Center
University Professor and Professor of Computer Science
The University of Alabama in Huntsville (UAH)
Director, Information Technology Research Center
National Space Science and Technology Center
Huntsville, Alabama 35899

Phone: (256) 824-6064
Fax: (256) 824-5149
E-mail: sgraves@itsc.uah.edu
Web: www.itsc.uah.edu

Research Interests: Distributed information systems, data mining and knowledge discovery, high performance computing and networking, grid technologies and services, geoinformatics, scientific data analysis and visualization.

Brief Professional Experience:
The University of Alabama in Huntsville, Director of Information Technology & Systems Center, University Professor, Professor of Computer Science, Vice President for University Advancement, Executive Director of UAH Foundation, Huntsville, AL.
National Space Science and Technology Center, Director of Information Technology Research Center
California Institute of Technology, Jet Propulsion Laboratory, Visiting Senior Scientist with Office of Space Science and Applications, NASA Headquarters, Code SE, Washington, D.C.

Selected Professional Activities:
Member, U.S. National Committee for CODATA, 2003-2009.
The National Academies Committee on "Archiving and Accessing Environmental and Geospatial Data at NOAA," 2006-07.
CODATA Task Group on Preservation and Archiving of Scientific and Technical Data in Developing Countries, "Strategies for Permanent Access to Scientific Information in Latin America: Focus on Health and Environmental Information for Sustainable Development," Brazilian and U.S. National Committees for CODATA, Organizing Committee Member, March 2007.
Statistical Analysis and Data Mining, Editorial Board, John Wiley & Sons, Inc., 2006.
Founding Member, National Oceanic and Atmospheric Administration Science Advisory Board Data Archiving and Access Requirements Working Group, 2006-09.
Advisory Committee for Cyberinfrastructure, National Science Foundation, 2006-07.
Second NASA Data Mining Workshop: Issues and Applications in Earth Science, Chair, 2006
Southeastern Universities Research Association (SURA) Board of Trustees, 2005-2007.
Earth Systems Science Applications Advisory Committee (ESSAAC) and Chair, ESSAAC Subcommittee on Information Systems and Services (ESISS), NASA Headquarters, 1999-2003, ESISS and Technology Subcommittee 2003-2005.
Information Science and Technology Visiting Committee, NASA/GSFC, 2001-2006.
National Biological Information Infrastructure (NBII) Science Committee, 2003-2006.
Thirty-sixth Symposium on the Interface of Statistics, Computer Science & Applications Program Committee, Interface 2006, May 24-27, 2006.
SIAM International Conference on Data Mining, Keynote Speaker, 2004.
Network for Earthquake Engineering Simulation (NEES) Grid Executive Advisory Board, 2003.
SIAM Data Mining Program Committee, 2002-2004.
New Data and Information Systems and Services Working Group (New DISS), NASA Headquarters, 1998-2000.
Digital Earth Federal Interagency Planning Group, 1999-2000.
Gulf Central Gigapop Board, Founding Member, 1998-Present.
Leadership Alabama, 1999.
IEEE Advances in Digital Libraries Conference, Invited Chair for 'Data Mining Technology and Its Application in Digital Libraries', 1998, Program Committee 1999.

IEEE Metadata Conference, Program Committee 1997-1999.
NASA Earth Observing System Data Information System Review Group, Chair, 1997-1999.
NASA Workshop on Issues in the Application of Data Mining to Scientific Data, Co-Chair, 1999.

Selected Publications/Presentations:
"Product Delivery Record Server Data Transfer at the AMSR-E SIPS," Regner, Kathryn, Helen Conover, Sara Graves, Lamar Hawkins, H. Michael Goodman, 2006 IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Denver, CO, July 31-August 4, 2006.
"Ontology Re-engineering Use Case: Extending SWEET to map Climate and Forecasting Vocabulary Terms", Rahul Ramachandran, Sara J. Graves, R. Raskin, American Geophysical Union 2006 Spring Meeting, Baltimore, MD, May 23-26, 2006.
"Advanced Information Management Services in SCOOP, an IOOS Testbed", Helen Conover, Ken Keiser, Sara J. Graves, Bruce Beaumont, Marilyn Drewry, Manil Maskey, American Geophysical Union 2006 Spring Meeting, Baltimore, MD, May 23-26, 2006.
"Implementing GEOSS Goals in Mesoamerica through the SERVIR Project", Danny Hardin, Sara J. Graves, Tom Sever, Dan Irwin, American Geophysical Union 2006 Spring Meeting, Baltimore, MD, May 23-26, 2006.
"Real time target tracking with binary sensor networks and parallel computing," Hong Lin, John Rushing, Sara J. Graves, Steve Tanner, and Evans Criswell, IEEE International Conference on Granular Computing, Atlanta, GA, May 10-12, 2006.
"A Hybrid Object-based/Pixel-based Classification Approach to Detect Geophysical Phenomena," presented at Second NASA Data Mining Workshop: Issues and Applications in Earth Science, Pasadena, CA, 2006.
"PEA: Phenomena Extraction Algorithm," Ramachandran, R., X. Li, S. Graves, R. D. Clark, and D. Fitzgerald. 22nd International Conference on Interactive Information Processing Systems (IIPS), 86th American Meteorological Society Annual Meeting, Atlanta, Georgia, 2006.
"Ontology-based Semantic Search Tool for Atmospheric Science," Ramachandran, R., S. Movva, and S. Graves. 22nd International Conference on Interactive Information Processing Systems (IIPS), 86th American Meteorological Society Annual Meeting, Atlanta, Georgia, 2006.
"SCOOP: Using web services to manage coastal modeling metadata and data", Ken Keiser, Matt Smith, Sara Graves, Helen Conover, OOSTech2005 Workshop, Baltimore, MD, October 2005.
"Earth Science Markup Language (ESML)", Ken Keiser, Helen Conover, Rahul Ramachandran, Sara Graves, Earth Science Data System Working Group Meeting, Baltimore, MD, October 2005.
"Metadata Challenge," invited talk, NSF National Forum on Geosciences Information Technology, Washington, DC, October 6-7, 2005.
"Bird's-eye view of data mining in geosciences," R. Ramachandran, J. Rushing, X. Li, C. Kamath, H. Conover, S. Graves, Geoinformatics, GSA Special Paper 397, June 2005.
"Syntactic and Semantic Metadata Integration for Science Data Use," Computers and Geosciences , S. Movva, R. Ramachandran, X. Li, S. Khaire, K. Keiser, H. Conover, and S. Graves, Vol. 31, 1079-1200, 2005.
"Automated detection of frontal systems from numerical model-generated data," X. Li, R. Ramachandran, S. Graves, S. Movva, B. Akkiraju, D. Emmitt, S. Greco, R. Atlas, J. Terry, J.C. Jusem, The 11th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, Chicago, IL, August 21-24, 2005.
"Intelligent Data Thinning Algorithm for Earth System Numerical Model Research and Application," R. Ramachandran, X. Li, S. Movva, S. Graves, S. Greco, D. Emmitt, J. Terry, and R. Atlas, 21st International Conference on Interactive Information Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology, 85th AMS Annual Meeting, San Diego, CA., 2005.
"ADaM: A Data Mining Toolkit for Scientists and Engineers," J. Rushing, R. Ramachandran, U. Nair, S. Graves, R. Welch, A. Lin, Journal of Computers and Geosciences, Vol. 31, Issue 5, 2005.
"Earth Science Markup Language: A Solution to Address Data Format Heterogeneity Problems in Atmospheric Sciences," R. Ramachandran, S. A. Christopher, S. Movva, X. Li, H. Conover, K. Keiser, S. Graves, R. McNider, Journal of the American Meteorological Society, 2005.

"Flexible Processing at the AMSR-E SIPS," K. Regner, H. Conover, B. Beaumont, S. J. Graves, L. Hawkins, Philip Parker, et al, International Geoscience and Remote Sensing Symposium (IGARSS) 2005, Seoul, Korea, July 25-29, 2005.

"Data Mining, Remote Sensing and Biodiversity," S. J. Graves, Keynote Speaker, Biodiversity and Ecosystem Informatics Working Group, Washington, DC, February 15, 2005.

"Parade of Grids: SCOOP-SURA Coastal Ocean Observing and Prediction Program," S. J. Graves, S. Redman, SURA Cyberinfrastructure Workshop: Grid Application Planning and Implementation, Atlanta, GA, January 6, 2005.

"Linked Environments for Atmospheric Discovery (LEAD): Architecture, Technology Roadmap and Deployment Strategy," K. Droegemeier, Dennis Gannon, Sara Graves, Mohan Ramamurthy, Robert Wilhelmson, Rahul Ramachandran, Daniel Reed, John Rushing, et al, 21st Conference on Interactive Information Processing , Meterology, Oceanography, and Hydrology, San Diego, CA, American Meteorological Society, 2005.

"A Prototype for Earth Science Data on Demand", Helen Conover, Brian Nelson, Glenn Rutledge, John Bates, Ken Keiser, Rahul Ramachandran, Mark Govett, American Geophysical Union 2004 Fall Meeting, San Francisco, CA, Dec. 13 - 17, 2004

"A Syntactic and Semantic Metadata Solution for Intelligent Applications in Earth Science", Rahul Ramachandran, Helen Conover, Ken Keiser, Sunil Movva, Sara J. Graves, American Geophysical Union 2004 Fall Meeting, San Francisco, CA, Dec. 13 - 17, 2004.

"Distributed Technologies in a Data Pool", Ken Keiser, Helen Conover, Sara J. Graves, Yubin He, Kathryn Regner, Matt Smith, American Geophysical Union 2004 Fall Meeting, San Francisco, CA, Dec. 13 - 17, 2004

2004 SIAM International Conference on Data Mining, S. J. Graves, Keynote Speaker, Program Committee, Workshop Co-Chair, HPDM: High Performance and Distributed Mining, 7th International Workshop on High Performance and Distributed Mining, Lake Buena Vista, Florida, April 22-24, 2004.

"Comparing Different Thresholding Algorithms for Segmenting Auroras, Space Science Computation and IT Applications", X. Li, R. Ramachandran, M. He, S. Movva, J. Rushing, and S. J. Graves, International Conference on Information Technology, IEEE Computer Society, Las Vegas, NV, April 2004.

"Mining NEXRAD Radar Data: An Investigative Study", X. Li, R. Ramachandran, J. Rushing, S. J. Graves, K. Kelleher, S. Lakshmivarahan, D. Kennedy, and J. Levit, 80th AMS Annual Meeting, 20th International Conference on Interactive Information and Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology, Seattle, WA, January 11-15, 2004.

"Earth Science Markup Language(ESML): a solution for scientific data-application interoperability problem," R. Ramachandran, S. Graves, H. Conover and K. Moe, Journal of Computers & Geosciences, Vol. 30, pp. 117-124, 2004.

"New Technologies for Improving Earth Science Data Usability", H. Conover, S. J. Graves, R. Ramachandran, S. Redman, J. Rushing, and S. Tanner, Poster Presentation, Fall AGU 2003, San Francisco, CA, December 8-12, 2003.

"Subsetting AMSR-E Data", M. R. Smith, B. Beaumont, H. Conover, H. M. Goodman, and S. J. Graves, Poster Presentation, Fall AGU 2003, San Francisco, CA, December 8-12, 2003.

"Data Mining on the TeraGrid," H. Conover, S. J. Graves, R. Ramachandran, S. Redman, J. Rushing, S. Tanner, and R. Wilhelmson, Supercomputing Conference 2003, Poster accepted for presentation, Phoenix, AZ, November 15-21, 2003.

"An Interoperable Environment for Geospatial Data", S. J. Graves, K. Keiser, H. Conover, S. Tanner, and R. Ramachandran, 2003 IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Toulouse, France, July 21-25, 2003.

"Introducing Subset.Org: A Portal for Subsetting Applications and Related Tools," D. Hardin, M. He and S. J. Graves, American Meteorological Society's (AMS) 19th International Conference on Interactive Information Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology, Long Beach, CA, February 9-13, 2003.

"Earth Science Markup Language: A Solution to the Earth Science Data Format Heterogeneity Problem," R. Ramachandran, H. Conover, S. J. Graves and S. Christopher, American Meteorological Society's

(AMS) 19th International Conference on Interactive Information Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology, Long Beach, CA, February 9-13, 2003.

"Distributed Services Technology for Earth Science Data Processing," K. Keiser, R. Ramachandran, J. Rushing, H. Conover and S. J. Graves, American Meteorological Society's (AMS) 19th International Conference on Interactive Information Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology, Long Beach, CA, February 9-13, 2003.

"Flexible Framework for Mining Meteorological Data," R. Ramachandran, J. Rushing, H. Conover, S. J. Graves and K. Keiser, accepted for presentation at the American Meteorological Society's (AMS) 19th International Conference on Interactive Information Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology, Long Beach, CA, February 9-13, 2003.

"On-Board Mining in the Sensor Web," S. Tanner, S. J. Graves, R. Ramachandran, M. Alshayeb, E. Criswell, A. McDowell, M. McEniry and K. Regner, NSF Data Mining Workshop, Baltimore, MD, November 1-3, 2002.

"Biological Invasions: A Challenge in Ecological Forecasting," J. L. Schnase, J. A. Smith, T. J. Stohlgren, S. J. Graves, and C. Trees, IGARSS 2002 – IEEE International Geoscience and Remote Sensing Symposium, Toronto, Canada, June 22-29, 2002.

"Creating a Data Mining Environment for Geoscience Data" – Invited Talk and "Geoinformatics" – Invited Session Chair, S.J. Graves. Interface 2002- Theme of 34th Symposium is Geoscience and Remote Sensing, Montreal, Canada, April 17-20, 2002.

"Earth Science Data Mining and Knowledge Discovery Framework," Y. He, R. Ramachandran, U.S. Nair, K. Keiser, H. Conover, and S. Graves, SIAM International Conference on Data Mining, Arlington, VA, April 11-13, 2002.

"EVE: An Environment for On-board Processing," S. Tanner, M. Alshayeb, E. Criswell, S. J. Graves, A. McDowell, and M. McEniry, NASA Earth Science Technology Conference 2001, August 28-30, 2001.

"Flexible Earth Science Data Mining System Architecture," R. Ramachandran, H. Conover, S. J. Graves, K. Keiser, S. Movva, and S. Tanner. Fourth Workshop on Mining Scientific Datasets, Seventh ACM SigKDD International Conference on Knowledge Discovery and Data Mining, San Francisco, CA, August 26-29, 2001.

"Using Association Rules as Texture Features," J. Rushing, H. Ranganath, T. Hinke, and S. J. Graves, IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 23, No. 8, pp. 845-858, August 2001.

"Image Segmentation Using Association Rule Features," J. Rushing, H. Ranganath, T. H. Hinke, and S. J. Graves, IEEE Signal Processing Society, December 2001.

"Creating an Environment for Scientific Data Mining," S. J. Graves. Keynote address for the Society for Industrial and Applied Mathematics (SIAM) – Third Workshop on Mining Scientific Datasets, Chicago, April 7, 2001.

"Comparing Texture Feature Characterization Methods for Cumulus Cloud Classification in GOES Images", R. Ramachandran, J. A. Rushing, U.S. Nair, S. J. Graves, S. Tanner, and R. M. Welch. Third Workshop on Mining Scientific Datasets held in conjunction with the First SIAM Conference on Data Mining, Chicago, April 7, 2001.

"Techniques and Experience in Mining Remotely Sensed Satellite Data," T. H. Hinke, J. Rushing, H. Ranganath and S. J. Graves. Artificial Intelligence Review (AIRE, S4): Issues on the Application of Data Mining, pp. 503-531, 2001.

"Detection of Cumulus Cloud Fields in Satellite Imagery," U. Nair, J. Rushing, R. Ramachandran, K. Kuo, S. J. Graves and R. Welch, The International Symposium on Optical Science, Engineering and Instrumentation, Denver, 1999.

"The Role of Data Mining in Earth Science Data Interoperability," R. Ramachandran, H. Conover, S. J.Graves, K. Keiser, and J. Rushing. ASPRS Annual Conference, Conference on Remote Sensing Education (CORSE), Education for the Next Millennium, Portland, Oregon May 17-22, 1999.

"Target-Independent Mining for Scientific Data," T. H. Hinke, J. Rushing, H. Ranganath, and S. J. Graves. Third International Conference on Knowledge Discovery and Data Mining (KDD-97), August 14 - 17, 1997.