Biographical Sketch for Gary Liu

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Education

Doctor of Philosophy, Computer Engineering, University of New Mexico, 2008.
Master, Computer Science, Nanjing University of Posts & Telecom, China, 2004

Selected Professional Experience

2012 – present, Research Scientist, Oak Ridge National Laboratory, Oak Ridge, TN
2010 – 2012, Computational Scientist, National Institute for Computational Sciences, Oak Ridge, TN
2009 – 2010, Postdoc Research Associate, Oak Ridge National Laboratory, Oak Ridge, TN

Recent Ten Publications

1. D. Boyuka, S. Lakshminarasimhan, X. Zou, Z. Gong, J. Jenkins, E. Schendel, N. Podhorszki, Q. Liu, S. Klasky, N. Samatova, "Toward Transparent In Situ Data Transformations in ADIOS", CCGrid, 2014
2. Y. Zhang, Q. Liu, S. Klasky, M. Wolf, K. Schwan, G. Eisenhauer, J. Choi, N. Podhorszki, "Active Workflow System for Near Real-Time Extreme-Scale Science," In PPoPP Workshop on Parallel Programming for Analytics Applications, 2014.
3. Q. Liu, J. Logan, Y. Tian, H. Abbasi, N. Podhorszki, J-Y. Choi, S. Klasky, R. Tchoua, J. Lofstead, R. Oldfield, M. Parashar, N. Samatova, K. Schwan, A. Shoshani, M. Wolf, K. Wu, W. Yu: Hello ADIOS: the challenges and lessons of developing leadership class I/O frameworks. Concurrency and Computation: Practice and Experience, 2013. doi: 10.1002/cpe.3125.
4. Qing Liu, Norbert Podhorszki, Jeremy Logan, Scott Klasky. "Runtime I/O Re-Routing + Throttling on HPC Storage," In USENIX HotStorage, 2013
5. Zhenhuan Gong, David A. Boyuka II, Xiaocheng Zou, Qing Liu, Norbert Podhorszki, Scott Klasky, Nagiza F. Samatova, "PARLO: PArallel Run-time Layout Optimization for Scientific Data Explorations with Heterogeneous Access Patterns", CCGrid, 2013.
6. E. Schendel, S. Pendse, J. Jenkins, D. Boyuka, Z. Gong, S. Lakshminarasimhan, Q. Liu S. Klasky, R. Ross, N. Samatova, "ISOBAR Hybrid Compression-I/O Interleaving for Large-scale Parallel I/O Optimizations, HPDC 2012.
7. J. Lofstead, M. Polte, G. Gibson, S. Klasky, K. Schwan, R. Oldfield, M. Wolf, Q. Liu, "Six Degrees of Scientific Data: Reading Patterns for extreme scale science IO", HPDC 2011.
8. Jay Lofstead, Fang Zheng, Qing Liu, Scott Klasky, Ron Oldfield, Todd Kordenbrock, Karsten Schwan, Matthew Wolf. "Managing Variability in the IO Performance of Petascale Storage Systems". In Proceedings of SC 10. New Orleans, LA. November 2010.
9. F. Zheng, H. Abbasi, C. Docan, J. Lofstead, Q. Liu, S. Klasky, M. Parashar, N. Podhorszki, K. Schwan, M. Wolf, "PreDatA - Preparatory Data Analytics on Peta-Scale Machines", IPDPS 2010, IEEE Computer Society Press 2010.
10. M. Polte, J. Lofstead, J. Bent, G. Gibson, Scott A Klasky, Q. Liu, M. Parashar, K. Schwan, M. Wolf, , "...And eat it too: High read performance in write-optimized HPC I/O middleware file formats", 4th Petascale Data Storage Workshop (PDSW 09), SuperComputing, Portland, OR, November 16, 2009

Select Synergistic Activities

General: Extensive experience in parallel I/O, scientific data management, high-speed networking and workflow systems. **OLCF:** My responsibility in the Oak Ridge Leadership Facility is to develop new data management capabilities that help applications utilize computing resources efficiently. **DOE ASCR SciDAC Scalable Data Analysis and Visualization:** My role is to develop next generation I/O frameworks for exascale systems. **DOE SciDAC Scientific Data Management Center:** One of the two

lead developers of Adaptable I/O System (ADIOS) and worked with domain scientists (e.g., fusion, combustion, etc) extensively. I was also involved in NSF RDAV center to provide scalable I/O support for remote visualization. The software product won the R&D 100 award in 2013.

Recent Collaborators (outside Oak Ridge National laboratory)

S. Ahern (UTK), D. Boyuka (NCSU), H. Bui (Rutgers), S. Ethier (PPPL), X. He (VCU), Y. Jin (NCSU), T. Kurc (Stony Brook), X. Ma (NCSU), M. Parashar (Rutgers), N. Samatova (NCSU), K. Schwan (Georgia Tech), A. Shoshani (LBNL), M. Soe (RSU), N. Schunk (LLNL), J. Tong (Rutgers), M. Wolf (Georgia Tech), J. Wu (LBNL), Y. Zhang (Georgia Tech), F. Zhang (Rutgers), F. Zheng (IBM)

Recent Tutorials

1. Q. Liu, N. Podhorszki, S. Klasky, "I/O Performance Optimizations on Large-Scale HPC Systems", ISC'14, Leigzig, Germany, June, 2014
2. Q. Liu, N. Podhorszki, S. Klasky, "Scaling I/O Beyond 100,000 Cores using ADIOS", SC'13, Denver, CO, Nov, 2013
3. Y. Tian, J. Logan, Q. Liu, S. Klasky, "Managing Large-Scale Data using ADIOS", XSEDE'13, San Diego, CA, July, 2013
4. Q. Liu, N. Podhorszki, S. Klasky, "Large-Scale I/O with ADIOS", ISC'13, Leipzig, Germany, June, 2013