Gerald (Jay) F. Lofstead
Sandia National Laboratories
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Education

- Georgia Institute of Technology, Ph.D. Computer Science, 2010
- Georgia Institute of Technology, M.S. Computer Science, 2004
- Georgia Institute of Technology, B.S. Computer Science, 1993

Employment

- Sandia National Laboratories, Principle Member of Technical Staff, 2/2015–present
- Sandia National Laboratories, Senior Member of Technical Staff, 9/2010–2/2015
- Sandia National Laboratories, Summer Intern, 2006, 2008
- Oak Ridge National Laboratory, Summer Intern, 2007, 2008, 2009
- Georgia Institute of Technology, Graduate Research Assistant, 8/2003–12/2004, 1/2010–8/2010
- Worldspan (now Travelport), Intern, 8/2004–8/2006
- McKesson Provider Technologies, Principal Engineer, 4/1997–8/2002
- Siemens Energy and Automation, Software Engineer, 6/1993–4/1997

Current Research Activities

- Hobbes: OS and Runtime Support for Application Composition: working on technology required for connecting components for online workflows.
- Member of Scalable I/O services project: ASC project to exploit available system resources for in-situ analysis and I/O-optimization services for applications on HPC systems.
- Decaf: Generic HPC workflow components. Working on understanding what can be done to offer reusable components for an HPC workflow to improve reusability and simplify workflow construction for application scientists. Focus is on infrastructure and operators.

Related Publications (reverse chronological order)

[1] Jai Dayal, Karsten Schwan, Matthew Wolf, Greg Eisenhauer, Jay Lofstead, Hasan Abbasi, and Scott Klasky. SODA: Science-driven orchestration of data analytics. In *11th IEEE International Conference on eScience*, Munich, GA, 2015. IEEE Computer Society Press.

[2] Jay Lofstead and Robert Ross. Insights for exascale IO APIs from building a petascale IO api. In *Proceedings of the SC2013: High Performance Networking and Computing*, November 2013.

[3] Jay Lofstead, Ron Oldfield, and Todd Kordenbrock. Unconventional data staging using nssi. In *In Proceedings of IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing*, Delft, The Netherlands, May 2013.

[4] Jai Dayal, Jianting Cao, Greg Eisenhauer, Karsten Schwan, Matthew Wolf, Fang Zheng, Hasan Abbasi, Scott Klasky, Norbert Podhorszki, and Jay Lofstead. I/o containers: Managing the data analytics and visualization pipelines of high end codes. In *In Proceedings of International Workshop on High Performance Data Intensive Computing (HPDIC 2013) held in conjunction with IPDPS 2013*, Boston, MA, 2013. Best Paper Award.

[5] Jay Lofstead, Jai Dayal, Karsten Schwan, and Ron Oldfield. D2t: Doubly distributed transactions for high performance and distributed computing. In *IEEE Cluster Conference*, Beijing, China, September 2012.

[6] Jay Lofstead, Ron Oldfiend, Todd Kordenbrock, and Charles Reiss. Extending scalability of collective io through nessie and staging. In *The Petascale Data Storage Workshop at Supercomputing*, Seattle, WA, November 2011.

[7] Jay Lofstead, Milo Polte, Garth Gibson, Scott A. Klasky, Karsten Schwan, Ron Oldfield, and Matthew Wolf. Six degrees of scientific data: Reading patters for extreme scale IO. In *Proceedings of the Twentieth IEEE International Symposium on High Performance Distributed Computing*, San Jose, CA, June 2011. IEEE Computer Society Press.

[8] Fang Zheng, Hasan Abbasi, Ciprian Docan, Jay Lofstead, Scott Klasky, Qing Liu, Manish Parashar, Norbert Podhorszki, Karsten Schwan, and Matthew Wolf. PreDatA - preparatory data analytics on Peta-Scale machines. In *In Proceedings of 24th IEEE International Parallel and Distributed Processing Symposium, April, Atlanta, Georgia*, 2010.

[9] Julian Cummings, Jay Lofstead, Karsten Schwan, Alexander Sim, Arie Shoshani, Ciprian Docan, Manish Parashar, Scott Klasky, Norbert Podhorszki, and Roselyne Barreto. Effis: An end-to-end framework for fusion integrated simulation. *Parallel, Distributed, and Network-Based Processing, Euromicro Conference on*, 0:428–434, 2010.

[10] Jay Lofstead, Fang Zheng, Scott Klasky, and Karsten Schwan. Adaptable, metadata rich IO methods for portable high performance IO. In *Proceedings of the International Parallel and Distributed Processing Symposium*, Rome, Italy, 2009.

Synergistic Activities

- Co-inventor of 2013 R&D 100 Award winning ADIOS API
- Scientific Program Committee chair: 10th Parallel Data Storage Workshop at Supercomputing 2015, co-chair IO in the Data Center at ISC 2015.
- Scientific Program Committees: HPDC (2015), IEEE Networking and Storage (2012-5), IPDPS (2014), CloudComm (2014-5), CCGrid (2015), MASCOTS (2014-5), ICACCI (2015), ICCME (2015), Data Intensive Scalable Computing @ Supercomputing (2012-5), Improving MPI User and Developer Interation @ EuroMPI (2013), Interfaces and Abstractions for Scientific Data Storage @ Cluster (2012-5), Petascale Data Analytics: Challenges and Opportunities @ Supercomputing (2011-2), Architectures for Data-Intesive Computing @ PACT (2012), Programmable File Systems Workshop @ HPDC (2014), NVMSA (2015), P2S2 (2015), SPICES (2015).
- Member of ACM and IEEE
- Other Reviewing Activities: Conference paper reviews: IPDPS 2009, SC 2012, PDP 2014. Journal article reviews for International Journal of High Performance Computing, Transactions on Storage, Parallel Computing, Cluster Computing, Concurrency and Computation: Practice and Experience, and Transactions on Parallel and Distributed Systems.

Recent Collaborators

- Hasan Abassi, ORNL, collaborator
- Andrea Arpaci-Dusseah, UW Madison, co-author
- Remzi Arpaci-Dusseau, UW Madison, co-author
- Roselyne Barreto, University of Chicago, co-author
- John Bent, EMC Corporation, co-author
- Michael Booth, Oracle, co-author
- Franck Cappello, Argonne National Laboratory, collaborator
- Jacqueline Chen, SNL, co-author
- Julian Cummings, California Institute of Technology, co-author
- Jai Dayal, Georgia Institute of Technologies, collaborator
- Ciprian Docan, Rutgers, co-author
- Stephane Ethier, Princenton Univeristy, co-author
- Ada Gavrilovska, Georgia Tech, co-author
- Garth Gibson, Carnegie Mellon University, co-author
- Ray Grout, NREL, co-author
- Gregory Jean-Baptiste, Florida International University, co-author
- Ivo Jimenez, University of California Santa Cruz, co-author
- Scott Klasky, ORNL, co-author
- Todd Kordenbrock, Hewlett-Packard, collaborator
- Seung-Hoe Ku, New York University, co-author
- Qing Liu, ORNL, co-author
- Mike Lang, LANL, collaborator
- Jack Lange, University of Pittsburgh, collaborator
- Jeremy Logan, ORNL, co-author
- Xiaosong Ma, North Carolina State University, co-author
- Carlos Maltzahn, University of California Santa Cruz, collaborator
- Kathryn Mohror, LLNL, collaborator
- Adam Moody, LLNL, collaborator
- Ron Oldfield, Sandia National Laboratoriey, collaborator
- Manish Parashar, Rutgers, co-author
- Tom Peterka, Argonne National Laboratory, collaborator
- Norbert Podhorzski, ORNL, co-author
- Milo Polte, WibiData, co-author
- Charles Reiss, University of California Berkeley, co-author
- Karsten Schwan, Georgia Tech, PhD advisor
- Arie Shoshani, LBNL, co-author
- Alexander Sim, LBNL, co-author
- Gregory Sjaardema, SNL, co-author
- Sagar Thapaliya, University of Alabama, Birmingham, collaborator
- Yuan Tian, ORNL, co-author
- Yandong Wang, Auburn University, co-author
- Meghan Wingate McClelland, Xyratex, co-author
- Weikuan Yu, Auburn University, co-author
- Fang Zheng, IBM, co-author

Graduate Advisor

Karsten Schwan, Georgia Institute of Technology