

**Keith R. Jackson
Scientist**

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Professional Expertise

Keith Jackson is currently a Scientist at the Lawrence Berkeley National Laboratory, where he is a member of the Data Intensive Systems Group. He is currently researching methods for utilizing cloud computing for scientific applications. He is also researching methods for data-intensive scientific computing. He has been involved extensively in building component based interfaces to distributed systems, and prototyping large-scale computational and data Grids. He has been involved in developing Python interfaces to the Globus Toolkit® (pyGlobus), a PKI based authorization system (Akenti), and a secure advanced reservation system (STARS). His interests include distributed systems, distributed system security, advanced reservations, network quality of service, component based middleware, and PKI based applications.

Prior to joining LBNL, Mr. Jackson worked at the Pacific Northwest National Laboratory. While there he was responsible for providing secure remote access to a NMR facility. He also contributed to the development of a remote collaboration tool (CORE2000), and an electronic notebook. He received a BS from The Evergreen State College in 2000.

Awards

Best Paper Award at the 1st ACM Workshop on Scientific Cloud Computing, June 2010.
Best Paper Award at the 2nd IEEE International Conference on Cloud Computing Technology and Science, December 2010.

Education

B.S. The Evergreen State College, 2000

Employment

2002— Scientist, Advanced Computing for Science Department, CRD Div., Lawrence
 Berkeley National Laboratory
1998—2002 Computer Engineer, Distributed Security Research, NERSC Div., Lawrence
 Berkeley National Laboratory
1997—1998 Computer Engineer, Environmental Molecular Science Laboratory, Pacific
 Northwest National Laboratory

Recent Publications

1. D. Agarwal, M. Humphrey, N. Beekwilder, K. Jackson, M. Goode, and C. van Ingen. A data centered collaboration portal to support global carbon-flux analysis. *Concurrency and Computation: Practice and Experience - Successes in Furthering Scientific Discovery*, December 2010.
2. J. Li, M. Humphrey, Y. Cheah, Y. Y. Ryu, D. Agarwal, K. Jackson, C. van Ingen. "Fault Tolerance and Scaling in e-Science Cloud Applications: Observations from the Continuing Development of MODISAzure" in 6th IEEE International Conference on e-Science, Brisbane, AU, December 2010, pages 246-253.
3. K. Jackson, L. Ramakrishnan, K. Muriki, S. Canon, S. Cholia, J. Shalf, H. Wasserman, N. Wright, "Performance Analysis of High Performance Computing Applications on the Amazon Web Services Cloud" in 2nd IEEE International Conference on Cloud Computing Technology and Science, Indianapolis, IN, Dec. 1, 2010.
4. C. van Ingen, J. Li, Y. Ryu, M. Humphrey, D. Agarwal, K. Jackson, "Enabling Science in the Cloud: A Remote Sensing Data Processing Service for Environmental Science Analysis" in *Eos Trans. American Geophysical Union, Meeting of the Americas*, Abstract IN21A-07, Foz do Iguassu, Brazil, August 2010.
5. K. Jackson, L. Ramakrishnan, K. Runge, and R. Thomas, "Seeking Supernovae in the Clouds: A Performance Study" in *ACM Science Cloud 2010*, Chicago, IL, June 21, 2010.
6. L. Ramakrishnan, K. Jackson, S. Canon, S. Cholia, and J. Shalf, "Defining Future Platform Requirements for e-Science Cloud" in *ACM Symposium on Cloud Computing*, Indianapolis, IN, June 2010.
7. L. Ramakrishnan, C. Guok, K. Jackson, E. Kissel, D. M. Swany, and D. Agarwal, On-demand Overlay Networks for Large Scientific Data Transfers, *Proceedings of the The 10th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2010)*, Melbourne, Australia, May 2010.
8. J. Li, D. Agarwal, M. Humphrey, C. van Ingen, K. Jackson, and Y. Ryu. eScience in the Cloud: A MODIS Satellite Data Reprojection and Reduction Pipeline in the Windows Azure Platform. In *Proceedings of the 24th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2010)*, Apr 19-23, 2010. Atlanta, Georgia.
9. J. Li, Y. Ryu, K. Jackson, D. Agarwal, M. Humphrey, C. van Ingen, A Cloud Computing Service for Remote Sensing Data Reprojection and Science Reduction, *Eos Trans. American Geophysical Union, Fall Meet. Suppl.*, Abstract H51H-0857, San Francisco, CA, Dec 2009.
10. Y. Ryu, D. Baldocchi, J. Li, K. Jackson, C. van Ingen, D. Agarwal, Process-based estimates of terrestrial CO₂ assimilation and evEos *Trans. American Geophysical Union, Fall Meet. Suppl.*, Abstract B51B-0308, San Francisco, CA, Dec 2009.
11. D. Agarwal, M. Humphrey, N. Beekwilder, K. Jackson, M. Goode, and C. van Ingen, A Data-Centered Collaboration Portal To Support Global Carbon-Flux Analysis, submitted for journal publication, LBNL Technical Report LBNL-1827E, 2009.
12. D. Agarwal, M. Humphrey, C. van Ingen, N. Beekwilder, M. Goode, K. Jackson, M. Rodriguez, and R. Weber, Fluxnet Synthesis Dataset Collaboration Infrastructure, *FluxLetter*, Vol 1, Issue 1, 2008, pp. 5-7.
13. I. Foster, D. Gunter, K. Jackson, J. M. Schopf, B. Tierney, et. Al, Enabling Distributed Petascale Science, *Proceedings of SciDAC 2007*, Boston, MA.
14. M. Thomas, J. Burruss, L. cinquini, G. Fox, D. Gannon, I. Gilbert, G. von Laszewski, K. Jackson, D. Middleton, R. Moore, M. Pierce, B. Plale, A. Rajasekar, R. Regno, E.

- Roberts, D. Schissel, A. Seth, and W. Schroeder, Grid Portal Architectures for Scientific Applications, *Journal of Physics*, 2005, vol. 16, pages 596-600.
15. Marty Humphrey, Glenn Wasson, Keith Jackson, Joshua Boverhof, Matt Rodriguez, et al. State and Events for Web Services: A Comparison of Five WS-Resource Framework and WS-Notification Implementations, *High Performance Distributed Computing* 14, Aug 2005. LBNL-58731.
 16. Marty Humphrey, Mary Thompson, Keith Jackson, Security for Grids., *Proceedings of the IEEE*, Mar. 2005, pp 644-652. LBNL-54853.
 17. Daniel K. Gunter and Brian L. Tierney, Scalable Analysis of Distributed Workflow Traces , *The 2005 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'05)* , LBNL-57060.
 18. Grid2003 Team, "The Grid2003 Production Grid: Principles and Practice", 13th IEEE Intl. Symposium on High Performance Distributed Computing (HPDC-13) 2004.
 19. Schopf, J., Jackson, K. "So You Want to Set Up a Grid", *ClusterWorld*, 2:2, 2004.
 20. M. Thompson, K. Jackson. "Security Issues of Grid Resource Management", in Jarek Nabrzyski, Jennifer Schopf, Jan Weglarz, editors, *Grid Resource Management: State of the Art and Future Trends*, Kluwer Academic Press, 2003.
 21. *Creating and Managing Grid Services in Grid Computing: A Practical Guide to Technology and Applications*, Gregor von Laszewski, Jarek Gawor, Sriram Krishnan, and Keith Jackson, pages 189-223. Charles River Media, Hingham, MA, 2003.
 22. G. von Laszweski, J. Gawor, S. Krishnan, K. Jackson. "Commodity Grid Kits: Middleware for Building Grid Computing Environments", in Fran Berman, Anthony J.G. Hey, Geoffrey Fox, editors, *Grid Computing: Making The Global Infrastructure a Reality*, John Wiley, 2003. ISBN: 0-470-85319-0
 23. K. Jackson. "pyGlobus: A Python Interface to the Globus Toolkit". *Concurrency and Computation: Practice and Experience*, 14:1075-1083, 2002.
 24. Features of the Java Commodity Grid Kit. Gregor von Laszewski, Jarek Gawor, Peter Lane, Nell Rehn, Mike Russell, and Keith Jackson. *Concurrency and Computation: Practice and Experience*, 14:1045-1055, 2002.
 25. Gunter, D., B. Tierney, K. Jackson, J. Lee, M. Stoufer, *Dynamic Monitoring of High-Performance Distributed Applications*, *Proceedings of the 11th IEEE Symposium on High Performance Distributed Computing*, HPDC-11 , July 2002.
 26. K. Jackson, S. Tuecke, D. Engert. "TLS Delegation Protocol". Internet Draft draft-ggf-tls-delegation.txt, February 2001.
 27. G. von Laszweski, J. Gawor, S. Krishnan, K. Jackson. "Commodity Grid Kits: Middleware for Building Grid Computing Environments". *Concurrency and Computation: Practice and Experience*, 00:1-7, 2000.
 28. K. Jackson, V. Sander. "Scheduling and Security". Grid Forum Draft SchedWD6.9.txt, September 2000.
 29. M. Thompson, W. Johnston, S. Mudumbai, G. Hoo, and K. Jackson. "Certificate-based access control for widely distributed resources". In *Proceedings of the Usenix Security Symposium* 1999.