

Christian Engelmann, Ph.D.

Computer Scientist - Extreme-scale High-Performance Computing
Computer Science and Mathematics Division, Oak Ridge National Laboratory (ORNL)

✉ P.O. Box 2008, Oak Ridge, TN 37831-6016
☎ +1 (865) 574-3132 / 📠 +1 (865) 576-5491

🌐 www.christian-engelmann.info
✉ engelmannc@computer.org

List of Publications

Peer-reviewed Journal Papers

- [1] Saurabh Hukerikar and Christian Engelmann. Resilience design patterns: A structured approach to resilience at extreme scale. *Journal of Supercomputing Frontiers and Innovations (JSFI)*, 4(3):4–42, October 2017. ISSN 2409-6008. doi: 10.14529/jsfi170301. URL <http://www.christian-engelmann.info/publications/hukerikar17resilience.pdf>.
- [2] Amogh Katti, Giuseppe Di Fatta, Thomas Naughton, and Christian Engelmann. Epidemic failure detection and consensus. *International Journal of High Performance Computing Applications (IJHPCA)*, February 2017. ISSN 1094-3420. doi: 10.1177/1094342017690910. URL <http://www.christian-engelmann.info/publications/katti17epidemic.pdf>.
- [3] Christian Engelmann and Thomas Naughton. A new deadlock resolution protocol and message matching algorithm for the extreme-scale simulator. *Concurrency and Computation: Practice and Experience*, 28(12):3369–3389, August 2016. ISSN 1532-0634. doi: 10.1002/cpe.3805. URL <http://www.christian-engelmann.info/publications/engelmann16new.pdf>.
- [4] Marc Snir, Robert W. Wisniewski, Jacob A. Abraham, Sarita V. Adve, Saurabh Bagchi, Pavan Balaji, Jim Belak, Pradip Bose, Franck Cappello, Bill Carlson, Andrew A. Chien, Paul Coteus, Nathan A. Debardeleben, Pedro Diniz, Christian Engelmann, Mattan Erez, Saverio Fazzari, Al Geist, Rinku Gupta, Fred Johnson, Sriram Krishnamoorthy, Sven Leyffer, Dean Liberty, Subhasish Mitra, Todd Munson, Rob Schreiber, Jon Stearley, and Eric Van Hensbergen. Addressing failures in exascale computing. *International Journal of High Performance Computing Applications (IJHPCA)*, 28(2):127–171, May 2014. ISSN 1094-3420. doi: 10.1177/1094342014522573. URL <http://www.christian-engelmann.info/publications/snir14addressing.pdf>. 173 citations.
- [5] Christian Engelmann. Scaling to a million cores and beyond: Using light-weight simulation to understand the challenges ahead on the road to exascale. *Future Generation Computer Systems (FGCS)*, 30(0):59–65, January 2014. ISSN 0167-739X. doi: 10.1016/j.future.2013.04.014. URL <http://www.christian-engelmann.info/publications/engelmann13scaling.pdf>.
- [6] Chao Wang, Frank Mueller, Christian Engelmann, and Stephen L. Scott. Proactive process-level live migration and back migration in HPC environments. *Journal of Parallel and Distributed Computing (JPDC)*, 72(2):254–267, February 2012. ISSN 0743-7315. doi: 10.1016/j.jpdc.2011.10.009. URL <http://www.christian-engelmann.info/publications/wang12proactive.pdf>.
- [7] Stephen L. Scott, Geoffroy R. Vallée, Thomas Naughton, Anand Tikotekar, Christian Engelmann, and Hong H. Ong. System-level virtualization research at Oak Ridge National Laboratory. *Future Generation Computer Systems (FGCS)*, 26(3):304–307, March 2010. ISSN 0167-739X. doi: 10.1016/j.future.2009.07.001. URL <http://www.christian-engelmann.info/publications/scott09system.pdf>.
- [8] Xubin (Ben) He, Li Ou, Christian Engelmann, Xin Chen, and Stephen L. Scott. Symmetric active/active metadata service for high availability parallel file systems. *Journal of Parallel and Distributed Computing (JPDC)*, 69(12):961–973, December 2009. ISSN 0743-7315. doi: 10.1016/j.jpdc.2009.08.004. URL <http://www.christian-engelmann.info/publications/he09symmetric.pdf>.
- [9] Xubin (Ben) He, Li Ou, Martha J. Kosa, Stephen L. Scott, and Christian Engelmann. A unified multiple-level cache for high performance cluster storage systems. *International Journal of High Performance Computing and Networking (IJHPCN)*, 5(1-2):97–109, 2007. ISSN 1740-0562. doi: 10.1504/IJHPCN.2007.015768. URL <http://www.christian-engelmann.info/publications/he07unified.pdf>.
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- [11] Christian Engelmann, Stephen L. Scott, David E. Bernholdt, Narasimha R. Gottumukkala, Chokchai (Box) Leangsuksun, Jyothish Varma, Chao Wang, Frank Mueller, Aniruddha G. Shet, and Ponnuswamy (Saday) Sadayappan. MOLAR: Adaptive runtime support for high-end computing operating and runtime systems. *ACM SIGOPS Operating Systems Review (OSR)*, 40(2):63–72, April 2006. ISSN 0163-5980. doi: 10.1145/1131322.1131337. URL

Peer-reviewed Conference Papers

- [1] Mohit Kumar, Saurabh Gupta, Tirthak Patel, Michael Wilder, Weisong Shi, Song Fu, Christian Engelmann, and Devesh Tiwari. Understanding and analyzing interconnect errors and network congestion on a large scale hpc system. In *Proceedings of the 48th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN) 2018*, pages 107–114, Luxembourg City, Luxembourg, June 25-28, 2018. IEEE Computer Society, Los Alamitos, CA, USA. ISBN 978-1-5386-5596-2. doi: 10.1109/DSN.2018.00023. URL <http://www.christian-engelmann.info/publications/kumar18understanding.pdf>. Acceptance rate 27.2% (62/228).
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- [3] Rizwan Ashraf, Saurabh Hukerikar, and Christian Engelmann. Pattern-based modeling of multiresilience solutions for high-performance computing. In *Proceedings of the 9th ACM/SPEC International Conference on Performance Engineering (ICPE) 2018*, pages 80–87, Berlin, Germany, April 9-13, 2018. ACM Press, New York, NY, USA. ISBN 978-1-4503-5095-2. doi: 10.1145/3184407.3184421. URL <http://www.christian-engelmann.info/publications/ashraf18pattern-based.pdf>. Acceptance rate 23.7% (14/59).
- [4] Rizwan Ashraf, Saurabh Hukerikar, and Christian Engelmann. Shrink or substitute: Handling process failures in HPC systems using in-situ recovery. In *Proceedings of the 26th Euromicro International Conference on Parallel, Distributed, and network-based Processing (PDP) 2018*, pages 178–185, Cambridge, UK, March 21-23, 2018. IEEE Computer Society, Los Alamitos, CA, USA. ISBN 978-1-5386-4975-6. doi: 10.1109/PDP2018.2018.00032. URL <http://www.christian-engelmann.info/publications/ashraf18shrink.pdf>. Acceptance rate 29.3% (27/92).
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- [7] Saurabh Hukerikar and Christian Engelmann. A pattern language for high-performance computing resilience. In *Proceedings of the 22nd European Conference on Pattern Languages of Programs (EuroPLoP) 2017*, pages 12:1–12:16, Kloster Irsee, Germany, July 12-16, 2017. ACM Press, New York, NY, USA. ISBN 978-1-4503-4848-5. doi: 10.1145/3147704.3147718. URL <http://www.christian-engelmann.info/publications/hukerikar17pattern.pdf>.
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- [9] Saurabh Hukerikar and Christian Engelmann. Havens: Explicit reliable memory regions for HPC applications. In *Proceedings of the 20th IEEE High Performance Extreme Computing Conference (HPEC) 2016*, pages 1–6, Waltham, MA, USA, September 13-15, 2016. IEEE Computer Society, Los Alamitos, CA, USA. doi: 10.1109/HPEC.2016.7761593. URL <http://www.christian-engelmann.info/publications/hukerikar16havens.pdf>.
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- [14] Amogh Katti, Giuseppe Di Fatta, Thomas Naughton, and Christian Engelmann. Scalable and fault tolerant failure detection and consensus. In *Proceedings of the 22nd European MPI Users' Group Meeting (EuroMPI) 2015*, pages 13:1–13:9, Bordeaux, France, September 21-24, 2015. ACM Press, New York, NY, USA. ISBN 978-1-4503-3795-3. doi: 10.1145/2802658.2802660. URL <http://www.christian-engelmann.info/publications/katti15scalable.pdf>. Acceptance rate 48.3% (14/29).
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- [17] Thomas Naughton, Christian Engelmann, Geoffroy Vallée, and Swen Böhm. Supporting the development of resilient message passing applications using simulation. In *Proceedings of the 22nd Euromicro International Conference on Parallel, Distributed, and network-based Processing (PDP) 2014*, pages 271–278, Turin, Italy, February 12-14, 2014. IEEE Computer Society, Los Alamitos, CA, USA. doi: 10.1109/PDP.2014.74. URL <http://www.christian-engelmann.info/publications/naughton14supporting.pdf>. Acceptance rate 32.6% (73/224).
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- [20] David Fiala, Frank Mueller, Christian Engelmann, Kurt Ferreira, Ron Brightwell, and Rolf Riesen. Detection and correction of silent data corruption for large-scale high-performance computing. In *Proceedings of the 25th IEEE/ACM International Conference on High Performance Computing, Networking, Storage and Analysis (SC) 2012*, pages 78:1–78:12, Salt Lake City, UT, USA, November 10-16, 2012. ACM Press, New York, NY, USA. ISBN 978-1-4673-0804-5. URL <http://www.christian-engelmann.info/publications/fiala12detection2.pdf>. Acceptance rate 21.2% (100/472). 199 citations.
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- publications/elliott12combining.pdf. Acceptance rate 13.8% (71/515). 103 citations.
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- [27] Min Li, Sudharshan S. Vazhkudai, Ali R. Butt, Fei Meng, Xiaosong Ma, Youngjae Kim, Christian Engelmann, and Galen Shipman. Functional partitioning to optimize end-to-end performance on many-core architectures. In *Proceedings of the 23rd IEEE/ACM International Conference on High Performance Computing, Networking, Storage and Analysis (SC) 2010*, pages 1–12, New Orleans, LA, USA, November 13–19, 2010. ACM Press, New York, NY, USA. ISBN 978-1-4244-7559-9. doi: 10.1109/SC.2010.28. URL <http://www.christian-engelmann.info/publications/li10functional.pdf>. Acceptance rate 19.8% (50/253).
- [28] Swen Böhm, Christian Engelmann, and Stephen L. Scott. Aggregation of real-time system monitoring data for analyzing large-scale parallel and distributed computing environments. In *Proceedings of the 12th IEEE International Conference on High Performance Computing and Communications (HPCC) 2010*, pages 72–78, Melbourne, Australia, September 1–3, 2010. IEEE Computer Society, Los Alamitos, CA, USA. ISBN 978-0-7695-4214-0. doi: 10.1109/HPCC.2010.32. URL <http://www.christian-engelmann.info/publications/boehm10aggregation.pdf>. Acceptance rate 19.1% (58/304).
- [29] Antonina Litvinova, Christian Engelmann, and Stephen L. Scott. A proactive fault tolerance framework for high-performance computing. In *Proceedings of the 9th IASTED International Conference on Parallel and Distributed Computing and Networks (PDCN) 2010*, Innsbruck, Austria, February 16–18, 2010. ACTA Press, Calgary, AB, Canada. ISBN 978-0-88986-783-3. doi: 10.2316/P.2010.676-024. URL <http://www.christian-engelmann.info/publications/litvinova10proactive.pdf>.
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