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List of Publications

Peer-reviewed Journal Papers

- [1] 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: <http://doi.org/10.1177/1094342017690910>. URL <http://www.christian-engelmann.info/publications/katti17epidemic.pdf>.
- [2] 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: <http://dx.doi.org/10.1002/cpe.3805>. URL <http://www.christian-engelmann.info/publications/engelmann16new.pdf>.
- [3] 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: <http://dx.doi.org/10.1177/1094342014522573>. URL <http://www.christian-engelmann.info/publications/snir14addressing.pdf>.
- [4] 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: <http://dx.doi.org/10.1016/j.future.2013.04.014>. URL <http://www.christian-engelmann.info/publications/engelmann13scaling.pdf>.
- [5] 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: <http://dx.doi.org/10.1016/j.jpdc.2011.10.009>. URL <http://www.christian-engelmann.info/publications/wang12proactive.pdf>.
- [6] 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: <http://dx.doi.org/10.1016/j.future.2009.07.001>. URL <http://www.christian-engelmann.info/publications/scott09system.pdf>.
- [7] 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: <http://dx.doi.org/10.1016/j.jpdc.2009.08.004>. URL <http://www.christian-engelmann.info/publications/he09symmetric.pdf>.
- [8] 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: <http://dx.doi.org/10.1504/IJHPCN.2007.015768>. URL <http://www.christian-engelmann.info/publications/he07unified.pdf>.
- [9] Christian Engelmann, Stephen L. Scott, Chokchai (Box) Leangsuksun, and Xubin (Ben) He. Symmetric active/active high availability for high-performance computing system services. *Journal of Computers (JCP)*, 1(8):43–54, December 2006. ISSN 1796-203X. doi: <http://www.academypublisher.com/jcp/vol01/no08/jcp01084354.html>. URL <http://www.christian-engelmann.info/publications/engelmann06symmetric.pdf>.
- [10] 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: <http://doi.acm.org/10.1145/1131322.1131337>. URL <http://www.christian-engelmann.info/publications/engelmann06molar.pdf>.

Peer-reviewed Conference Papers

- [1] Saurabh Gupta, Devesh Tiwari, Tirthak Patel, and Christian Engelmann. Reliability of HPC systems: Large-term measurement, analysis, and implications. In *Proceedings of the 30th IEEE/ACM International Conference on High Performance Computing, Networking, Storage and Analysis (SC) 2017*, Denver, CO, USA, November 12-17, 2017. IEEE Computer Society, Los Alamitos, CA, USA. Acceptance rate 18.7% (61/327).
- [2] Bin Nie, Devesh Tiwari, Ji Xue, Saurabh Gupta, Christian Engelmann, and Evgenia Smirni. Exploring and exploiting the interplay among temperature, power, and GPU errors. In *Proceedings of the 25th IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS) 2017*, Banff, AB, Canada, September 20-22, 2017. IEEE Computer Society, Los Alamitos, CA, USA.
- [3] 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*, Kloster Irsee, Germany, July 12-16, 2017. ACM Press, New York, NY, USA.
- [4] Mahesh Lagadapati, Frank Mueller, and Christian Engelmann. Benchmark generation and simulation at extreme scale. In *Proceedings of the 20th IEEE/ACM International Symposium on Distributed Simulation and Real Time Applications (DS-RT) 2016*, pages 9–18, London, UK, September 21-23, 2016. IEEE Computer Society, Los Alamitos, CA, USA. ISBN 978-1-5090-3506-9. doi: <http://dx.doi.org/10.1109/DS-RT.2016.18>. URL <http://www.christian-engelmann.info/publications/lagadapati16benchmark.pdf>. Acceptance rate 42.0% (21/50). Best paper candidate.
- [5] 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: <http://dx.doi.org/10.1109/HPEC.2016.7761593>. URL <http://www.christian-engelmann.info/publications/hukerikar16havens.pdf>.
- [6] Kun Tang, Devesh Tiwari, Saurabh Gupta, Ping Huang, QiQi Lu, Christian Engelmann, and Xubin He. Power-capping aware checkpointing: On the interplay among power-capping, temperature, reliability, performance, and energy. In *Proceedings of the 46th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)*, pages 311–322, Toulouse, France, June 28 - July 1, 2016. IEEE Computer Society, Los Alamitos, CA, USA. doi: <http://dx.doi.org/10.1109/DSN.2016.36>. URL <http://www.christian-engelmann.info/publications/tang16power-aware.pdf>. Acceptance rate 22.4% (58/259).
- [7] David Fiala, Frank Mueller, Kurt Ferreira, and Christian Engelmann. Mini-Ckpts: Surviving OS failures in persistent memory. In *Proceedings of the 30th ACM International Conference on Supercomputing (ICS) 2016*, pages 7:1–7:14, Istanbul, Turkey, June 1-3, 2016. ACM Press, New York, NY, USA. ISBN 978-1-4503-4361-9. doi: <http://dx.doi.org/10.1145/2925426.2926295>. URL <http://www.christian-engelmann.info/publications/fiala16mini-ckpts.pdf>. Acceptance rate 24.2% (43/178).
- [8] Leonardo Bautista-Gomez, Ana Gainaru, Swann Perarnau, Devesh Tiwari, Saurabh Gupta, Franck Cappello, Christian Engelmann, and Marc Snir. Reducing waste in extreme scale systems through introspective analysis. In *Proceedings of the 30th IEEE International Parallel and Distributed Processing Symposium (IPDPS) 2016*, pages 212–221, Chicago, IL, USA, May 23-27, 2016. IEEE Computer Society, Los Alamitos, CA, USA. doi: <http://dx.doi.org/10.1109/IPDPS.2016.100>. URL <http://www.christian-engelmann.info/publications/bautista-gomez16reducing.pdf>. Acceptance rate 23.0% (114/496).
- [9] Christian Engelmann and Thomas Naughton. Supporting the development of soft-error resilient message passing applications using simulation. In *Proceedings of the 13th IASTED International Conference on Parallel and Distributed Computing and Networks (PDCN) 2016*, Innsbruck, Austria, February 15-16, 2016. ACTA Press, Calgary, AB, Canada. ISBN 978-0-88986-979-0. doi: <http://dx.doi.org/10.2316/P.2016.834-005>. URL <http://www.christian-engelmann.info/publications/engelmann16supporting.pdf>.
- [10] 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: <http://dx.doi.org/10.1145/2802658.2802660>. URL <http://www.christian-engelmann.info/publications/katti15scalable.pdf>. Acceptance rate 48.3% (14/29).
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- [12] Christian Engelmann and Thomas Naughton. Improving the performance of the extreme-scale simulator. In *Proceedings of the 18th IEEE/ACM International Symposium on Distributed Simulation and Real Time Applications (DS-RT) 2014*,

- pages 198–207, Toulouse, France, October 1-3, 2014. IEEE Computer Society, Los Alamitos, CA, USA. ISBN 978-1-4799-6143-6. doi: <http://dx.doi.org/10.1109/DS-RT.2014.32>. URL <http://www.christian-engelmann.info/publications/engelmann14improving.pdf>. Best paper candidate.
- [13] 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: <http://dx.doi.org/10.1109/PDP.2014.74>. URL <http://www.christian-engelmann.info/publications/naughton14supporting.pdf>. Acceptance rate 32.6% (73/224).
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- [25] 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: <http://dx.doi.org/10.2316/P.2010.676-024>. URL <http://www.christian-engelmann.info/publications/litvinova10proactive.pdf>.
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- [28] Christian Engelmann, Geoffroy R. Vallée, Thomas Naughton, and Stephen L. Scott. Proactive fault tolerance using preemptive migration. In *Proceedings of the 17th Euromicro International Conference on Parallel, Distributed, and network-based Processing (PDP) 2009*, pages 252–257, Weimar, Germany, February 18–20, 2009. IEEE Computer Society, Los Alamitos, CA, USA. ISBN 978-0-7695-3544-9. doi: <http://doi.ieeecomputersociety.org/10.1109/PDP.2009.31>. URL <http://www.christian-engelmann.info/publications/engelmann09proactive.pdf>. Acceptance rate 42.0% (58/138).
- [29] Alessandro Valentini, Christian Di Biagio, Fabrizio Batino, Guido Pennella, Fabrizio Palma, and Christian Engelmann. High performance computing with Harness over InfiniBand. In *Proceedings of the 17th Euromicro International Conference on Parallel, Distributed, and network-based Processing (PDP) 2009*, pages 151–154, Weimar, Germany, February 18–20, 2009. IEEE Computer Society, Los Alamitos, CA, USA. ISBN 978-0-7695-3544-9. doi: <http://doi.ieeecomputersociety.org/10.1109/PDP.2009.64>. URL <http://www.christian-engelmann.info/publications/valentini09high.pdf>. Acceptance rate 42.0% (58/138).
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