# Olga Pearce

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## Research Interests

- HPC, exascale, scientific simulations, parallel algorithms, heterogeneous architectures, and communication
- Parallel programing models, performance portability, performance tools, visualization, modeling, and optimization
- System benchmarking, software sustainability, reproducible benchmarking, continuous benchmarking

## Education

2014 **Ph.D., Computer Science**, *Texas A&M University*.
*Load Balancing Scientific Applications.* Advisor: Prof. Nancy M. Amato, Ph.D.

2004 **B.S., Computer Science and Mathematics**, *Western Oregon University*, Magnum Cum Laude.

2000 **A.A., Business Administration**, *International Christian University*, Kyiv, Ukraine.

## Awards

2023 LLNL WSC award for response to the National Academy of Sciences request for information

2022 LLNL WCI award for leading benchmarking for acceptance of Early Access System for El Capitan

2021 LLNL WSC award for developing GPU capabilities of the Next Gen multi-physics code, MARBL

2020 LLNL WSC award for leading the JOWOG 34 Applied Computer Science (ACS) meeting

2019 LLNL WCI award for porting&optimization of codes on LLNL's first accelerated supercomputer

2018 LLNL WSC award for developing & applying RAJA performance portability programming model

2015 LLNL DDS&T award for work in load balancing scientific simulations

2009-2014 LLNL Lawrence Graduate Scholar. *Technical Supervisor:* Bronis R. de Supinski, Ph.D.

2006-2009 NSF Graduate Research Fellowship, Texas A&M University.

2003,2004 Computing Research Association Distributed Mentor Project (DMP).

1997 U.S. Department of State Future Leaders Exchange Program; one of 100 recipients nationwide.

## Experience

2021-present **LLNL**, *Principal Member of Technical Staff (MTS 4)*, Center for Applied Scientific Computing.
- Lead: Benchmarking for procurement of LLNL's future Advanced Technology Systems (ATS).
- Lead: Benchpark, an open collaborative repository for reproducible specifications of HPC benchmarks.
- Lead: Performance Analysis and Visualization at Exascale (PAVE) project.
- Lead: Thicket, open source project for exploratory data analysis (EDA) for multi-experiment, multi-architecture, multi-tool parallel performance data.
- Lead: Benchmarking for Acceptance for the El Capitan procurement.

2021-present **Texas A&M University, Dept of Computer Sci & Engineering**, *Associate Professor of Practice*, Teaching CSCE 435 Parallel Computing, 256 students over 3 years.

2014-2021 **LLNL**, *Senior Member of Technical Staff (MTS 3)*, Center for Applied Scientific Computing.
- Lead: Performance Analysis and Visualization at Exascale (PAVE) project.
- Lead: Hatchet, a call-tree based tool for performance analysis.
- Developed techniques & tools for analyzing & optimizing performance of large scale multiphysics simulations on homogeneous & heterogeneous architectures, e.g., Caliper.
- Developed techniques and tools for load balancing scientific applications.
- Developed parallel programming models and tools, including RAJA.
- Developed communication techniques for heterogeneous architectures,exploratory benchmark Comb.
- Member of MPI Hybrid & Accelerator Working Group.

## Conferences & Workshops Organized

2019-Present **Salishan Conf. on High Speed Computing**, *Co-Chair*, LLNL,LANL,Sandia, 150+ attendees.
2018-2023 **JOWOG34 Applied Computer Science**, *Co-Chair*, Scalable algo & simulation. 180+ attendees.
2018-2021 **Nuclear Explosives Code Development Conference (NECDC)**, *Co-Chair*, 300+ attendees.
2018 **Students@SC Program at ACM/IEEE Supercomputing Conference**, *Vice-chair*, 200+ att.

## Mentoring

2015-present **Student Research Mentoring**, *Lawrence Livermore National Laboratory*.

- (2022-Present) Advisor, Michael McKinsey, CS Masters,Texas A&M. Multi-dimensional data composition
- (2021-Present) Committee member, Daryl Hawkins, NUEN PhD, Texas A&M University. Novel particle transport algorithms. Performance of multi-physics simulations on Cloud/AWS.
- (2020-Present) Committee member, Connor Scully-Allison, CS PhD, University of Arizona. Interactive visualization for Thicket. Optimized Hatchet.
- (2020-Present) Ian Lumsden, CS major (PhD), University of Tennessee. Query language for calltrees.
- (2019-Pres) Bengisu Elis, CS PhD,Technical U of Munich,Germany.MPI on heterogeneous architectures.
- (2019-2023) Committee member, Suraj Kesavan, CS PhD, U of California Davis. Perf. visualization.

## Publications

### Selected Refereed Publications. * denotes students I supervised.


[1] **Olga Pearce**, Alec Scott, Gregory Becker, Riyaz Haque, Nathan Hanford, Stephanie Brink, Doug Jacobsen, Heidi Poxon, Jens Domke, and Todd Gamblin. Towards Collaborative Continuous Benchmarking for HPC. In *Workshops of The International Conference on High Performance Computing, Network, Storage, and Analysis (SC-W 2023)*.

[2] Stephanie Brink, Michael McKinsey*, David Boehme, Daryl Hawkins*, Connor Scully-Allison*, Ian Lumsden*, Treece Burgess*, Vanessa Lama*, Katherine E. Isaacs, Jakob Luettgau, Michela Taufer, and **Olga Pearce**. Thicket: Seeing the performance experiment forest for the individual run trees. In *International Symposium on High-Performance Parallel and Distributed Computing HPDC'23*, 2023.

[3] H. Abu-Shawareb et al. (Indirect Drive ICF Collaboration). Lawson's criteria for ignition exceeded in an inertial fusion experiment. In *Physical Review Letters 129, 075001*, 8 August 2022. (N210808).

[4] David Boehme, Pascal Aschwanden, **Olga Pearce**, Kenneth Weiss, and Matthew LeGendre. Ubiquitous Performance Analysis. In *International Supercomputing Conf. (ISC'21)*, June 2021.

[5] Bengisu Elis*, Dai Yang, **Olga Pearce**, Kathryn Mohror, and Martin Schulz. QMPI: A Next Generation MPI Profiling Interface for Modern HPC Platforms. In *Journal of Parallel Computing*, 2020. LLNL-JRNL-787898.

[6] Christopher Zimmer, Scott Atchley, Ramesh Pankajakshan, Brian E. Smith, Ian Karlin, Matt Leininger, Adam Bertsch, Brian S. Ryujin, Jason Burmark, André Walker-Loud, M. A. Clark, and **Olga Pearce**. An Evaluation of the CORAL Interconnects. In *ACM/IEEE International Conference for High Performance Computing, Networking, Storage, and Analysis (SC'19)*, 2019. LLNL-CONF-772398.

[7] David Beckingsale, **Olga Pearce**, Ignacio Laguna, and Todd Gamblin. Apollo: Reusable Models for Fast, Dynamic Tuning of Data-Dependent Code. In *IEEE International Parallel & Distributed Processing Symposium (IPDPS'17)*, Orlando, Florida, USA, May 29 - June 2, 2017.

[8] David Boehme, Todd Gamblin, David Beckingsale, Peer-Timo Bremer, Alfredo Giménez, Matthew LeGendre, **Olga Pearce**, and Martin Schulz. Caliper: Performance Introspection for HPC Software Stacks. In *ACM/IEEE International Conference for High Performance Computing, Networking, Storage, and Analysis (SC'16)*, Salt Lake City, Utah, USA, November 13-18, 2016. LLNL-CONF-699263. (18%).

[9] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. MPMD Framework for Offloading Load Balance Computation. In *IEEE International Parallel & Distributed Processing Symposium (IPDPS'16)*, Chicago, Illinois, USA, May 23-27, 2016. LLNL-CONF-678165. (23%).

[10] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Tom Arsenlis, and Nancy M. Amato. Load Balancing N-Body Simulations with Highly Non-Uniform Density. In *International Conference on Supercomputing (ICS'14)*, Munich, Germany, June 10-13, 2014. LLNL-CONF-648577. (21%).

[11] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. Quantifying the Effectiveness of Load Balance Algorithms. In *International Conference on Supercomputing (ICS'12)*, Venice, Italy, June 25-29, 2012. LLNL-CONF-523343. (22%).

[12] Gabriel Tanase, Antal A. Buss, Adam Fidel, Harshvardhan*, Ioannis Papadopoulos, **Olga Pearce**, Timmie G. Smith, Nathan Thomas, Xiabing Xu, Nedal Mourad, Jeremy Vu, Mauro Bianco, Nancy M. Amato, and Lawrence Rauchwerger. The STAPL Parallel Container Framework. In *ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP)*, pages 235–246, 2011. (16%).

[13] Nathan Thomas, Gabriel Tanase, **Olga Tkachyshyn**, Jack Perdue, Nancy M. Amato, and Lawrence Rauchwerger. A Framework for Adaptive Algorithm Selection in STAPL. In *ACM SIGPLAN Principles and Practice of Parallel Programming (PPoPP)*, pages 277–288, 2005. (31%).

### Refereed Publications in Conferences and Journals (additional). * denotes students I supervised.

[14] Ian Lumsden*, Jakob Luettgau, Vanessa Lama*, Connor Scully-Allison*, Stephanie Brink, Katherine E. Isaacs, **Olga Pearce**, and Michela Taufer. Enabling Call Path Querying in Hatchet to Identify Performance Bottlenecks in Scientific Applications. In *IEEE eScience*, October 2022. LLNL-CONF-83569.

[15] David Eberius*, David Boehme, and **Olga Pearce**. Did the GPU obfuscate the load imbalance in my MPI simulation? In *SC'21 Hierarchical Parallelism for Exascale Computing (HiPar) Workshop*, Nov 2021. LLNL-CONF-826447.

[16] Suraj P. Kesavan*, Harsh Bhatia, Abhinav Bhatele, Stephanie Brink, **Olga Pearce**, Todd Gamblin, Peer-Timo Bremer, and Kwan-Liu Ma. Scalable Comparative Visualization of Ensembles of Call Graphs using CallFlow. In *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, November 2021.

[17] J. P. Dahm, D. F. Richards, A. Black, A. D. Bertsch, L. Grinberg, I. Karlin, S. Kokkila-Schumacher, E. A. Leon, R. Neely, R. Pankajakshan, and **Olga Pearce**. Sierra Center of Excellence: Lessons Learned. In *IBM Journal of Research and Development*, 2020. LLNL-JRNL-789080.

[18] Stephanie Brink, Ian Lumsden*, Connor Scully-Allison*, Katy Williams*, **Olga Pearce**, Todd Gamblin, Michela Taufer, Katherine E. Isaacs, and Abhinav Bhatele. Usability and Performance Improvements in Hatchet. In *SC'20 ProTools Workshop*, Nov 2020. LLNL-CONF-814318.

[19] David Alexander Beckingsale, Jason Burmark, Rich Hornung, Holger Jones, William Killian, Adam J. Kunen, **Olga Pearce**, Peter Robinson, Brian S. Ryujin, and Thomas R. W. Scogland. RAJA: Portable Performance for Large-Scale Scientific Applications. In *SC'19 P3HPC Workshop*, 2019. LLNL-CONF-788757.

[20] **Olga Pearce**. Exploring Utilization Options of Heterogeneous Architectures for Multi-Physics Simulations. In *Parallel Computing Journal*, May 2019. LLNL-JRNL-762237.

[21] **Olga Pearce**, Hadia Ahmed*, Rasmus W. Larsen*, Peter Pirkelbauer, and David F. Richards. Exploring Dynamic Load Imbalance Solutions with the CoMD Proxy Application. In *Future Generation Computer Systems (FGCS)*, 2018. LLNL-JRNL-725317.

[22] Alexandre Bergel, Abhinav Bhatele, David Boehme, Patrick Gralka, Kevin Griffin, Marc-Andre Hermanns, Dusan Okanovic, **Olga Pearce**, and Tom Vierjahn. Visual Analytics Challenges in

Analyzing Calling Context Trees. In *Workshop on Visual Performance Analysis (VPA 18) at SC18*, November 2018. LLNL-CONF-756548.

[23] **Olga Pearce**. Experiences Using CPUs and GPUs for Cooperative Computation in a Multi-Physics Simulation. In *Workshop on Parallel Programming Models and Systems Software for High-End Computing (P2S2 2018) at the International Conference on Parallel Processing (ICPP 2018) Conference*, August 2018. LLNL-CONF-738086.

[24] **Olga Pearce**, Hadia Ahmed*, Rasmus W. Larsen*, and David F. Richards. Enabling Work Migration in CoMD to Study Dynamic Load Imbalance Solutions. In *Performance Modeling, Benchmarking and Simulation of High Performance Computer Systems (PMBS'16) held as part of ACM/IEEE International Conference for High Performance Computing, Networking, Storage, and Analysis (SC'16)*, Salt Lake City, Utah, USA, November 13, 2016. LLNL-CONF-704368. (22%).

[25] Antal A. Buss, Harshvardhan*, Ioannis Papadopoulos, **Olga Pearce**, Timmie G. Smith, Gabriel Tanase, Nathan Thomas, Xiabing Xu, Mauro Bianco, Nancy M. Amato, and Lawrence Rauchwerger. STAPL: Standard Template Adaptive Parallel Library. In *3rd Annual Haifa Experimental Systems Conference (SYSTOR)*, 2010.

[26] Gabriel Tanase, Xiabing Xu, Antal A. Buss, Harshvardhan, Ioannis Papadopoulos, **Olga Pearce**, Timmie G. Smith, Nathan Thomas, Mauro Bianco, Nancy M. Amato, and Lawrence Rauchwerger. The STAPL pList. In *22nd International Workshop on Languages and Compilers for Parallel Computing (LCPC)*, pages 16–30, 2009.

### Unrefereed Publications and Technical Reports. * denotes students I supervised.

[27] Stephanie Brink, Todd Gamblin, and **Olga Pearce**. Pinpointing Performance Bottlenecks with Hatchet. In *Nuclear Explosives Code Development Conference (NECDC) and Journal of Weapons Physics (JWP)*, January 2022. LLNL-JRNL-827068.

[28] **Olga Pearce**. Caliper, SPOT, and Hatchet: Enabling the Whys and the Wherefores of Personal Analysis. In *CASC Newsletter*, June 2020.

[29] **Olga Pearce**. What if Components of Your Multiphysics Simulation Need to Use Your Heterogeneous Machine Differently? In *Nuclear Explosives Code Development Conference (NECDC) and Journal of Weapons Physics (JWP)*, January 2019. LLNL-PROC-765162.

[30] **Olga Pearce**. Impact of Mesh Decomposition on Performance of Teton. In *Nuclear Explosives Code Development Conference (NECDC)*, January 2017. LLNL-PROC-718463.

[31] Richard Hornung, **Olga Pearce**, Adam Kunen, Jeff Keasler, Holger Jones, Rob Neely, and Todd Gamblin. Demonstrating Advances in Proxy Applications Through Performance Gains and/or Performance Portable Abstractions: CoMD and Kripke with RAJA. In *SIAM Conference on Parallel Processing for Scientific Computing (SIAM PP)*, March 2016. LLNL-TR-677453.

[32] Rasmus Wriedt Larsen* and **Olga Pearce**. Enabling Load Balancing in CoMD through Overdecomposition. Technical Report LLNL-TR-678978, Lawrence Livermore National Laboratory, November 2015.

[33] Rich Hornung, Holger Jones, Jeff Keasler, Rob Neely, **Olga Pearce**, Si Hammond, Christian Trott, Paul Lin, Courtenay Vaughan, Jeanine Cook, Mahesh Rajan, Rob Hoekstra, Ben Bergen, Josh Payne, and Geoff Womeldorff. ASC Tri-lab Co-design Level 2 Milestone Report. Technical Report LLNL-TR-677453, Lawrence Livermore National Laboratory, Sandia National Laboratories, Los Alamos National Laboratory, September 2015.

[34] Anna Tikhonova*, Gabriel Tanase, **Olga Tkachyshyn**, Nancy M. Amato, and Lawrence Rauchwerger. Parallel algorithms in STAPL: Sorting and the selection problem. Technical Report TR05-005, Parasol Lab, Department of Computer Science, Texas A&M University, August 2005.

[35] Jie Liu, **Olga Tkachyshyn**, Cory Kissinger, and Brian McGee. Teaching parallel programming and building parallel computers. In *International Conference on Frontiers in Education: Computer Science and Computer Engineering*, pages 149–155, June 2005.

[36] **Olga Tkachyshyn**, Ping An, Gabriel Tanase, and Nancy M. Amato. pArray as an efficient static parallel container in STAPL. Technical Report TR03-003, Parasol Lab, Department of Computer Science, Texas A&M University, August 2003.

### Ph.D. Dissertation

[37] **Olga Pearce**. *Load Balancing Scientific Applications*. PhD thesis, Texas A&M University, College Station, TX, December 2014. LLNL-TH-663256.

### Posters and Presentations. * denotes students I supervised.

[38] **Olga Pearce** and Stephanie Brink. Analyze your multi-experiment, multi-architecture, and multi-tool performance data with Thicket. In *ProTools Workshop at SC|22*, November 2022.

[39] **Olga Pearce**. Finding the forest in the trees: Enabling performance optimization on heterogeneous architectures through data science analysis of ensemble performance data. In *Workshop on Clusters, Clouds, and Data for Scientific Computing (CCDSC)*, September 2022.

[40] Connor Scully-Allison*, **Olga Pearce**, and Kate Isaacs. Missing the Trees for the Branches: Graphical-Scripting Interaction with Large-Scale Calling Context Trees. In *SC'21*, November 2021. LLNL-POST-825367.

[41] **Olga Pearce**. Visualizing GPU Metrics. In *Summit Series*, NVIDIA, Oct 27, 2021. LLNL-PRES-828300.

[42] **Olga Pearce**. Keynote: MPI & Accelerators: So you thought you were waiting for data to transfer? In *EuroMPI*, Sept 7, 2021.

[43] **Olga Pearce**. Invited panelist. In *1st Workshop on Performance EngineeRing, Modeling, Analysis, and VisualizatiOn STrategy (PERMAVOST 2021) at ACM HPDC 2021*, June 25, 2021.

[44] Todd Gamblin Olga Pearce, Stephanie Brink. Pinpointing performance bottlenecks with Hatchet. In *Nuclear Explosives Code Development Conference (NECDC'21)*, LLNL, May 12, 2021. LLNL-PRES-821461.

[45] Suraj P. Kesavan*, Harsh Bhatia, Abhinav Bhatele, Stephanie Brink, **Olga Pearce**, Todd Gamblin, Peer-Timo Bremer, and Kwan-Liu Ma. Scalable Comparative Visualization of Ensembles of Call Graphs using CallFlow. In *SC'20*, November 2020. LLNL-POST-813361.

[46] Stephanie Brink and **Olga Pearce**. Tutorial: Performance Analysis with Hatchet. Lawrence Livermore National Laboratory, August 2020. LLNL-PRES-813307.

[47] **Olga Pearce**. Updates on Halo Exchange on Sierra. In *Summit on Summit and Sierra*, NVIDIA, April 15, 2020. LLNL-PRES-808639.

[48] **Olga Pearce**. Application teams feedback on performance tools. In *CORAL 2 Quarterly Meeting*, March 25, 2020. LLNL-PRES-807675.

[49] Stephanie Brink, Abhinav Bhatele, Todd Gamblin, and **Olga Pearce**. Hatchet: Prunning the Overgrowth in Parallel Profiles. In *JOWOG 34 Applied Computer Science*, Lawrence Livermore National Laboratory, February 24-27, 2020.

[50] **Olga Pearce**. Comb: Buffer Packing and Halo Exchange on Sierra. In *Summit on Summit and Sierra*, NVIDIA, December 9, 2019. LLNL-PRES-798671.

[51] **Olga Pearce**. Comb: Halo Exchange on Sierra. In *Summit on Summit and Sierra*, NVIDIA, August 12, 2019. LLNL-PRES-795917.

[52] **Olga Pearce**. Experiences putting Tools into Production Codes. In *Salishan Conference on High Speed Computing*, April 22-25, 2019. LLNL-PRES-766343.

[53] **Olga Pearce**. LLNL Sierra: The Software Stack Propelling Simulations to Exascale. In *GPU Technology Conference (GTC)*, San Jose, CA, USA, March 18-21, 2019.

[54] David Eberius*, Kewen Meng*, and **Olga Pearce**. Improving GPU Utilization through Kernel Execution Overlap. In *JOWOG 34 Applied Computer Science*, Los Alamos National Laboratory, January 28-21, 2019. LLNL-POST-755394.

[55] **Olga Pearce**. Experiences putting Tools into Production Codes. In *CASC WIP series*, Lawrence Livermore National Laboratory, January, 2019. LLNL-PRES-766343.

[56] **Olga Pearce**. Exploring different modes of utilizing Sierra for multiphysics codes. In *Computation External Review Committee*, Lawrence Livermore National Laboratory, August 28-30, 2018. LLNL-PRES-756603.

[57] **Olga Pearce**. Understanding performance of simulations on heterogeneous supercomputers. In *Visualizing Systems and Software Performance (VSSP) GI-Dagstuhl seminar for young researchers*, Dagstuhl, Germany, July 9-13, 2018. LLNL-PRES-753268.

[58] **Olga Pearce**. Acceleration of HPC applications on hybrid CPU-GPU systems: When can Multi-Process Service (MPS) help? In *GPU Technology Conference (GTC), Featured Speaker*, San Jose, CA, USA, March 26-29, 2018. LLNL-PRES-746880.

[59] **Olga Pearce**. Methodology for analyzing the performance of multiphysics codes on heterogeneous architectures. In *JOWOG 34 Applied Computer Science*, Sandia National Laboratories, Albuquerque, NM, February 12-16, 2018. LLNL-PRES-745558.

[60] **Olga Pearce**. Experiences Utilizing CPUs and GPUs for Computation Simultaneously on a Heterogeneous Node. In *DOE COE Performance Portability Meeting*, Denver, CO, USA, August 24, 2017. LLNL-PRES-737016.

[61] **Olga Pearce**, Hadia Ahmed*, Rasmus W. Larsen*, and David F. Richards. Enabling Work Migration in CoMD to Study Dynamic Load Imbalance Solutions. In *JOWOG 34 Applied Computer Science*, Livermore, CA, USA, February 10, 2017. LLNL-PRES-708520.

[62] David Beckingsale, **Olga Pearce**, and Todd Gamblin. Lightweight, Reusable Models for Dynamically Tuning Data-Dependent Code. In *SC'16*, Salt Lake City, UT, November 2016.

[63] David Boehme, Todd Gamblin, Peer-Timo Bremer, **Olga Pearce**, and Martin Schulz. Caliper: Composite Performance Data Collection in HPC Codes. In *SC'15*, Austin, TX, November 2015.

[64] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. Improving Application Performance Through Affordable Load Balancing. In *Grace Hopper Conference*, Houston, TX, October 14, 2015. LLNL-POST-667498.

[65] Rich Hornung, Holger Jones, Jeff Keasler, Rob Neely, **Olga Pearce**, Si Hammond, Christian Trott, Paul Lin, Courtenay Vaughan, Jeanine Cook, Mahesh Rajan, Rob Hoekstra, Ben Bergen, Josh Payne, and Geoff Womeldorff. ASC Tri-lab Co-design Level 2 Milestone Report. September 2015. LLNL-TR-677453.

[66] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. Improving Application Performance Through Affordable Load Balancing. In *LLNL Computation Directorate External Review Committee Meeting*, Livermore, CA, March 10, 2015. LLNL-POST-667498.

[67] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. Decoupled Load Balancing. In *Symposium on Principles and Practice of Parallel Programming (PPoPP)*, San Francisco, CA, February 8, 2015. LLNL-CONF-665393, LLNL-POST-666820.

[68] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Tom Arsenlis, and Nancy M. Amato. Load Balancing N-Body Simulations with Highly Non-Uniform Density. In *JOWOG 34 Applied Computer Science*, Albuquerque, NM, February 4, 2015. LLNL-PRES-666427.

[69] **Olga Pearce**. Load Balancing Scientific Applications. In *SC'14 Doctoral Showcase*, New Orleans, LA, November 20, 2014. LLNL-MI-657788, LLNL-PRES-664457. (36%).

[70] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Tom Arsenlis, and Nancy M. Amato. Load Balancing N-Body Simulations with Highly Non-Uniform Density. In *Parasol Seminar*, College Station, TX, June 20, 2014. LLNL-PRES-654858.

[71] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Tom Arsenlis, and Nancy M. Amato. Load Balancing N-Body Simulations with Highly Non-Uniform Density. In *Salishan Conference on High Speed Computing*, Gleneden Beach, Oregon, April 23, 2014. LLNL-POST-653183.

[72] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. Quantifying the Effectiveness of Load Balance Algorithms. In *Salishan Conference on High Speed Computing*, Gleneden Beach, Oregon, April 25, 2012. LLNL-POST-548645.

[73] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. Quantifying the Effectiveness of Load Balance Algorithms. In *Parasol Seminar*, Texas A&M University, College Station, TX, February 10, 2012. LLNL-PRES-527851.

[74] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. A Topology-aware Application-independent Load Model for Parallel Codes. In *Stockpile Stewardship Support Project Workshop (SSSP)*, Texas A&M University, College Station, TX, November 10, 2011. LLNL-POST-507591.

[75] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. A Topology-aware Application-independent Load Model for Parallel Codes. In *LLNL Lawrence Scholar Poster Session (LSP)*, Livermore, CA, October 25, 2011. LLNL-POST-507591.

[76] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. Load Balance: Correlating Application-Independent Measurements with Application-Semantic Computational Models. In *Supercomputing 2010 (SC'10)*, New Orleans, LA, November 16, 2010. LLNL-POST-461997.

[77] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. Modeling Load in Parallel Codes. In *Broader Engagement, Supercomputing 2010 (SC'10)*, New Orleans, LA, November 13, 2010. LLNL-PRES-462101.

[78] **Olga Pearce**, Todd Gamblin, Bronis R. de Supinski, Martin Schulz, and Nancy M. Amato. Load Balancing Petascale Applications. In *LLNL Computation Postdoctoral Poster Session*, Livermore, CA, June 29, 2010. LLNL-POST-432915.