

## Kevin A. Huck

Senior Research Associate / Computer Scientist  
Oregon Advanced Computing Institute for Science and Society (OACISS)  
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<https://github.com/khuck/>

### Education

#### University of Oregon, Eugene, Oregon, 2002–2009

Ph.D. in Computer and Information Science, 2009  
Dissertation Title: “Knowledge Support for Parallel Performance Data Mining”  
M.S. Computer and Information Science, 2004

#### University of Cincinnati, Cincinnati, OH, 1990-1995

B.S. Computer Science, 1995

### Awards and Honors

Spanish Ministry of Science and Innovation *Juan de la Cierva* Postdoctoral Fellowship, 2009–2011  
University of Oregon Computer and Information Science Graduate Research Fellowship, 2002–2009  
University of Oregon Computer and Information Science Department Distinguished Service Award, 2008  
International Conference on Parallel Processing *Chuan-lin Wu* Best Paper Award, 2005  
Upsilon Pi Epsilon Honor Society for the Computing Sciences, 2004–2009

### Research Experience

<b>University of Oregon.</b>	<b>2012–present</b>	<b>Eugene, OR</b>
<b>Senior Research Associate (since 2022), Research Associate</b> - Performing research in the areas of data mining, parallel performance analysis, software tool design and software engineering. Particularly interested in the unique problems of intelligent, automated parallel performance analysis, specifically analysis of very large datasets (high processor counts, high event counts, multiple metrics). Also performing research in the areas of introspection for runtime adaptation of high concurrency, task-based runtime systems.		
<b>ParaTools, Inc.</b>	<b>2011–2012</b>	<b>Eugene, OR</b>
<b>Computer Scientist</b> - Principal Investigator and Research Scientist providing analysis expertise in the area of parallel and distributed scientific computing, and performance evaluation tools. Responsibilities include preparing and executing Small Business Innovation Research (SBIR) proposals to US agencies such as the National Aeronautics and Space Administration and Department of Energy Office of Science.		

**Barcelona Supercomputing Center                      2009–2011                      Barcelona, Spain**

**Postdoctoral Research** - Developed and applied analysis tools and expertise to improve the performance of scientific software. Designed and implemented automated utilities to improve the user experience. Integrated performance analysis tools into a rule based system for performance analysis. Investigated methods for automatic diagnosis and treatment of performance problems. Wrote grant proposals and progress reports to collaborating partners and funding agencies. (Research advisor: Dr. Jesús Labarta)

**University of Oregon                                      2002–2009                                      Eugene, OR**

**Graduate Research** - Defined a parallel performance data database schema, and developed an application programming interface for loading and querying data. Applied data mining algorithms to large-scale performance datasets, and designed of a framework to support performance data mining. Developed a scripting interface for automating the analysis in the data mining framework. Integrated a rule-based system to incorporate expert knowledge for diagnosis of performance problems. Used prototype analysis tools in application performance analysis studies and evaluation on petascale systems. (Research advisor: Dr. Allen D. Malony)

**Lawrence Livermore National Laboratory.      Summer, 2004      Livermore, CA**

**Summer Internship** - Worked in the Center for Applied Scientific Computing group to develop and implement PerfTrack, a parallel performance database management and analysis system. Tasks included generating benchmark data on several large parallel computers, developing a database schema, and writing software to populate the database with performance and environment data. (Research advisor: Dr. Brian Miller)

## Professional Memberships

- Association for Computing Machinery (ACM)
- Supporting, celebrating, and advocating for Women in Computing (ACM-W)
- ACM Special Interest Group on High Performance Computing (SIGHPC)
- ACM Special Interest Group on Measurement and Evaluation (SIGMETRICS)

## Research Interests

- Parallel performance analysis, particularly in the area of scientific applications on large scale systems.
- Data mining and data management of large scale performance data.
- Developing rule-based expert systems for automated performance analysis.
- Runtime introspection and autonomic runtime adaptation for improved performance and power/energy efficiency.

## Software Products

**APEX** Creator and primary developer of *APEX*, an Autonomic Performance Environment for eXascale. APEX provides introspection of the performance state for the entire software stack and includes a *Policy Engine* for modifying software behavior at runtime in order to adapt to variable conditions. APEX is designed for distributed, asynchronous multitasking programming environments (i.e. HPX), but has been generally applied to other parallel execution models including C++ std::threads, MPI, OpenMP, OpenACC, CUDA, HIP, SYCL, Kokkos and Raja. Policies for optimizing network coalescing parameters, HPX task creation/scheduling decisions, OpenMP runtime parameters, and Kokkos internals have been developed. <https://github.com/UO-OACISS/apex>

**TAU Performance System** Maintainer and developer of the *TAU Performance System*, a portable profiling and tracing toolkit for performance analysis of parallel programs written in Fortran, C, C++, UPC, Java, and Python and utilizing all commonly used programming models including MPI, OpenMP, OpenACC, SHMEM, CUDA, HIP, SYCL and many others. TAU (Tuning and Analysis Utilities) is capable of gathering performance information through instrumentation of functions, methods, basic blocks, and statements as well as event-based sampling. The API also provides selection of profiling groups for organizing and controlling instrumentation. The instrumentation can be inserted in the source code using an automatic instrumentor tool, LLVM compiler plugins, dynamically using DyninstAPI, at runtime as in the Python interpreter, or manually using the instrumentation API. <https://tau.uoregon.edu>

**PerfExplorer** Creator and primary developer of *PerfExplorer*, a data mining framework for large scale parallel performance analysis. PerfExplorer includes an integrated rule engine and full automation capability through a Python scripting interface. <https://github.com/UO-OACISS/tau2>

**PerfDMF** Creator and primary developer of *TAUdb/PerfDMF*, a performance data management framework for reading, archiving and querying parallel profiles with support for over one dozen file formats and a tailored database schema. <https://github.com/UO-OACISS/tau2>

**PerfStubs** Creator and primary developer of *PerfStubs*, a Profiling API for adding external tool instrumentation plugin support to any project. This was motivated by the need to add high-level instrumentation to the ADIOS library without adding a build dependency, or tying to a specific measurement tool. It has subsequently been added to the CAM-TIMERS, Ginkgo, and PETSc libraries. <https://github.com/UO-OACISS/perfstubs>

**ZeroSum** Creator of *ZeroSum*, a runtime utility to monitor application OS threads, OpenMP threads, MPI processes, and the hardware assigned to them including CPUs, memory usage and GPU utilization. Supported systems include all Linux operating systems and NVIDIA (CUDA/NVML), AMD (HIP/ROCm-SMI) and Intel (Intel SYCL) GPUs. Host side monitoring is provided through the virtual /proc filesystem. <https://github.com/khuck/zerosum>

**Hindsight** Creator of *Hindsight*, an experimental, iterative, optimizing partitioning strategy. The primary objective of Hindsight is to reduce the number of cells in the largest block of the partition, while the secondary objective is to balance the load among blocks, without increasing the average workload across all blocks. The algorithm uses partition properties unknown before the first partitioning, such as the node and edge weights of the resulting block graph and the total number of halo cells in each block. <https://github.com/khuck/hindsight2>

## Grants (\$1.97M total to University of Oregon) as PI/CoPI

**OASIS: Organization for the Advancement and Stewardship of Integrated Software**

Source: US Department of Energy, Scientific Discovery Through Advance Computing (SciDAC) Supplement, Dates: January 2024 – December 2024, UO budget: \$150,000/year, Role: UO point of contact, UO PI.

## Whole Device Modeling (WDMApp)

Source: US Department of Energy, Exascale Compute Project (ECP), Dates: September 2021 – June 2023 UO budget: \$173,380 total Role: UO Co-PI.

**RAPIDS2: a SciDAC Institute for Resource and Application Productivity through computation, Information, and Data Science**

Source: US Department of Energy, Scientific Discovery Through Advance Computing (SciDAC), Dates: September 2020 – September 2025, UO budget: \$1,100,000 total Role: UO point of contact, UO PI, Platform Readiness co-lead.

**Phylanx Engine Enhancement and Visualizations Development**

Source: Booze Allen Hamilton for US Department of Defense, Dates: June 2020 – December 2020, UO Budget: \$45,000 total Role: UO PI.

**Co-design Center for Online Data Analysis and Reduction at the Exascale (ECP CODAR)**

US Department of Energy, Exascale Compute Project (ECP), Dates: October 2019 – June 2023, UO Budget: \$433,671 total Role: UO Co-PI

**Phylanx Engine Enhancement and Visualizations Development**

Source: Booze Allen Hamilton for US Department of Defense, Dates: February 2018 – September 2018, UO Budget: \$180,000 total Role: UO PI

**RAPIDS: a SciDAC Institute for Resource and Application Productivity through computation, Information, and Data Science**

Source: US Department of Energy, Scientific Discovery Through Advance Computing (SciDAC), Dates: October 2017 – September 2020, UO Budget: \$717,112 total Role: UO PI

**Collaborative Research: Phylanx: Python-based Array Processing in HPX**

Source: National Science Foundation, Dates: June 2017 – May 2019, UO Budget: \$93,299/year, Role: UO PI

**Grants participating as Senior Staff**

**Institute for Sustained Performance, Energy, and Resilience (SUPER)**

Source: US Department of Energy, Scientific Discovery Through Advance Computing (SciDAC), Dates: October 2012 – September 2017, Total Budget: \$15,000,000, PI: Robert Lucas, Information Sciences Institute, University of Southern California.

**SI2-SSI: Collaborative Research: A Glass Box Approach to Enabling Open, Deep Interactions in the HPC Toolchain**

Source: National Science Foundation, Office of Advanced Cyberinfrastructure Dates: June 1, 2012 – May 31, 2016 Total Budget: \$926,667.00, PI: Allen Malony, University of Oregon.

**XPRESS: eXascale PProgramming Environment and System Software**

Source: US Department of Energy, Office of Science, Advanced Scientific Computing Research, Dates: September 2012 – August 2015 Total Budget: \$6.9 million, PI: Ron Brightwell, Sandia National Laboratory.

**A Productive and Accessible Development Workbench for HPC Applications Using the Eclipse Parallel Tools Platform**

Source: National Science Foundation, Office of Advanced Cyberinfrastructure, Dates: October 2010 – September 2014, Total Budget: \$1,434,000, PI: Jay Alameda, University of Illinois.

**Teaching Experience**

**Instructor: Supercomputing Tutorial, Denver, USA, 2023**

Lectured in interactive training session and tutorial entitled *ADIOS-2: A Framework to Enable HPC Tools for Extreme Scale I/O, In Situ Visualization, and Performance Analysis*. Trained attendees in the use of performance tools with the ADIOS data staging, coupling, and I/O library.

**Instructor: HPC Performance Tools Tutorial, Espoo, Finland, 2023**

Lectured in 3 day interactive training session and tutorial entitled *TAU Performance System Workshop on LUMI*. Trained attendees in the use of the performance tools TAU and APEX on the supercomputing system LUMI at the Finish Supercomputing Center (CSC).

**Instructor: Supercomputing Tutorial, Dallas, USA, 2022**

Lectured in interactive training session and tutorial entitled *ADIOS-2: A Framework to Enable HPC Tools for Extreme Scale I/O, in situ Visualization, and Performance Analysis*. Trained attendees in the use of performance tools with the ADIOS data staging, coupling, and I/O library.

**Instructor: Supercomputing Tutorial, Denver, USA, 2017**

Lectured in interactive training session and tutorial entitled *Interactive HPC: Using C++ and HPX Inside Jupyterhub to Write Performant Portable Parallel Code*. Trained attendees in the use of performance tools on high performance parallel computing resources in Jupyter environments with HPX.

**Instructor: Argonne Leadership Computing Facility INCITE Workshop, Argonne National Laboratory, 2008**

Led interactive training session and tutorial entitled *Using the TAU Performance Analysis System on the Blue Gene/P*. Trained staff scientists in the use of performance tools on high performance parallel computing resources.

**Instructor: Introduction to Oracle and SQL, University of Oregon, 2006**

Designed a new course for the Computer and Information Science department, selected the text, designed and implemented the syllabus, and taught 8-week summer course for undergraduate students. <http://www.cs.uoregon.edu/classes/06U/cis399oracle/>

**Teaching Assistant: Computer Organization, University of Oregon, 2002–2003**

Led lab discussions and gave occasional lectures for CIS 314, Computer Organization. Graded homework assignments, posted grades for students, held office hours, and proofed examinations.

## Industry Experience

<b>Southwest Financial Services, Ltd.</b>	<b>2001–2002</b>	<b>Cincinnati, Ohio</b>
<b>Senior Software Engineer</b>		

Developed a web application with a back-end database to process both automated and manual services for the mortgage industry. Also designed and maintained an web application order-entry interface for customers.

<b>Triple-I Systems, Inc.</b>	<b>1997–2001</b>	<b>Cincinnati, OH</b>
<b>Senior Systems Engineer Consultant and Technical Leader</b>		

Worked as a software developer for a small consulting firm. During my tenure, I worked with four different clients:



**ISC High Performance** 2020  
Tutorials deputy chair.

**IEEE Cluster** 2019  
Technical program committee member, posters.

**International Conference for High Performance Computing, Networking, Storage and Analysis (SC)** 2019  
Technical program committee member.

**International Conference for High Performance Computing, Networking, Storage and Analysis (SC)** 2018  
Tutorials Vice Chair.

**International Conference for High Performance Computing, Networking, Storage and Analysis (SC)** 2016 – 2017  
Technical program committee member, *Tutorials*.

**21st International Workshop on High-level Parallel Programming Models and Supportive Environments (HIPS)** 2016  
Technical program committee member.

**International Conference on Computational Science (ICCS)** 2016  
Technical program committee member.

**2nd Workshop on Visual Performance Analysis (VPA)** 2015  
Technical program committee member.

**Petascale Tools Workshop** 2013 – 2015  
Invited participant, summer workshop.

**International Meeting on High Performance Computing for Computational Science (VECPAR)** 2014  
Web Chair.

**International Conference on Supercomputing (ICS)** 2014  
Program committee member.

**International Conference on Computational Science (ICCS)** 2014  
Program committee member.

**Workshop on Productivity and Performance (PROPER)** 2013  
Program committee member.

**International Conference on Supercomputing (ICS)** 2013  
Web Chair.

**International Conference on Computational Science (ICCS)** 2013  
Program committee member.

**IEEE International Parallel & Distributed Processing Symposium (IPDPS)** 2013  
Program committee member.

**Workshop on High-performance Infrastructure for Scalable Tools (WHIST)** 2012  
Program committee member.

**International Conference for High Performance Computing, Networking, Storage and Analysis (SC11)** 2011  
Technical program committee member, *Technical Papers, Performance*.

**Workshop on High-performance Infrastructure for Scalable Tools (WHIST)** 2011  
Program committee member.

**Center for Scalable Application Development Software (CScADS)** 2008 and 2010  
Invited participant, *Performance Tools for Petascale Computing* summer workshop.

**International Conference on Parallel Processing (ICPP)** 2010  
Program committee member.

**Schloss Dagstuhl – Leibniz-Center for Informatics** 2010  
Invited participant, *Program Development for Extreme-Scale Computing* seminar.

**Parallel Computing (ParCo) Conference** 2009  
Program committee member, session chair.

**Schloss Dagstuhl – Leibniz-Center for Informatics** 2007  
Invited participant, *Code Instrumentation and Modeling for Parallel Performance Analysis* seminar.

## University and Community Services

**Computing Resource Committee** 2005–2006  
Student representative to the committee for the academic year. Provided a student perspective of the development and maintenance of the department’s hardware and software computing resources.

**GTFF Steward** 2003–2006  
Computer & Information Science Department representative to the Graduate Teaching Fellows Federation (GTFF) Local 3544. Attended monthly Executive Council meetings to represent the CIS department, discussed GTFF policy, voted on resolutions, and handled grievances.

**Graduate Education Committee** 2003–2004  
Student representative to the committee for the academic year. Helped shape department policy for graduate students and gave student feedback to the faculty.

**Friendship Foundation for International Students** 2007–2008  
Provided housing and support for an international undergraduate student prior to the academic school year.

## Publications

*\* Indicates student-led paper*

1. **K. Huck** and A. Malony, “ZeroSum: User space monitoring of resource utilization and contention on heterogeneous hpc systems,” in *Proceedings of the SC ’23 Workshops of The International Conference on High Performance Computing, Network, Storage, and Analysis*, SC-W ’23, (New York, NY, USA), p. 685–695, Association for Computing Machinery, 2023.
2. F. Boito, J. Brandt, V. Cardellini, P. Carns, F. M. Ciorba, H. Egan, A. Eleliemy, A. Gentile, T. Gruber, J. Hanson, U. Haus, **K. Huck**, T. Ilsche, T. Jakobsche, T. Jones, S. Karlsson, A. Mueen, M. Ott, T. Patki, I. Peng, K. Raghavan, S. Simms, K. Shoga, M. Showerman, D. Tiwari, T. Wilde, and K. Yamamoto, “Autonomy loops for monitoring, operational data analytics, feedback, and response in hpc operations,” in *2023 IEEE International Conference on Cluster Computing Workshops (CLUSTER Workshops)*, (Los Alamitos, CA, USA), pp. 37–43, IEEE Computer Society, oct 2023.



3. **K. A. Huck**, “Broad performance measurement support for asynchronous multi-tasking with APEX,” in *2022 IEEE/ACM 7th International Workshop on Extreme Scale Programming Models and Middleware (ESPM2)*, pp. 20–29, 2022.
4. **K. Huck**, X. Wu, A. Dubey, A. Georgiadou, J. A. Harris, T. Klosterman, M. Trappett, and K. Weide, “Performance debugging and tuning of Flash-X with data analysis tools,” in *2022 IEEE/ACM Workshop on Programming and Performance Visualization Tools (ProTools)*, pp. 1–10, 2022.
5. S. A. Sakin\*, A. Bigelow, R. Tohid, C. Scully-Allison, C. Scheidegger, S. R. Brandt, C. Taylor, **K. A. Huck**, H. Kaiser, and K. E. Isaacs, “Traveler: Navigating task parallel traces for performance analysis,” *IEEE Transactions on Visualization and Computer Graphics*, vol. 29, no. 1, pp. 788–797, 2023.
6. K. Mehta, B. Allen, M. Wolf, J. Logan, E. Suchyta, S. Singhal, J. Y. Choi, K. Takahashi, **K. Huck**, I. Yakushin, A. Sussman, T. Munson, I. Foster, and S. Klasky, “A codesign framework for online data analysis and reduction,” *Concurrency and Computation: Practice and Experience*, vol. 34, no. 14, p. e6519, 2022.
7. E. Suchyta, S. Klasky, N. Podhorszki, M. Wolf, A. Adesoji, C. Chang, J. Choi, P. E. Davis, J. Dominski, S. Ethier, I. Foster, K. Germaschewski, B. Geveci, C. Harris, **K. A. Huck**, Q. Liu, J. Logan, K. Mehta, G. Merlo, S. V. Moore, T. Munson, M. Parashar, D. Pugmire, M. S. Shephard, C. W. Smith, P. Subedi, L. Wan, R. Wang, and S. Zhang, “The Exascale Framework for High Fidelity coupled Simulations (EFFIS): Enabling Whole Device Modeling in Fusion Science,” *The International Journal of High Performance Computing Applications*, vol. 36, no. 1, pp. 106–128, 2022.
8. S. Ramesh\*, R. Ross, M. Dorier, A. Malony, P. Carns, and **K. Huck**, “SYMBIOMON: A High-Performance, Composable Monitoring Service,” in *2021 IEEE 28th International Conference on High Performance Computing, Data, and Analytics (HiPC)*, pp. 332–342, IEEE, 2021.
9. I. Foster, M. Ainsworth, J. Bessac, F. Cappello, J. Choi, S. Di, Z. Di, A. M. Gok, H. Guo, **K. A. Huck**, *et al.*, “Online Data Analysis and Reduction: An Important Co-design Motif for Extreme-scale Computers,” *The International Journal of High Performance Computing Applications*, vol. 35, no. 6, pp. 617–635, 2021.
10. P. Diehl, G. Daiß, D. Marcello, **K. Huck**, S. Shiber, H. Kaiser, J. Frank, G. C. Clayton, and D. Pflüger, “Octo-tiger’s new hydro module and performance using HPX+CUDA on ORNL’s summit,” in *2021 IEEE International Conference on Cluster Computing (CLUSTER)*, pp. 204–214, 2021.
11. C. Wood\*, G. Georgakoudis, D. Beckingsale, D. Poliakoff, A. Gimenez, **K. Huck**, A. Malony, and T. Gamblin, “Artemis: Automatic Runtime Tuning of Parallel Execution Parameters Using Machine Learning,” in *High Performance Computing* (B. L. Chamberlain, A.-L. Varbanescu, H. Ltaief, and P. Luszczek, eds.), (Cham), pp. 453–472, Springer International Publishing, 2021.
12. W. Wei\*, E. D’Azevedo, **K. Huck**, A. Chatterjee, O. Hernandez, and H. Kaiser, “Memory reduction using a ring abstraction over GPU RDMA for distributed quantum monte carlo solver,” in *Proceedings of the Platform for Advanced Scientific Computing Conference, PASC ’21*, (New York, NY, USA), Association for Computing Machinery, 2021.
13. P. Diehl, D. Marcello, P. Amini, H. Kaiser, S. Shiber, G. C. Clayton, J. Frank, G. Daiß, D. Pflüger, D. Eder, A. Koniges, and **K. Huck**, “Performance Measurements Within

- Asynchronous Task-Based Runtime Systems: A Double White Dwarf Merger as an Application,” *Computing in Science Engineering*, vol. 23, no. 3, pp. 73–81, 2021.
14. C. Coti, J. E. Denny, **K. Huck**, S. Lee, A. D. Malony, S. Shende, and J. S. Vetter, “OpenACC Profiling Support for Clang and LLVM using Clacc and TAU,” in *2020 IEEE/ACM International Workshop on HPC User Support Tools (HUST) and Workshop on Programming and Performance Visualization Tools (ProTools)*, pp. 38–48, 2020.
  15. S. R. Brandt, B. Hasheminezhad, N. Wu, S. A. Sakin, A. R. Bigelow, K. E. Isaacs, **K. Huck**, and H. Kaiser, “Distributed Asynchronous Array Computing with the JetLag Environment,” in *2020 IEEE/ACM 9th Workshop on Python for High-Performance and Scientific Computing (PyHPC)*, pp. 49–57, 2020.
  16. W. Wei\*, A. Chatterjee, **K. Huck**, O. Hernandez, and H. Kaiser, “Performance Analysis of a Quantum Monte Carlo Application on Multiple Hardware Architectures Using the HPX Runtime,” in *2020 IEEE/ACM 11th Workshop on Latest Advances in Scalable Algorithms for Large-Scale Systems (ScalA)*, pp. 77–84, 2020.
  17. H. Kaiser, P. Diehl, A. S. Lemoine, B. A. Lelbach, P. Amini, A. Berge, J. Biddiscombe, S. R. Brandt, N. Gupta, T. Heller, **K. Huck**, Z. Khatami, A. Kheirkhahan, A. Reverdell, S. Shirzad, M. Simberg, B. Wagle, W. Wei, and T. Zhang, “HPX - The C++ Standard Library for Parallelism and Concurrency,” *Journal of Open Source Software*, vol. 5, no. 53, p. 2352, 2020.
  18. C. Kelly, S. Ha, **K. Huck**, H. Van Dam, L. Pouchard, G. Matyasfalvi, L. Tang, N. D’Imperio, W. Xu, S. Yoo, and K. K. Van Dam, “Chimbuko: A Workflow-Level Scalable Performance Trace Analysis Tool,” in *ISAV’20 In Situ Infrastructures for Enabling Extreme-Scale Analysis and Visualization*, ISAV’20, (New York, NY, USA), p. 15–19, Association for Computing Machinery, 2020.
  19. S. R. Brandt, A. Bigelow, S. A. Sakin, K. Williams, K. E. Isaacs, **K. Huck**, R. Tohid, B. Wagle, S. Shirzad, and H. Kaiser, “JetLag: An Interactive, Asynchronous Array Computing Environment,” in *Practice and Experience in Advanced Research Computing*, pp. 8–12, 2020.
  20. W. F. Godoy, N. Podhorszki, R. Wang, C. Atkins, G. Eisenhauer, J. Gu, P. Davis, J. Choi, K. Germaschewski, **K. Huck**, A. Huebl, M. Kim, J. Kress, T. Kurc, Q. Liu, J. Logan, K. Mehta, G. Ostrouchov, M. Parashar, F. Poeschel, D. Pugmire, E. Suchyta, K. Takahashi, N. Thompson, S. Tsutsumi, L. Wan, M. Wolf, K. Wu, and S. Klasky, “ADIOS 2: The Adaptable Input Output System. A framework for high-performance data management,” *SoftwareX*, vol. 12, p. 100561, 2020.
  21. D. Boehme, **K. Huck**, J. Madsen, and J. Weidendorfer, “The Case for a Common Instrumentation Interface for HPC Codes,” in *2019 IEEE/ACM International Workshop on Programming and Performance Visualization Tools (ProTools)*, pp. 33–39, Nov 2019.
  22. G. Daiß\*, P. Amini, J. Biddiscombe, P. Diehl, J. Frank, **K. Huck**, H. Kaiser, D. Marcello, D. Pfander, and D. Pfüger, “From Piz Daint to the Stars: Simulation of Stellar Mergers Using High-level Abstractions,” in *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis*, pp. 1–37, 2019.
  23. B. Wagle\*, M. A. H. Monil, **K. Huck**, A. D. Malony, A. Serio, and H. Kaiser, “Runtime adaptive task inlining on asynchronous multitasking runtime systems,” in *Proceedings of the 48th International Conference on Parallel Processing, ICPP 2019*, (New York, NY, USA), pp. 76:1–76:10, ACM, 2019.

24. A. D. Malony, S. Ramesh, **K. Huck**, N. Chaimov, and S. Shende, “A Plugin Architecture for the TAU Performance System,” in *Proceedings of the 48th International Conference on Parallel Processing*, ICPP 2019, (New York, NY, USA), pp. 90:1–90:11, ACM, 2019.
25. T. Heller\*, B. A. Leibach, **K. A. Huck**, J. Biddiscombe, P. Grubel, A. E. Koniges, M. Kretz, D. Marcello, D. Pfander, A. Serio, J. Frank, G. C. Clayton, D. Pflüger, D. Eder, and H. Kaiser, “Harnessing Billions of Tasks for a Scalable Portable Hydrodynamic Simulation of the Merger of Two Stars,” *The International Journal of High Performance Computing Applications*, vol. 33, no. 4, pp. 699–715, 2019.
26. S. Klasky, M. Wolf, K. Mehta, **K. Huck**, B. Geveci, S. Phillip, R. Maynard, H. Guo, T. Peterka, K. Moreland, *et al.*, “In Situ Analysis and Visualization of Fusion Simulations: Lessons Learned,” in *High Performance Computing: ISC High Performance 2018 International Workshops, Frankfurt/Main, Germany, June 28, 2018, Revised Selected Papers*, vol. 11203, p. 230, Springer, 2019.
27. R. Tohid, B. Wagle, S. Shirzad, P. Diehl, A. Serio, A. Kheirkhahan, P. Amini, K. Williams, K. Isaacs, **K. Huck**, *et al.*, “Asynchronous Execution of Python Code on Task Based Runtime Systems,” *arXiv preprint arXiv:1810.07591*, 2018.
28. J. Y. Choi, C. Chang, J. Dominski, S. Klasky, G. Merlo, E. Suchyta, M. Ainsworth, B. Allen, F. Cappello, M. Churchill, P. Davis, S. Di, G. Eisenhauer, S. Ethier, I. Foster, B. Geveci, H. Guo, **K. Huck**, F. Jenko, M. Kim, J. Kress, S. Ku, Q. Liu, J. Logan, A. Malony, K. Mehta, K. Moreland, T. Munson, M. Parashar, T. Peterka, N. Podhorszki, D. Pugmire, O. Tugluk, R. Wang, B. Whitney, M. Wolf, and C. Wood, “Coupling Exascale Multiphysics Applications: Methods and Lessons Learned,” in *2018 IEEE 14th International Conference on e-Science (e-Science)*, pp. 442–452, Oct 2018.
29. L. Pouchard, **K. Huck**, G. Matyasfalvi, D. Tao, L. Tang, H. V. Dam, and S. Yoo, “Prescriptive Provenance for Streaming Analysis of Workflows at Scale,” in *2018 New York Scientific Data Summit (NYSDS)*, pp. 1–6, Aug 2018.
30. M. Kim, J. Kress, J. Choi, N. Podhorszki, S. Klasky, M. Wolf, K. Mehta, **K. Huck**, B. Geveci, S. Phillip, R. Maynard, H. Guo, T. Peterka, K. Moreland, C.-S. Chang, J. Dominski, M. Churchill, and D. Pugmire, “In Situ Analysis and Visualization of Fusion Simulations: Lessons Learned,” in *High Performance Computing* (R. Yokota, M. Weiland, J. Shalf, and S. Alam, eds.), (Cham), pp. 230–242, Springer International Publishing, 2018.
31. M. A. H. Monil\*, A. D. Malony, D. Toomey, and **K. Huck**, “Stingray-HPC: A Scalable Parallel Seismic Raytracing System,” in *2018 26th Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP)*, pp. 204–213, March 2018.
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