

Abhinav Bhatele

 Associate Professor, Department of Computer Science
University of Maryland, College Park

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Education

- 2010 **Ph.D., Computer Science**, *University of Illinois at Urbana-Champaign, Urbana, Illinois, USA*
- 2007 **M.S., Computer Science**, *University of Illinois at Urbana-Champaign, Urbana, Illinois, USA*
- 2005 **B.Tech., Computer Science and Engineering**, *Indian Institute of Technology, Kanpur, India*
- 2001 **High School**, *Delhi Public School, Bokaro, India*

Research and Professional Experience

University of Maryland, College Park

- 2024–present Affiliate Faculty Member, *Artificial Intelligence Interdisciplinary Institute at Maryland (AIM)*
- 2022–present Associate Professor, *Department of Computer Science and Institute for Advanced Computer Studies*
- 2020–present Affiliate Faculty Member (Full), *Applied Math. & Statistics, and Scientific Computation (AMSC)*
- 2019–2022 Assistant Professor, *Department of Computer Science and Institute for Advanced Computer Studies*

Other Appointments

- 2022–present Visiting Scientist, *RIKEN Center for Computational Science*

Lawrence Livermore National Laboratory

- 2018–2019 Principal Computer Scientist, *Center for Applied Scientific Computing*
- 2012–2018 Senior Computer Scientist, *Center for Applied Scientific Computing*
- 2011–2012 Post-doctoral Research Scholar, *Center for Applied Scientific Computing*

University of Illinois at Urbana-Champaign

- 2010–2011 Post-doctoral Research Associate, *Department of Computer Science*
- 2005–2010 Graduate Research Assistant, *Department of Computer Science*

IBM Thomas J. Watson Research Center

- Summer 2007 Research Intern
- Summer 2006 Research Intern
- Summer 2004 **INRIA Nancy – Grand-Est, France**, *Research Intern*
- Summer 2003 **Indian Institute of Technology, Kanpur, India**, *Research Intern*

Awards and Honors

- 2025 Research Excellence Honoree, University of Maryland
- 2024 Hyperion Research HPC Innovation Excellence Award: AxoNN
- 2024 **Finalist, ACM Gordon Bell Prize**, SC '24, Atlanta, GA
- 2024 Early Career Academic Achievement Alumni Award, Dept. of CS, Univ. of Illinois
- 2024 Best Paper Award, PDP '24, Dublin, Ireland
- 2024 DOE INCITE Leadership Computing Allocation Award
- 2023 **IEEE TCSC Award for Excellence in Scalable Computing** for Mid-career Researchers
- 2023 Best Research Poster Award, SC '23, Denver, CO
- 2021 NSF CAREER Award
- 2019 Technical University Munich (TUM) Institute for Advanced Study Visiting Fellow
- 2017, 2018 Outstanding Mentor Award, Lawrence Livermore National Laboratory
- 2018 **Early and Mid-Career Recognition Award**, Lawrence Livermore National Laboratory

2018 Best Student Paper Finalist, SC '18, Dallas, TX
 2017 NERSC Award for Innovative Use of High Performance Computing
 2017 Deputy Director for S&T Excellence in Publication Award, LLNL
 2017 Finalist, 10th IEEE International Scalable Computing Challenge (SCALE 2017)
 2016 Best Paper Award, IPDPS '16, Chicago, IL
 2014 Best Report award, AX Division, Lawrence Livermore National Laboratory
 2014 **IEEE TCSC Award for Excellence in Scalable Computing** for Early Career Researchers
 2013 Best Paper Award, IPDPS '13, Boston, MA
 2012 Best Poster Award (1st Place), Computation Postdoc Poster Symposium, LLNL
 2011 Member of winning team for HPC Challenge Class II Award, SC '11, Seattle, WA
 2011 **David J. Kuck Outstanding Ph.D. Thesis Award**, Dept. of Computer Science, Univ. of Illinois
 2010 Feng Chen Memorial Best Paper Award, Dept. of Computer Science, Univ. of Illinois
 2010 Teacher Scholar Certificate, Center of Teaching Excellence, Univ. of Illinois
 2010 Graduate Teacher Certificate, Center of Teaching Excellence, Univ. of Illinois
 2009 **ACM/IEEE-CS George Michael Memorial HPC Fellowship**, SC '09, Portland, OR
 2009 Distinguished Paper Award, Euro-Par '09, Delft, The Netherlands
 2009 David J. Kuck Outstanding M.S. Thesis Award, Dept. of Computer Science, Univ. of Illinois
 2008 Best Graduate Poster (3rd Place) at the ACM Student Research Competition, SC '08

Invitation-only Meetings and Conferences

April 2021 Salishan Conference on High Speed Computing (virtual)
 July 2018 GI-Dagstuhl Seminar on Visualizing Systems and Software Performance (VSSP), Wadern, Germany
 January 2014 Dagstuhl Perspectives Workshop on "Connecting Performance Analysis and Visualization to Advance Extreme Scale Computing", Wadern, Germany
 September 2013 1st Heidelberg Laureate Forum, Heidelberg, Germany

Grants

2024–present **UMD PI**, *Productive AI-Assisted HPC Software Ecosystem*, Total: \$7,050,000, UMD: \$1,050,000.
 Lead PI: Harshitha Menon, LLNL. DOE ASCR
 2023–present **PI**, *Analytics and Modeling of HPC Code and Data*, \$518,000. DOE/LLNL
 2021–present **PI**, *CAREER: Self-tuning Parallel Software and Systems*, \$68,000. NSF REU
 2021–present **PI**, *CAREER: Self-tuning Parallel Software and Systems*, \$550,000. NSF
 2020–present **Co-PI***, *Collaborative Research: Expeditions: Global Pervasive Computational Epidemiology*, \$56,000.
 Lead PI: Madhav Marathe, Univ. of Virginia. NSF REU
 2020–present **Co-PI***, *Collaborative Research: Expeditions: Global Pervasive Computational Epidemiology*, UMD: \$219,000.
 Lead PI: Madhav Marathe, Univ. of Virginia. NSF
 2023–2024 **PI**, *Travel: Student Support for IEEE Cluster 2023 Conference*, \$15,000. NSF
 2022–2023 **PI**, *Automating Performance Analysis within Distributed Workflows*, \$74,000. DOE/PNNL
 2022–2023 **PI**, *Analytics and Modeling of HPC Performance Regression Data*, \$196,000. DOE/LLNL
 2020–2022 **PI**, *Analyzing and Optimizing I/O and Overall Performance of HPC Applications*, \$519,000. DOE/LLNL
 2020 **PI**, *Studying the Impact of Network Traffic Classes Using Simulations*, \$53,000. DOE/LLNL
 2019 **PI**, *Validation & Hardening of the TraceR HPC Network Simulator*, \$100,000.
 LLNL Organizational ISCP
 2018–2019 **PI**, *Exploring Research Ideas in Machine Learning and Performance Engineering for HPC*, \$63,000.
 LLNL Early and Mid-Career Recognition Award

- 2017–2019 **Co-I***, *ECP Proxy Applications Project*, \$2,000,000/year.
PI: David Richards, LLNL. DOE Exascale Computing Project (ECP).
- 2017–2019 **Co-PI**, *Workload-driven Design Space Exploration*, \$500,000/year.
PI: Maya Gokhale, LLNL. DOE ECP Hardware Integration.
- 2011–2019 **Co-I***, *Performance Analysis and Visualization at Exascale (PAVE)*, \$500,000/year.
PI: Todd Gamblin, LLNL. DOE/NNSA Advanced Simulation and Computing Program.
- 2016 **PI**, *Exploring Asynchronous Task-based Models and Runtimes in WSC Codes*, \$100,000.
Linking Exploratory Application Research to Next-gen development (LEARN) program.
- 2015–2017 **Co-PI**, *Beyond the Standard Model (BSM)*. \$249,000 (*no-cost extension*).
PI: Adolfo Hoisie, PNNL. DOE ASCR
- 2014–2017 **Co-PI**, *Planetary Scale Agent Simulations*, \$2,110,000.
PI: Peter D. Barnes Jr., LLNL. DOE LDRD Exploratory Research.
- 2013–2016 **Co-I***, *Performance Insight for Programs and Exascale Runtimes (PIPER)*, \$4,500,000.
PI: Martin Schulz, LLNL. DOE ASCR X-Stack II Program.
- 2012–2015 **PI**, *Task mapping on complex network topologies for improving performance*, \$945,000.
DOE LDRD Exploratory Research.

***Co-I** = Co-Investigator/Senior Personnel (significant contribution to ideas in the project)

Time Allocation Grants

- 2025–2026 **PI**, *Training a Large Scale Model for Code Retrieval*, 100K node-hours.
Alps (CSCS), Large Production Project
- 2023–2025 **PI**, *Performance Analysis and Tuning of HPC and AI Applications*, 24K node-hours/year.
Frontier (OLCF), Director's Discretion Project Award
- 2022–2025 **PI**, *Performance Analysis, Modeling and Scaling of HPC Applications & Tools*, 2K CPU node-hours/year, 4K GPU node-hours/year.
Perlmutter (NERSC), Director Reserve Allocation Award
- 2025 **PI**, *Democratizing AI by Training Deployable Open-source Language Models*, 50K node-hours on Aurora (ALCF).
DOE INCITE Program
- 2024 **PI**, *Democratizing AI via Highly Scalable Parallel Deep Learning Infrastructure*, 82K GPU node-hours.
Perlmutter (NERSC), Director Reserve Allocation Award
- 2024 **PI**, *Democratizing AI by Training Deployable Open-source Language Models*, 600K node-hours on Frontier (OLCF), 100K node-hours on Polaris (ALCF).
DOE INCITE Program
- 2020–2023 **PI**, *Performance Analysis and Tuning of HPC and AI Applications*, 20K node-hours/year.
Summit (OLCF), Director's Discretion Project Award
- 2020–2021 **PI**, *Analyzing and Optimizing Parallel I/O and Performance Tools*, 8K node-hours.
Summit (OLCF), Director's Discretion Project Award
- 2015–2021 **PI**, *Performance Analysis, Modeling and Scaling of HPC Applications & Tools*, 3M core-hours/year.
Edison & Cori (NERSC), Director Reserve Allocation Award
- 2015–2016 **PI**, *Performance Analysis, Modeling and Scaling of HPC Applications & Tools*, 20.1M core-hours at ALCF, 9.3M core-hours at OLCF.
Mira & Titan, ASCR Leadership Computing Challenge (ALCC).
- 2012–2015 **PI**, *Scalable Topology Aware Task Embedding (STATE)*, 17M core-hours/year.
Cab & Vulcan (LLNL LC), Multiprogrammatic & Institutional Computing Initiative.
- 2014 **PI**, *Modeling Communication Behavior on Supercomputer Networks*, 30K core-hours.
Blacklight (PSC), Extreme Science and Engineering Discovery Environment (XSEDE).

- 2013 **PI**, *Exploring energy efficiency, memory contention and application-tools-hardware co-design on a Xeon Phi cluster*, 10K node-hours.
Beacon (NICS), The Beacon Project.
- 2008–2011 **Co-PI**, *Charm++ and its applications*, 1M core-hours/year.
Intrepid (ANL ALCF), Director's Discretionary Allocation.

Software Projects

Software developed by me (github.com/bhatele)

- CommProxies MPI proxy codes representing communication patterns in HPC applications
 - congest Interconnect CONGestion ESTimators
 - hatchet Python library for analyzing hierarchical performance data
 - mapping Heuristics-based task mapping library
 - mol3d Molecular Dynamics proxy application in Charm++
- NoiseFinder Program to quantify OS Noise on HPC clusters
 - topomgr Interconnect Topology Management/Discovery Library

Software co-developed with students, and collaborators (github.com/hpcgroup)

- AriesNCL Aries Network Performance Counters Monitoring Library
 - AxoNN Parallel framework for training deep neural networks
- BGQNCL Blue Gene/Q Network Performance Counters Monitoring Library
 - Boxfish Tool for visualizing traffic on n -dimensional torus networks
 - CallFlow Tool for visualizing calling context trees
- Chatterbug Suite of communication proxies for HPC applications
 - Chizu Graph partitioning based task mapping library
- Damselfly Model-based parallel network simulator
- DragonView Tool for visualizing traffic on dragonfly networks
 - Graphator Serial codes to generate communication patterns for parallel programs
- Kripke-Charm Charm++ version of Kripke, a 3D Sn deterministic particle transport code
 - Loupe Profiler for MPI programs
- LULESH-Charm Charm++ version of LULESH, a shock hydrodynamics proxy application
 - Ravel Tool for visualizing parallel execution traces in logical time
 - Rubik Python library for task mapping of structured codes on n -dimensional torus
- ParEval Benchmark for evaluating the ability of LLMs to write parallel code
 - PCCL Performant Collective Communication Library
 - pipit Python library for analyzing parallel execution traces
- TraceR Trace Replay and network simulation framework
- TreeScope Tool for visualizing traffic on fat-tree networks
 - YALIS Parallel framework for deep learning inference

Other open-source software I have contributed to

- Spack Package manager for HPC platforms
- Charm++ Message-passing parallel language and runtime system
 - NAMD Classical Molecular Dynamics simulation software in Charm++
- OpenAtom Car-Parrinello Molecular Dynamics simulation software in Charm++

Teaching Experience

University of Maryland, College Park

- CMSC416/616** Introduction to Parallel Computing, *Fall 2020, Fall 2021, Fall 2022, Fall 2023, Spring 2024, Fall 2024, Fall 2025*

- CMSC828G** Systems for Machine Learning, *Spring 2025*
- AMSC663/664** Advanced Scientific Computing I and II, *Fall 2022, Spring 2023*
- CMSC714** High Performance Computing Systems, *Fall 2019, Spring 2021*
- DIT Workshop** HPC Programming Bootcamp, *Winter 2020*
- [Tutorials at Conferences](#)
- AxoNN** Distributed Deep Learning, *ISC '23, ISC '24, SC '24, ISC '25*
- Hatchet** User-centric Automated Performance Analysis, *SC '21*
- [Other Teaching](#)
- Spring 2013 **US Hindi Foundation (USHF), Palo Alto, CA**, Hindi Level I and II
- Summer 2009 **University of Illinois**, Computer Architecture I (CS231)*
- Summer 2008 **University of Illinois**, Computer Architecture I (CS231)*
- Summer 2005 **Indian Institute of Technology, Kanpur**, Data Structures and Algorithms*
- * Full responsibility for the course, prepared and gave lectures, awarded final grades

Advising at UMD

Current Students

- Ph.D. Students Onur Cankur, Joshua Hoke Davis, Lannie Dalton Hough, Joy Marie Kitson, Prajwal Singhanian, Cunyang Wei
- M.S. Students Mazin Karjekar, Srivishnu Pyda
- Undergraduate Students Aman Chaturvedi, Akshat Gupta, Ishan Khillan, Nirav Koley, Thomas Li, Rishi Keshav Pradeep, Ishan Revankar, Yash Sakharkar, Mahua Singh, Akarsh Srivastava, Mehul Tahlani

Graduated Students

- Ph.D. Students Daniel Lee Nichols, Siddharth Singh
- M.S. Students Rakrish Dhakal, Shua-Hua Lin, Nikodemos Koutsoheras, Alexander Movsesyan, Aditya Ranjan, Zack Sating, Pranav Sivaraman, Sathwik Yanamaddi, Yiheng Xu
- Undergraduate Students Anish Bhupalam, Anshu Chandrasekar, Ian Costello, Rakrish Dhakal, Dilan Gunawardana, Michael Ilie, Tamar Kellner, Nikodemos Koutsoheras, Carter Lewis, Shu-Huai Lin, Jordan Marry, Aidan Meyer, Isaac Minn, Rohan Mishra, Alexander Movsesyan, Hasan Muhammad, Sameer Mustaqali, Arjun Rajaram, Aditya Ranjan, Domenic Sangiovanni, Zack Sating, Omer Sharif, Pranav Sivaraman, Aditya Tomar, John Wendlandt, Zhaojun Xie, Sathwik Yanamaddi, William Yang, Jeff Zhang
- High School Students Joshua Piety, Aditya Ranjan, Aditya Tomar

Mentoring/Co-advising at LLNL

- Postdocs Christopher Earl (LLNL), Giorgis Georgakoudis (LLNL), Tanzima Islam (LLNL), Nikhil Jain (LLNL), Aniruddha Marathe (LLNL), Jae-Seung Yeom (LLNL)
- Graduate Students Bilge Acun (Illinois), Israa Alqassem (Purdue), Ashwin Bhandare (UC Davis), Saptarshi Bhowmik (Florida State), Kevin Brown (Tokyo Tech), Ronak Buch (Illinois), Emilio Castillo (BSC), Vanessa Cedeno (Virginia Tech), Jaemin Choi (Illinois), Mehmet Deveci (Ohio State), Jens Domke (TU Dresden), Venmugil Elango (Ohio State), Alfredo Giménez (UC Davis), Suraj P. Kesavan (UC Davis), Katherine E. Isaacs (UC Davis), Harsh Khetawat (NC State), Konstantinos Koiliaris (Illinois), Harshitha Menon (Illinois), Yin Yee Ng (UC Davis), Huu Tan Nguyen (UC Davis), Samuel Pollard (UOregon), Michael P. Robson (Illinois), Karthik Senthil (Illinois), Aamer Shah (RWTH Aachen), Staci Smith (Arizona), Edgar Solomonik (UC Berkeley), Ankit Srivastava (Georgia Tech), Felix Wang (Illinois), Samuel T. White (Illinois), Chunxing Yin (Georgia Tech)
- Undergraduate Students Matthew R. Kotila (UC Davis), Aditya Nigam (IIT Kanpur), Alexander Robey (Swarthmore), Kristina Sep (UC Berkeley), Palash Sharma (IIT Kanpur), Andrew R. Titus (MIT), Dylan Wang (UC Davis)

University and other Academic Service

Dissertation Committee Saptarshi Bhowmik (FSU), Jaemin Choi (Illinois), Tom Cornebize (Univ. of Grenoble), Victoria Cepeda Espinoza (UMD), MG Hirsch (UMD), Yehuda Katz (UMD), Thomas Rolinger (UMD), Swati Singhal (UMD), Staci Smith (Arizona), Candace Walden (UMD)

2024-date AIM TTK Search Committee
2024-date AIM Compute Committee
2024-date University Senator for Computer Science
2021-date Faculty Advisory Committee for National Quantum Lab
2021-date UMD DIT Research Technology Working Group
2022-2025 CS Merit Pay Committee
2023-2024 Chair, Ad-hoc Committee for BPC Plan Review & Re-approval
2023-2024 Member, UMD IT Council
2023-2024 Chair, UMD DIT Research Technology Working Group
2023-2024 UMIACS Steering Committee
2020-2024 CS Diversity and Inclusion Committee
2023 CS Graduate Coordinator Search Committee
2022-2023, UMIACS Appointment, Promotion, and Tenure (APT) Committee
2020-2021
2022-2023 CS Department Council
2022-2023, D&I representative, CS Faculty Search Committee
2020-2021
2021-2022 CS Department Review Diversity & inclusion, outreach, and communications sub-committee
2019-2022 Iribe Building Committee
2020-2021 CS/UMIACS Student Seating Committee
2020-2021 CS Field Committee Chair, Computer Systems

Professional Service

2025 Tutorials Chair, SC '25
2020–2024 Steering Committee, IEEE Cluster Conference
2024 Steering Committee, International Workshop on Large Language Models and HPC (LLM x HPC)
2024 Finance Liaison for Technical Program, SC '24
2024 Student Program Co-chair, IEEE Cluster '24
2023 Student Funding Liaison, IEEE Cluster '23
2021–2023 Steering Committee, ISC High Performance Conference
2023 Research Papers Chair, ISC, Hamburg, Germany
2022 General Chair, IEEE Cluster, Heidelberg, Germany
2022 Research Papers Deputy Chair, ISC, Hamburg, Germany
2021 Program Vice-Chair, Applications Track, HiPC '21
2021 Virtual Logistics Liaison for BOFs, SC '21
2021 Program Committee Track Chair, Performance Track, ICPP '21
2021 PhD Forum Deputy Chair, ISC, Frankfurt, Germany
2019–2021 Workshop Co-Chair, Workshop on Programming and Performance Visualization Tools (ProTools)
Member ACM, ACM SIGHPC, IEEE, IEEE Computer Society, IEEE TCHPC
2018, 2019 Co-organizer, Computation Summer Hackathon, LLNL
2019 Workshops and Tutorials Chair, PPOPP'19, Washington, DC
2017, 2018, 2019 Mentor for Supercomputing Mentor/Protégé Program
2018 Member, DOE CORAL2 Technical Evaluation Team (TET)

2017–2018 Chair, Tri-lab Support Team (TST), PSAAP-II Center of Excellence, University of Florida
 2017, 2018 Workshop Chair, International Workshop on Visual Performance Analytics (VPA)
 2016, 2018 Organizer, Mini-symposium at SIAM PP'16 (Paris, France), SIAM PP'18 (Tokyo, Japan)
 2017 Posters Chair, IEEE Cluster Conference, Honolulu, HI
 2017 Organizer, Mini-symposium at SIAM CSE'17, Atlanta, GA
 2009, 2012, 2014 Mentor for Supercomputing Mentor/Protégé Program
 2014 Program Committee Area Chair, Applications and Algorithms Track, SBAC-PAD '14
 2012 Postdoc Representative, Institutional Postdoc Program Board (IPPB), LLNL
 2011–2012 Member and Web Developer, Lawrence Livermore Postdoc Association (LLPA) Council
 2010–2011 Member and Web Developer, Society of Postdoctoral Scholars, Univ. of Illinois
 2010 CS Grad Ambassador, Dept. of Computer Science, Univ. of Illinois
 2007–2011 Helped with organization of Charm++ Workshops
 2009, 2010 Facilitator, Graduate Academy for College Teaching, Univ. of Illinois
 2009, 2010 Mentor for the WCS Mentoring Program, Dept. of CS, Univ. of Illinois
 2008, 2009 Student Volunteer, Supercomputing, Austin, TX and Portland, OR













Peer Review Committees

Editorial Board Associate Editor, IEEE Transactions on Parallel and Distributed Systems, 2021–2024
 Tech. Program Committees Conferences: ICISTM '12, IEEE BigData (2013, 2014), IEEE Cluster (2015, 2016), Euro-Par '16, HotI '17, SBAC-PAD (2013–2017), HotI '19, CCGrid (2012, 2013, 2018–2020), ISC '20, HiPC (2017, 2018, 2020), VISSOFT (2020, 2021), ICS '23, ICPP '23, IPDPS (2014, 2015, 2017, 2019–2024), SC (2018, 2021, 2022, 2024), HPDC (2024, 2025)
 Workshops: WHIST '12, ESCAPE (2011–2013), WRAP '15, COMHPC '16, HPCMASPA (2016–2019), PMBS (2017, 2018), SNACS (2019, 2021), WAMTA '23
 Grant Review Panels 2023, 2020 NSF Review Panel
 2022 DOE/ASCR Review Panel
 2018 DOE Predictive Science Academic Alliance Program (PSAAP) III
 2016–2018 LLNL Institutional Computing Grand Challenge Awards
 2014 DOE Small Business Innovation Research (SBIR)
 2014 DOE/ASCR Computer Science Research Program
 Other Committees 2024 SC Posters Committee
 2023, 2022, 2021 SC Tutorials Committee
 2020 CCGrid '20 Scalable Computing Challenge (SCALE) Committee
 2016 SC'16 Early Career Program Committee
 2014 SC'14 Workshops Committee
 2012, 2013 Selection Committee, ACM/IEEE-CS George Michael Memorial HPC Fellowship
 Technical Reviewer Conferences: CHI '08, ICPP '09, PPOPP '11, PACT '12, SBAC-PAD '12, Euro-Par '13, ICS '14 (ERC)
 Journals: IEEE TPDS, ToC, IHPCA, JPDC, CPE, PARCO, FGCS, IJCS, JOSS

Peer Reviewed Publications

Journal Publications


- [1] Connor Scully-Allison, Ian Lumsden, Katy Williams, Jesse Bartels, Michela Taufer, Stephanie Brink, **Abhinav Bhatele**, Olga Pearce, and Katherine E. Isaacs. Design concerns for integrated scripting and interactive visualization in notebook environments. *IEEE Transactions on Visualization and Computer Graphics*, 30(9):6572–6585, September 2024. <https://doi.ieeecomputersociety.org/10.1109/TVCG.2024.3354561>.
- [2] 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. *IEEE Transactions on Visualization and Computer Graphics*, 29(3):1691–1704, March 2023. LLNL-JRNL-809459. <https://doi.ieeecomputersociety.org/10.1109/TVCG.2021.3129414>.

- [3] Huu Tan Nguyen, **Abhinav Bhatele**, Nikhil Jain, Suraj Kesavan, Harsh Bhatia, Todd Gamblin, Kwan-Liu Ma, and Peer-Timo Bremer. Visualizing hierarchical performance profiles of parallel codes using CallFlow. *IEEE Transactions on Visualization and Computer Graphics*, 27(4):2455–2468, April 2021. LLNL-JRNL-797378.  <https://doi.ieeecomputersociety.org/10.1109/TVCG.2019.2953746>.
- [4] Alfredo Giménez, Todd Gamblin, Ilir Jusufi, **Abhinav Bhatele**, Martin Schulz, Peer-Timo Bremer, and Bernd Hamann. MemAxes: Visualization and analytics for characterizing complex memory performance behaviors. *IEEE Transactions on Visualization and Computer Graphics*, 24(7):2180–2193, July 2018. LLNL-JRNL-.  <http://doi.ieeecomputersociety.org/10.1109/TVCG.2017.2718532>.
- [5] Harsh Bhatia, Nikhil Jain, **Abhinav Bhatele**, Yarden Livnat, Jens Domke, Valerio Pascucci, and Peer-Timo Bremer. Interactive investigation of traffic congestion on fat-tree networks using TreeScope. *Computer Graphics Forum*, 37(3):561–572, June 2018. LLNL-JRNL-.  <https://onlinelibrary.wiley.com/doi/pdf/10.1111/cgf.13442>.
- [6] Erik W. Draeger, Xavier Andrade, John A. Gunnels, **Abhinav Bhatele**, Andre Schleife, and Alfredo A. Correa. Massively parallel first-principles simulation of electron dynamics in materials. *Journal of Parallel and Distributed Computing*, 106:205–214, February 2017.  <http://www.sciencedirect.com/science/article/pii/S0743731517300734>.
- [7] Katherine E. Isaacs, Todd Gamblin, **Abhinav Bhatele**, Martin Schulz, Bernd Hamann, and Peer-Timo Bremer. Ordering traces logically to identify lateness in message-passing programs. *IEEE Transactions on Parallel and Distributed Systems*, 27(3):829–840, March 2016. LLNL-JRNL-668754.  <http://doi.ieeecomputersociety.org/10.1109/TPDS.2015.2417531>.
- [8] Katherine E. Isaacs, Peer-Timo Bremer, Ilir Jusufi, Todd Gamblin, **Abhinav Bhatele**, Martin Schulz, and Bernd Hamann. Combing the communication hairball: Visualizing parallel execution traces using logical time. *IEEE Transactions on Visualization and Computer Graphics*, 20(12):2349–2358, December 2014. LLNL-JRNL-657418.  <http://doi.ieeecomputersociety.org/10.1109/TVCG.2014.2346456>.
- [9] Steven Langer, **Abhinav Bhatele**, and Charles H. Still. pF3D simulations of laser-plasma interactions in National Ignition Facility experiments. *Computing in Science and Engineering*, 16(6):42–50, November 2014. LLNL-JRNL-648736.  <http://doi.ieeecomputersociety.org/10.1109/MCSE.2014.79>.
- [10] Aaditya G. Landge, Joshua A. Levine, Katherine E. Isaacs, **Abhinav Bhatele**, Todd Gamblin, Martin Schulz, Steve H. Langer, Peer-Timo Bremer, and Valerio Pascucci. Visualizing network traffic to understand the performance of massively parallel simulations. *IEEE Transactions on Visualization and Computer Graphics*, 18(12):2467–2476, December 2012. LLNL-CONF-543359.  <http://doi.ieeecomputersociety.org/10.1109/TVCG.2012.286>.
- [11] Gengbin Zheng, **Abhinav Bhatele**, Esteban Meneses, and Laxmikant V. Kalé. Periodic hierarchical load balancing for large supercomputers. *Int. J. High Perform. Comput. Appl.*, 25(4):371–385, November 2011.  <http://hpc.sagepub.com/content/25/4/371>.
- [12] **Abhinav Bhatele**, Eric Bohm, and Laxmikant V. Kale. Optimizing communication for Charm++ applications by reducing network contention. *Concurrency and Computation: Practice and Experience*, 23(2):211–222, February 2011.  <https://onlinelibrary.wiley.com/doi/abs/10.1002/cpe.1637>.
- [13] **Abhinav Bhatele**, Lukasz Wesolowski, Eric Bohm, Edgar Solomonik, and Laxmikant V. Kalé. Understanding application performance via micro-benchmarks on three large supercomputers: Intrepid, Ranger and Jaguar. *Int. J. High Perform. Comput. Appl.*, 24(4):411–427, November 2010.  <http://hpc.sagepub.com/content/24/4/411>.
- [14] **Abhinav Bhatele** and Laxmikant V. Kale. Quantifying network contention on large parallel machines. *Parallel Processing Letters*, 19(04):553–572, December 2009.  <http://www.worldscientific.com/doi/abs/10.1142/S0129626409000419>.

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



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
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
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Keynotes & Invited Talks





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