

Sudheer Chunduri

Assistant Computer Scientist, Leadership Computing Facility
Argonne National Laboratory

9700 South Cass Avenue
Lemont, IL, 60439
☎ 630.252.5821
✉ sudheer@anl.gov

🌐 <https://web.alcf.anl.gov/~chunduri/>

Education

- 2013 **Ph.D., Computer Science**, *Sri Sathya Sai Institute of Higher Learning*, India.
Topology and Routing Aware Mapping on Parallel Processors
Advisor: Prof. Ashok Srinivasan, Florida State University
- 2006 **M.Tech., Computer Science**, *Sri Sathya Sai Institute of Higher Learning*, India.
Thesis Advisor: Shakti Kapoor, STSM, STG, IBM Austin
- 2004 **B.Tech., Information Technology**, *RVR&JC College of Engineering*, India.

Research Experience

- Jun 2017 - present **Argonne National Laboratory**, *Assistant Computer Scientist*.
 - Member of the performance engineering group in Argonne Leadership Computing Facility (ALCF)
 - Domain Lead for Interconnect and MPI co-design activities for the US's first exascale system, Aurora
 - Conduct research in the HPC interconnects to optimize application performance
 - Investigate approaches to reduce application performance variability due to interconnect congestion
 - Collaborate with application scientists to represent their needs in planning and designing leadership scale systems
- Jun 2016 - Jun 2017 **Argonne National Laboratory**, *Postdoctoral Associate*.
 - Developed & validated the KNL hardware model for SKOPE
 - Performance validation & analysis of the KNL processor (beta) hardware
 - Contribute to the Machine Acceptance of Theta Supercomputer on the interconnect and MPI benchmarking aspects
- Jun 2013 - May 2016 **IBM Research Laboratory - India**, *Researcher*.
 - Contribution towards a customer research project in the Oil&Gas domain on the high performance computing aspects
 - Evaluated the DVFS and intra-node MPI performance aspects of the IBM Power8 processor
 - Developed a scalable large scale parallel community detection algorithm and evaluated its performance on IBM BG/Q
- Jun 2011 - May 2013 **Sri Sathya Sai Institute of Higher Learning**, *Assistant Professor*.
 - Topology and routing aware mapping tool for massively parallel processors
 - Topology aware implementation of Global Arrays data management for QMCPACK
 - Optimal dynamic load balancing algorithm for large scale codes involving near identical computational tasks
 - Optimizing assignment of threads to SPEs on the Cell BE Processor

Publications

Peer Reviewed Journal Papers

- [1] Sirish Namilae, Ashok Srinivasan, **C.D. Sudheer**, Anuj Mubayi, Robert Pahle, and Mathew Scotch. A59 - self-propelled pedestrian dynamics model for studying infectious disease propagation during air-travel. *Journal of Transport & Health*, 3(2, Supplement):S40, 2016. 📄 <http://www.sciencedirect.com/science/article/pii/S2214140516301050>.
- [2] Wenlei Bao, Changwan Hong, **Sudheer Chunduri**, Sriram Krishnamoorthy, Louis-Noël Pouchet, Fabrice Rastello, and P. Sadayappan. Static and Dynamic Frequency Scaling on Multicore CPUs. *ACM Trans. Archit. Code Optim.*, 13(4):51:1–51:26, December 2016. 📄 <http://doi.acm.org/10.1145/3011017>.
- [3] Ajith Padyana, **Devi Sudheer**, Pallav Kumar Baruah, and Ashok Srinivasan. Reducing the Disk IO Bandwidth Bottleneck through Fast Floating Point Compression using Accelerators. *International Journal of Advanced Computer Research*, 4, March 2014. 📄 <https://www.accentjournals.org/paperInfo.php?journalPaperId=359&countPaper=2>.
- [4] **C.D. Sudheer**, S. Krishnan, A. Srinivasan, and P.R.C. Kent. Dynamic load balancing for petascale

quantum Monte Carlo applications: The Alias method. *Computer Physics Communications*, 184(2):284 – 292, 2013. <http://www.sciencedirect.com/science/article/pii/S0010465512002949>.

Peer Review Profile <https://publons.com/researcher/1536415/sudheer-chunduri/peer-review/>

Google Scholar: <https://scholar.google.com/citations?hl=en&user=N-hchUwAAAAJ>

Peer Reviewed Conference Papers

- [5] Yao Kang, Xin Wang, Neil McGlohon, Misbah Mubarak, **Sudheer Chunduri**, and Zhiling Lan. Modeling and analysis of application interference on dragonfly+. In *Proceedings of SIGSIM Principles of Advanced Discrete Simulation*, SIGSIMPADS '19, New York, NY, USA, June 2019. ACM. <https://doi.org/10.1145/3316480.3325517>.
- [6] Misbah Mubarak, Neil McGlohon, Malek Musleh, Eric Borch, Robert B. Ross, Ram Huggahalli, **Sudheer Chunduri**, Scott Parker, Christopher D. Carothers, and Kalyan Kumaran. Evaluating Quality of Service Traffic Classes on the Megafly Network. In *Proceedings of International Conference on High Performance Computing (ISC)*. Springer International Publishing, June 2019.
- [7] **Sudheer Chunduri**, Scott Parker, Pavan Balaji, Kevin Harms, and Kalyan Kumaran. Characterization of MPI Usage on a Production Supercomputer. In *Proceedings of the International Conference for High Performance Computing, Networking, Storage, and Analysis*, SC '18, pages 30:1–30:15, Piscataway, NJ, USA, 2018. IEEE Press. <http://dl.acm.org/citation.cfm?id=3291656.3291696>.
- [8] **Sudheer Chunduri**, Meysam Ghaffari, Mehran Sadeghi Lahijani, Ashok Srinivasan, and Sirish Namilae. Parallel Low Discrepancy Parameter Sweep for Public Health Policy. In *2018 18th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID)*, pages 291–300, May 2018. <https://ieeexplore.ieee.org/document/8411033>.
- [9] **Sudheer Chunduri**, Prasanna Balaprakash, Vitali Morozov, Venkatram Vishwanath, and Kalyan Kumaran. Analytical performance modeling and validation of intel's xeon phi architecture. In *Proceedings of the Computing Frontiers Conference*, CF'17, pages 247–250, New York, NY, USA, 2017. ACM. <http://doi.acm.org/10.1145/3075564.3075593>.
- [10] **Sudheer Chunduri**, Kevin Harms, Scott Parker, Vitali Morozov, Samuel Oshin, Naveen Cherukuri, and Kalyan Kumaran. Run-to-run Variability on Xeon Phi Based Cray XC Systems. In *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis*, SC '17, pages 52:1–52:13, New York, NY, USA, 2017. ACM. <http://doi.acm.org/10.1145/3126908.3126926>.
- [11] A. Srinivasan, **C.D. Sudheer**, and S. Namilae. Optimizing Massively Parallel Simulations of Infection Spread Through Air-Travel for Policy Analysis. In *2016 16th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid)*, pages 136–145, May 2016. <https://ieeexplore.ieee.org/document/7515680>.
- [12] Stephen Moore, **Devi Sudheer Chunduri**, Sergiy Zhuk, Tigran Tchraikian, Ewout van den Berg, Albert Akhriev, Alberto Costa Nogueira, Andrew Rawlinson, and Lior Horesh. Semi-discrete matrix-free formulation of 3d elastic full waveform inversion modeling. In Jesper Larsson Träff, Sascha Hunold, and Francesco Versaci, editors, *Euro-Par 2015: Parallel Processing*, pages 507–518, Berlin, Heidelberg, 2015. Springer Berlin Heidelberg. https://link.springer.com/chapter/10.1007/978-3-662-48096-0_39.
- [13] **C.D. Sudheer** and Ashok Srinivasan. Efficient Barrier Implementation on the POWER8 Processor. In *Proceedings of the 2015 IEEE 22Nd International Conference on High Performance Computing (HiPC)*, HiPC '15, pages 165–173, Washington, DC, USA, 2015. IEEE Computer Society. <http://dx.doi.org/10.1109/HiPC.2015.51>.
- Best Paper** [14] P. Panigrahi, S. Kanchiraju, A. Srinivasan, P. K. Baruah, and **C.D. Sudheer**. Optimizing MPI collectives on intel MIC through effective use of cache. In *2014 International Conference on Parallel, Distributed and Grid Computing*, pages 88–93, Dec 2014. <https://ieeexplore.ieee.org/document/7030721>.
- [15] A. Padyana, **C.D. Sudheer**, P. K. Baruah, and A. Srinivasan. High throughput compression of floating point numbers on graphical processing units. In *2012 2nd IEEE International Conference on Parallel, Distributed and Grid Computing*, pages 313–318, Dec 2012. <https://ieeexplore.ieee.org/document/6449838>.
- [16] **C.D. Sudheer** and A. Srinivasan. Optimization of the hop-byte metric for effective topology aware mapping. In *2012 19th International Conference on High Performance Computing*, pages 1–9, Dec 2012. <https://ieeexplore.ieee.org/document/6507513>.

Workshop Papers & Technical Reports

- [17] Boyang Li, **Sudheer Chunduri**, Kevin Harms, Yuping Fan, and Zhiling Lan. The Effect of System Utilization on Application Performance Variability. In *Proceedings of the 8th International Workshop on Runtime and Operating Systems for Supercomputers*, ROSS'19, New York, NY, USA, 2019. ACM.
- [18] Misbah Mubarak, Neil McGlohon, Malek Musleh, Eric Borch, Robert B. Ross, Ram Huggahalli, **Sudheer Chunduri**, Scott Parker, Christopher D. Carothers, and Kalyan Kumaran. Evaluating quality of service on high-radix hpc networks. In *Exascale Computing Project Hardware Evaluation Milestone Report*, 2018.
- [19] V. Ahlgren, S. Andersson, J. Brandt, N. Cardo, **S. Chunduri**, J. Enos, P. Fields, A. Gentile, R. Gerber, M. Gienger, J. Greenseid, A. Greiner, B. Hadri, Y. He, D. Hoppe, U. Kaila, K. Kelly, M. Klein, A. Kristiansen, S. Leak, M. Mason, K. Pedretti, J. Piccinali, J. Repik, J. Rogers, S. Salminen, M. Showerman, C. Whitney, and J. Williams. Large-scale system monitoring experiences and recommendations. In *2018 IEEE International Conference on Cluster Computing (CLUSTER)*, pages 532–542, Sep. 2018. <https://ieeexplore.ieee.org/abstract/document/8514913>.
- [20] Ville Ahlgren, Stefan Andersson, Jim Brandt, Nicholas Cardo, **Sudheer Chunduri**, and et al. Cray System Monitoring: Successes, Requirements, and Priorities. In *Cray Users Group (CUG 2018)*, Stockholm, Sweden, May 20-24 2018. https://cug.org/proceedings/cug2018_proceedings/includes/files/pap113s2-file1.pdf.
- [21] Scott Parker, **Sudheer Chunduri**, Kevin Harms, and Krishna Kandalla. Performance Evaluation of MPI on Cray XC40 Xeon Phi Systems. In *Cray Users Group (CUG 2018)*, Stockholm, Sweden, May 20-24 2018. https://cug.org/proceedings/cug2018_proceedings/includes/files/pap131s2-file1.pdf.
- [22] Ashok Srinivasan and Sirish Namilae and Anuj Mubayi and Matthew Scotch and Robert Pahle and **C.D. Sudheer**. Simulation of Viral Infection Propagation through Air Travel. In *BLUE WATERS Annual Report*, 2017. NSF PRAC/150 K node hours. https://bluewaters.ncsa.illinois.edu/liferay-content/document-library/BW%20Annual%20Report%202017/bwar17_srinivasan.pdf.
- [23] Scott Parker, Vitali Morozov, **Sudheer Chunduri**, Kevin Harms, Chris Knight, and Kalyan Kumaran. Early Evaluation of the Cray XC40 Xeon Phi System 'Theta' at Argonne. In *Cray Users Group (CUG 2017)*, Redmond, Washington, May 7-11 2017. https://cug.org/proceedings/cug2017_proceedings/includes/files/pap113s2-file1.pdf.
- [24] Steven Moore, Lior Horesh, **Devi Sudheer Chunduri** Sergiy Zhuk, Tigran Tchraikian, Albert Akhriev, Alberto Costa Nogueira Junior, and Andrew Rawlinson. A Semi-Discrete Matrix Free Spectral Element Adjoint Model of 3D Elastic Wave Equation. In *SIAM Conference on Mathematical & Computational Issues in the Geosciences*, 2015. Extended Abstract. https://meetings.siam.org/sess/dsp_talk.cfm?p=72130.
- [25] Stephen Moore, Sergiy Zhuk, **Devi Sudheer Chunduri**, Tigran Tchraikian, Ewout van den Berg, Albert Akhriev, Alberto Costa Nogueira Junior, Andrew Rawlinson, and Lior Horesh. Semi-discrete Matrix Free Formulation of 3D Full Waveform Elastic Modeling and Inversion. In *WS10 - Full Waveform Inversion for Near-surface Characterization, 77th EAGE Conference 2015*, June 2015. Extended Abstract. <http://earthdoc.eage.org/publication/publicationdetails/?publication=81372>.
- [26] M. S. Rajeswar, A. R. Sankar, V. N. Balasubramaniam, and **C. D. Sudheer**. Scaling up the training of deep cnns for human action recognition. In *2015 IEEE International Parallel and Distributed Processing Symposium (ParLearning Workshop)*, pages 1172–1177, May 2015. <https://ieeexplore.ieee.org/document/7284443>.
- [27] **C. D. Sudheer**, T. Nagaraju, P. K. Baruah, and A. Srinivasan. Optimizing assignment of threads to SPEs on the Cell BE processor. In *2009 IEEE International Symposium on Parallel Distributed Processing (PDCS Workshop)*, pages 1–8, May 2009. <https://ieeexplore.ieee.org/document/5161168>.

Tutorials

- [28] Sadayappan P and **Sudheer Chunduri**. Tutorial: Parallel Programming and Performance Optimization on GPUs. In *International Symposium on Computational Sciences (ISCS) 2015*, Salt Lake City, Utah, November 12 2015. Full day. <http://iscs-sssihl.github.io/2015/gpututorial.html>.

Ph.D. Dissertation

- [29] **Sudheer Chunduri**. *Topology and Routing Aware Mapping on Parallel Processors*. PhD thesis, Sri Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, India, April 2013. Advisor: Prof. Ashok Srinivasan, Florida State University (Remote Advising). <https://www.mcs.anl.gov/~chunduri/Thesis.pdf>.

Posters & Presentations

- [30] **Sudheer Chunduri**. Introduction to high performance computing at ALCF. Guest lecture at Illinois Institute of Technology, Chicago, April 25 2019.
- [31] Scott Parker, Katherine Riley, Christopher Knight, and **Sudheer Chunduri**. Preparing Application for the Argonne 2021 Aurora System. In *ECP Annual Meeting 2019*, January 16 2019. <https://www.ecpannualmeeting.com/>.
- [32] **Sudheer Chunduri**. Run-to-run Variability on Theta and Best Practices for Performance Benchmarking. In *ALCF Simulation, Data, and Learning Workshop 2018*, Argonne National Laboratory, Lemont, IL, USA, October 4 2018. https://www.alcf.anl.gov/files/Chunduri_Variability_SDL_Oct4_2018_correct.pdf.
- [33] **Sudheer Chunduri**. Using MPI Effectively on Theta. In *ALCF Simulation, Data, and Learning Workshop 2018*, Argonne National Laboratory, Lemont, IL, USA, October 3 2018. https://www.alcf.anl.gov/files/Chunduri_MPI_Theta_SDL_Oct3_2018%20%28MC44NTQ4ODAwMA%29_1.pdf.
- [34] **Sudheer Chunduri**. A21 Network and MPI. In *A21 Applications Co-Design Workshop*, Argonne National Laboratory, Lemont, IL, USA, September 26 2018.
- [35] **Sudheer Chunduri**. Run-to-run Variability on Theta and Best Practices for Performance Benchmarking. In *ALCF Developer Session*, Argonne National Laboratory, Lemont, IL, USA, September 26 2018. <https://www.alcf.anl.gov/files/slides-chunduri-alcf-developer-session-2018-09.pdf>.
- [36] **Sudheer Chunduri**. Tuning MPI on Theta. In *ALCF Computational Performance Workshop 2018*, Argonne National Laboratory, Lemont, IL, USA, May 15 2018. https://www.alcf.anl.gov/files/Chunduri_MPI_Theta.pdf.
- [37] **Sudheer Chunduri**. Performance variability on Cray XC systems. Guest lecture at Illinois Institute of Technology, Chicago, April 5 2018.
- [38] **Sudheer Chunduri**, Paul Coffman, Scott Parker, and Kalyan Kumaran. Performance Analysis of MPI on Cray XC40 Xeon Phi System. In *EuroMPI/USA*, EuroMPI/USA '17, September 2017. https://www.mcs.anl.gov/eurompi2017/pics/posters/EuroMPIUSA_2017_Abstract_Sudheer.pdf.
- [39] Scott Parker, **Sudheer Chunduri**, and Ronald Rahaman. Nekbone Performance Portability. In *DOE COE Performance Portability Meeting 2017*, August 23 2017. https://www.lanl.gov/asc/_assets/docs/doe-coe17-talks/S5_2_nekbone-perf-port-2.pdf.
- [40] **Sudheer Chunduri**. Introduction to Supercomputing, August 1 2017. Guest lecture at R V R & J C College of Engineering, Guntur, India.
- [41] **Sudheer Chunduri**. Run to run variability study on Theta Dragonfly Network. In *3rd Summer of CODES Workshop*, Argonne National Laboratory, Lemont, IL, USA, July 11 2017. <https://press3.mcs.anl.gov/summerofcodes2017/files/2017/07/CODES-variability.pdf>.
- Best Poster** [42] M. Sai Rajeswar, A. Ravi Sankar, Vineeth N. Balasubramanian, and **C.D. Sudheer**. Parallel Learning of Deep Convolutional Neural networks and its Application to Action Recognition. In *Proceedings of the IEEE International Conference on High Performance Computing - Student Research Symposium*, 2014. <https://www.hipc.org/hipc2014/studentsymposium.php>.
- [43] **Sudheer Chunduri**. Networking and Communications: A Scientific Computing Perspective (Network Aware Application Programming). In *National Conference on Networking and Communication*, SSSIHL, India, March 16 2013.
- [44] **Sudheer Chunduri**. An Overview of the Global Arrays Toolkit. In *Five-days Technology Workshop on Heterogeneous Computing - Many Core/ Multi GPU - Performance of Algorithms, Application Kernels (HeMPa)*, CMSD, UoHYD by C-DAC Pune & CMSD, October 17 2011. https://www.cdac.in/index.aspx?id=pdf_hempa_schedule.
- [45] **C.D. Sudheer**. Investigating Algorithmic Techniques for Enhancing Application Performance on Multicore Processors. In *PhD Forum at IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, 2009. http://www.ipdps.org/ipdps2009/2009_tcpd_phd_forum.html.
- [46] **C.D. Sudheer** and S. Sriram. A Communication Model for Determining Optimal Affinity on the Cell BE processor. In *Student Research Symposium IEEE International Conference on High Performance Computing*, HiPC SRS '09, December 2009. <https://hipc.org/hipc2009/documents/HIPCSS09Papers/1569250311.pdf>.
- [47] **Sudheer Chunduri**. Programming for Performance on Cell BE processor. In *Performance Enhancement on Emerging Parallel Processing Platforms Workshop (PEEP)*, jointly organized by C-DAC and IUCAA, India, September 27 2008. https://www.cdac.in/index.aspx?id=ev_hpc_peep-2008-tech-prog.

Teaching Experience

Complete Course Responsibilities

- 2012 **High Performance Computing with Accelerators**, <http://dmacssite.github.io>.
Best Poster and Presentation Awards
- Mentored teams participating in the challenge, provided technical expertise in parallel performance and parallel applications ported by the teams to their clusters during the challenge.
 - This course was successful resulting in 9 student papers, more than one third of the total papers, accepted for Student Research Symposium, at HiPC 2012
 - 3 out of the 4 awards constituted for Best Presentation and Best Poster were secured by the students of this course (<https://tc.computer.org/tcpp/awards/>)
- 2011-2013 **Programming for Performance**, <http://progforperf.github.io>.
- Introduced this as new course to the university curriculum
 - Developed the course syllabus from scratch
 - Provided extensive experience in performance analysis through programming assignments using XSEDE supercomputers
 - Embraced state-of-art course collaboration tools such as Piazza to facilitate lively technical discussions
- 2013 **Parallel Computing**, <http://parallelcomp.github.io>.
- Involved students in presenting demons on parallel computing tools
 - Developed insightful programming assignments to augment the theoretical learning
- 2010-2012 **Computer Organization and Design**, *Undergrad level course*.
- Developed a new syllabus for this by revamping the earlier version
 - Provided hands-on experience to the students through the use of programming assignments using Simulators
- 2006 **Systems Programming using MINIX Operating System**, *Masters level course*.
- Taught fundamentals of OS through the micro-kernel OS MINIX
 - Programming assignments to introduce new system call and driver in the MINIX OS

Shared Course Responsibilities

- 2008 **Processor Architecture and its Applications**, *Masters level course*.
- Developed this course jointly with Shakti Kapoor, STSM, IBM Austin
 - Provided extensive exposure to the internals of OS and Processor architecture and their interaction
 - Debugging kernel codes for PowerPC 405 processor through IBM Riskwatch debugger
- 2007 **Operating Systems Design and Implementation**, *Masters level course*.
- Introduced the internal working of OS system calls through interaction diagrams
 - Taught the OS design principles using the MINIX operating system source code

Mentoring

Student Mentoring

- 2019 Boyang Li, PhD student, Illinois Institute of Technology (co-advising with Kevin Harms)
- 2019 Yao Kang, PhD student, Illinois Institute of Technology
- 2019 Ram Chaulaga, PhD student, Florida State University (co-advising with Scott Parker)
- 2019 Xin Wang, PhD student, Illinois Institute of Technology
- 2018 Boyang Li, PhD student, Illinois Institute of Technology (co-advising with Kevin Harms)
- 2018 Zheng Miao, PhD student, Clemson University

Other Research Projects

- 2015-2017 **Contributed to the computational aspects of the Viral Infection Propagation Through Air-Travel (VIPRA) project**, <https://www.cs.fsu.edu/vipra/>.
- VIPRA project is a multi-university effort to analyze new strategies for reducing the risk of spread of Viral infections through air-travel
 - VIPRA Results Identified as Major Scientific Breakthrough: https://bluwaters.ncsa.illinois.edu/liferay-content/document-library/Special_IDC_Study_NCSA.pdf
 - Project VIPRA Results Get Extensive News Coverage https://www.cs.fsu.edu/vipra/?page_id=37

Conferences & Workshops Organized

- 2019 **International Workshop on Architecture-Aware Simulation and Computing (AASC'19)**, *Co-Chair*.
Held at The 17th International Conference on High Performance Computing & Simulation (HPCS 2019)

Journal Review Committees

- 2017-Present **IEEE Transactions on Parallel and Distributed Systems**
2016-Present **Journal of Parallel and Distributed Computing**
2016-Present **Parallel Computing**
2016-Present **IEEE Transactions on Cloud Computing**
2018-Present **IEEE Letters of the Computer Society**
2013 **Computing, Springer Journal**

Conference Committees

- 2019 **IEEE CLUSTER**, *Technical Papers, Architecture, Network Communications, and Management*.
2019 **IEEE International Conference on High Performance Computing, Data, and Analytics (HiPC)**,
Technical Papers Committee, System Software.
2019 **The International Conference on Parallel Computing (ParCo)**, *Technical Papers Committee*.
2019 **ACM International Conference on Computing Frontiers (CF)**, *Technical Papers Committee*.
2019 **International Conference on High Performance Computing & Simulation (HPCS)**, *Technical Papers Committee*.
2019 **IEEE International Workshop on Parallel and Distributed Scientific and Engineering Computing (PDSEC 2019)**, *Technical Papers Committee*.
IEEE International Parallel and Distributed Processing Symposium (IPDPS)
2018 **ACM/IEEE Supercomputing Conference (SC)**, *External Papers Committee*.
2011,2013 **IEEE International Conference on High Performance Computing and Communications (HPCC)**,
2017,2019 *Technical Papers Committee*.
2017 **IEEE/ACM Cluster, Cloud & Grid Computing (CCGrid)**, *External Papers Committee*.
2017 **IEEE International Conference on Networking, Architecture, and Storage (NAS)**, *External Papers Committee, Networking Track*.
2015 **International Symposium on Computational Science (ISCS)**, *Technical Papers Committee*.
2016 **Second International Workshop on Extreme Scale Programming Models and Middleware (ESPM)**,
External Papers Committee.
2016 **The International Workshop on Performance Modeling, Benchmarking and Simulation of High Performance Computer Systems (PMBS)**, *External Papers Committee*.
2013 **IEEE International Symposium on Parallel and Distributed Processing with Applications (ISPA)**,
Program Committee.
2014 **International Conference on Parallel, Distributed and Grid Computing (PDGC)**, *Technical Program Committee*.
2012 **International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP)**, *Technical Program Committee*.
2012, **Student Research Symposium (SRS)**, *Technical Posters Committee*.
2014-2017 **IEEE International Conference on High Performance Computing, Data, and Analytics (HiPC)**
2014 **Annual IEEE India Conference (INDICON)**, *Technical Papers Committee, High Performance Computing*.
2014 **International Conference on High Performance Computing and Applications (ICHPCA)**, *Technical Papers Committee*.
2019 **International Conference on Advanced Communications and Computation (INFOCOMP)**, *Technical Papers Committee*.
2019 **IEEE International Conference on Smart City (SmartCity)**, *Technical Papers Committee*.

Other Reviewing Activities

- DoE Exascale Computing Program PathForward**, *Interconnect Review Committee for reviewing milestones from vendor partners.*
- 2018 **CORAL-2 RFP Proposals**, *System Performance Review Committee.*
- 2019 **Argonne Training Program on Extreme-Scale Computing (ATPESC)**, *Participant Application Review Committee.*
- 2019 **ACM SIGHPC / Intel Computational & Data Science Fellowships 2019**, *Fellowship Nomination Reviewer.*
- 2018-2019 **Argonne Computing, Environment and Life Sciences Divisions**, *Serving in the interview panel for staff position applications.*

Grant Reviewing

- 2016-2019 **Innovative & Novel Computational Impact on Theory & Experiment (INCITE)**, *Computational Readiness (CR) Review Committee.*

Memberships

Professional ACM

Computer Time Allocation Grants

- 2017-2018 **User**, *Performance Evaluation and Analysis Consortium (PEAC)*, 120M core-hours.
PI Lenny Oliker, LBNL. DOE Innovative and Novel Computational Impact on Theory and Experiment (INCITE) Program. Provided millions of compute hours for CS researchers on ANL Intrepid, Mira, and Theta; and ORNL Titan systems.
- 2016-2019 **Team member**, *PRAC Allocation for project VIPRA on NCSA Blue Waters*, 650,000 SUs.
PI Ashok Srinivasan, Florida State University
- 2015-2017 **Co-PI**, *XSEDE Research (XRAC) Allocation: Scaling Communication Performance for Massively Parallel Applications*, 800K SUs.
PI Ashok Srinivasan, Florida State University
- 2011 **Allocation Manager**, *Teragrid Startup Allocation: Compiler/Runtime Optimization for Heterogeneous Parallel Computing*, 50K SUs.
PI P. Sadayappan, Ohio State University
- 2011-2014 **Allocation Manager**, *XSEDE Education Allocation: Programming for Performance on multicore and many-core processor*, PI Ravi Mukkamala, Old Dominion University.
Have used this allocation effectively for teaching graduate level courses. Had access to the following supercomputers: TACC systems Ranger, Lonestar and Longhorn, SDSC systems Gordon and Trestles, PSC Blacklight

Awards & Honors

- 2009 IPDPS Travel Award
- 2014 Best Paper Award at International Conference on Parallel, Distributed and Grid Computing (PDGC) conference
- 2014 NVIDIA SRS (Student Research Symposium) Best GPU paper award, HiPC conference
- 2012 HiPC with accelerators students have secured three Best Poster Awards at the HiPC Student Research Symposium
- 2016 Certificate of Appreciation from the Director of IBM Research India for contribution towards a Oil & Gas customer project
- 2016 Selected to participate in the 2-week long intensive training at Argonne Training Program for Extreme-Scale Computing (ATPESC)
- 2017 TCPP PhD Forum Travel Grant for attending the IPDPS 2009 conference in Italy
- 2001 Achieved University first rank in C programming theory and laboratory exam in the 1st year of B.Tech

Skills

General	C, C++, Fortran (linking), Python, numpy, git, svn, autotools, CMake.
High Performance Computing	Parallel performance tool development in C/C++. MPI & OpenMP profiling tools, runtime systems, debugger interfaces, stack tracing. Measurement, analysis, and tuning of parallel applications on large clusters (Cray, IBM Blue Gene, Linux). Experience with large scientific codes at ANL.
Data Analysis	Sampling, sequential and parallel clustering algorithms. Spark