

Sudheer Chunduri

Computer Scientist, Leadership Computing Facility
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Education Degrees Attained

- 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.

Positions Held

- April 2022 - present **Argonne National Laboratory**, *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 exascale system, Aurora
 - Conduct research in the area of HPC interconnects to optimize application performance
 - Collaborate with application scientists to represent their needs in planning and designing leadership scale systems
- Jun 2017 - March 2022 **Argonne National Laboratory**, *Assistant Computer Scientist*.
 - Conduct research in the area of HPC interconnects to optimize application performance
 - Investigated approaches to reduce application performance variability due to congestion on the interconnect
 - 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

Honors and Awards

- 2020 Impact Argonne Award for Extraordinary Effort, Argonne National Laboratory
- 2016 Certificate of Appreciation from the Director of IBM Research India for contribution towards a Oil & Gas customer project

Funding

- Role Co-PI and Argonne lead
- Title Intelligent Multi-Scale Modeling of Integrated Distributed HEP Infrastructure

Agency Advance Scientific Computing Research
Status Pending, under review
Period 3 years
Funding Amount 3.75M dollars total, 0.9M dollars for Argonne

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

- 2017-2020 **IEEE Transactions on Parallel and Distributed Systems**
2016-2020 **Journal of Parallel and Distributed Computing**
2016-2020 **Parallel Computing**
2016-2020 **IEEE Transactions on Cloud Computing**
2018-2020 **IEEE Letters of the Computer Society**
2013 **Computing, Springer Journal**

Conference Committees

- 2020-2021 **ISC High Performance (ISC)**, *Performance Modeling & Measurement (Research Papers track).*
2021 **SC21**, *Research Posters Committee and ACM Graduate Posters Competition at SC21.*
- 2020-2021 **International Conference on Parallel Processing (ICPP)**, *Technical Papers, Performance Track.*
- 2020 **SNACS**, *Workshop on Scalable Networks for Advanced Computing Systems (SNACS).*
- 2020 **IEEE International Parallel & Distributed Processing Symposium (IPDPS)**, *Technical Papers Committee, Experiments and Practice in Parallel and Distributed Computing ("Experiments") track.*
- 2020 **IEEE/ACM Cluster, Cloud & Grid Computing (CCGrid)**, *Technical Papers Committee, Performance Modeling and Evaluation.*
- 2019 **IEEE CLUSTER**, *Technical Papers, (Architecture, Network Communications, and Management track).*
- 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.*
- 2019-2020 **IEEE International Workshop on Parallel and Distributed Scientific and Engineering Computing (PDSEC)**, *Technical Papers Committee.*
IEEE International Parallel and Distributed Processing Symposium (IPDPS)
- 2018 **ACM/IEEE Supercomputing Conference (SC)**, *External Papers Committee.*
- 2020 **The International Workshop on Performance Modeling, Benchmarking and Simulation of High Performance Computer Systems (PMBS)**, *Papers Committee.*
- 2011,2013 **IEEE International Conference on High Performance Computing and Communications**
2017,2019 **(HPCC)**, *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*.
- 2019-2020 **Argonne Training Program on Extreme-Scale Computing (ATPESC)**, *Participant Application Review Committee*.
- 2019 **ACM SIGHPC / Intel Computational & Data Science Fellowships 2019**, *Fellowship Nomination Reviewer*.
- 2019 **SC19 Student Volunteer Applications**, *Volunteer Nomination Reviewer*.

Grant Reviewing

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

Publications

Peer Reviewed Conference & Journal Papers

- [1] Kevin A. Brown, Neil McGlohon, **Sudheer Chunduri**, Robert B. Ross, Eric Borch, Christopher D. Carothers, and Kevin Harms. A Tunable Implementation of Quality-of-Service Classes for HPC Networks. In *Proceedings of the ISC High Performance 2021*, ISC'21, June 2021. https://link.springer.com/chapter/10.1007/978-3-030-78713-4_8.
- [2] **Sudheer Chunduri**, Kevin Harms, Taylor Groves, Peter Mendygral, Justs Zarins, Michele Weiland, and Yasaman Ghadar. Performance Evaluation of Adaptive Routing on Dragonfly-based Production Systems. In *Proceedings of the 35th IEEE International Parallel & Distributed Processing Symposium*, IPDPS'21, May 2021. <https://ieeexplore.ieee.org/document/9460477>.
- [3] **Sudheer Chunduri**, Taylor Groves, Peter Mendygral, Brian Austin, Jacob Balma, Krishna Kandalla, Kalyan Kumaran, Glenn Lockwood, Scott Parker, Steven Warren, Nathan Wichmann, and Nicholas Wright. GPCNeT: Designing a Benchmark Suite for Inducing and Measuring Contention in HPC Networks. In *Proceedings of the International Conference for High Performance Computing, Networking, Storage, and Analysis*, SC'19, November 2019. <https://dl.acm.org/citation.cfm?id=3356215>.

- [4] 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>.
- [5] 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)*, ISC'19. Springer International Publishing, June 2019. https://link.springer.com/chapter/10.1007/978-3-030-20656-7_1.
- [6] **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>.
- [7] **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>.
- [8] **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>.
- [9] **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>.
- [10] 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>.
- [11] 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>.
- [12] 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>.
- [13] Stephen Moore, **Devi Sudheer Chunduri**, Sergiy Zhuk, Tigran Tchakian, 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.
- [14] **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** [15] 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>.
- [16] 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>.
- [17] **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>.

- [18] 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>.
- [19] **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>.

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

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

Workshop Papers & Technical Reports

- [20] **Sudheer Chunduri**, Elise Jennings, Kevin Harms, Christopher Knight, and Scott Parker. A generalized statistics-based model for predicting network-induced variability. In *10th International Workshop on Performance Modeling, Benchmarking and Simulation of High Performance Computer Systems (PMBS'19)*, SC'19, November 2019. <https://conferences.computer.org/sc19w/2019/pdfs/PMBS2019-2iUtK30cYDgtqIMxNUuYFr/VdMWmlb6eZVqqqu2RyfSd/39NpLJNpckqhsQfP8ExfnY.pdf>.
- [21] 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, June 2019. ACM. <https://dl.acm.org/citation.cfm?id=3328743>.
- [22] 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.
- [23] V. Ahlgren, S. Andersson, J. Brandt, N. Cardo, **S. Chunduri**, J. Enos, P. Fields, A. Gentile, R. Gerber, M. Gienger, J. Greenesid, 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>.
- [24] 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.
- [25] 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.
- [26] 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.
- [27] 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.
- [28] 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/session/dsp_talk.cfm?p=72130.
- [29] 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>.
- [30] 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>.

- [31] **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 (PDSec Workshop)*, pages 1–8, May 2009. <https://ieeexplore.ieee.org/document/5161168>.

Tutorials

- [32] Sadayappan P and **Sudheer Chunduri**. Tutorial: Parallel Programming and Performance Optimization on GPUs. In *International Symposium on Computational Sciences (ISCS) 2015*, Sri Sathya Sai Institute Of Higher Learning, Prasanthi Nilayam, India, December 12 2015. Full day. <http://iscs-sssihl.github.io/2015/gpututorial.html>.

Ph.D. Dissertation

- [33] **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

- [34] **Sudheer Chunduri**. Optimizing MPI Performance on Theta and using MPI on ThetaGPU. In *ALCF Computational Performance Workshop - 2021*, Argonne National Laboratory, Lemont, IL, USA, May 6 2021. https://www.alcf.anl.gov/sites/default/files/2021-05/Chunduri_MPI_Theta_CPW_May_2021.pdf.
- [35] Ram Sharan Chaulagain, Fatema Tabassum Liza, **Sudheer Chunduri**, Xin Yuan, and Michael Lang. Achieving the Performance of Global Adaptive Routing Using Local Information on Dragonfly through Deep Learning. In *SC20*, SC20, November 2020.
- [36] Joy Kitson, **Sudheer Chunduri**, and Abhinav Bhatele. Analyzing Interconnect Congestion on a Production Dragonfly-based System. In *SC20*, SC20, November 2020.
- [37] **Sudheer Chunduri**. Optimizing MPI Performance on Theta. In *ALCF Computational Performance Workshop - 2020*, Argonne National Laboratory, Lemont, IL, USA, May 5 2020. https://www.alcf.anl.gov/sites/default/files/2020-05/Chunduri_MPI_Theta_CPW_May_5_2020_final.pdf.
- [38] **Sudheer Chunduri** and Colleen Bertoni. An Overview of Aurora, Argonne's Upcoming Exascale System. ALCF Developer Session, December 11 2019. https://www.mcs.anl.gov/~chunduri/talks/Aurora_Dev_Dec2019.pdf.
- [39] **Sudheer Chunduri**. Performance Analysis and Tools. Guest lecture at Illinois Institute of Technology, Chicago, October 10 2019. https://www.mcs.anl.gov/~chunduri/talks/Lecture_IIT_Performance_tools_Oct102019.pdf.
- [40] **Sudheer Chunduri**. Using MPI Effectively on Theta. In *ALCF Simulation, Data, and Learning Workshop 2019*, Argonne National Laboratory, Lemont, IL, USA, October 3 2019. https://www.alcf.anl.gov/files/Chunduri_MPI_Theta_SDL_Oct3_2019_1.pdf.
- [41] **Sudheer Chunduri**. Introduction to high performance computing at ALCF. Guest lecture at Illinois Institute of Technology, Chicago, April 25 2019. https://www.mcs.anl.gov/~chunduri/talks/Lecture_IIT_ALCF_intro_April252019.pdf.
- [42] 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/>.
- [43] **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.
- [44] **Sudheer Chunduri**. A21 Network and MPI. In *A21 Applications Co-Design Workshop*, Argonne National Laboratory, Lemont, IL, USA, September 26 2018.
- [45] **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>.
- [46] **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.
- [47] **Sudheer Chunduri**. Performance variability on Cray XC systems. Guest lecture at Illinois Institute of Technology, Chicago, April 5 2018.

- [48] **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.
- [49] 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.
- [50] **Sudheer Chunduri**. Introduction to Supercomputing, August 1 2017. Guest lecture at R V R & J C College of Engineering, Guntur, India.
- [51] **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** [52] 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>.
- [53] **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.
- [54] **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.
- [55] **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.
- [56] **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>.
- [57] **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.

Participation

- 2017 Participated in SC17 Early Career Program
- 2016 Selected to participate in the 2-week long intensive training at Argonne Training Program for Extreme-Scale Computing (ATPESC)
- 2019 Chicago AI for Science town hall meeting (Hardware and Architecture breakout)