Abhinav Vishnu

Curriculum Vitae

Education

2002–2007 **Ph. D.**, *The Ohio State University*, Computer Science and Engineering.

1998–2002 **Bachelor of Technology**, *Institute of Technology, Banaras Hindu University*, Computer Science and Engineering.

Work Experience

2017–Present **Principal Member of Technical Staff**, Advanced Micro Devices Research.
Deep Learning on AMD Architectures

2017–2017 **Team Lead, Scalable Machine Learning**, Pacific Northwest National Laboratory.
Scalable, Fault Tolerant and Energy Efficient Programming Models for Machine Learning and Data Mining (MLDM) Algorithms

2015–2017 **Research Scientist V**, Pacific Northwest National Laboratory.
Scalable, Fault Tolerant and Energy Efficient Programming Models for Machine Learning and Data Mining (MLDM) Algorithms

2009–2015 **Research Scientist IV**, Pacific Northwest National Laboratory.
Scalable, Fault Tolerant and Energy Efficient Programming Models for Machine Learning and Data Mining (MLDM) Algorithms

2008–2008 **Software Engineer**, IBM.
Scalable Communication Protocols for IBM PERCS Architecture

2006–2007 **IBM Ph. D. Fellow**, The Ohio State University.
High Performance MPI with Multi-Pathing on InfiniBand

2006–2006 **Summer Intern**, IBM.
Scalable LAPI on Modern Interconnects

2005–2005 **Summer Intern**, IBM.
Scalable Message Passing Interface on IBM InfiniBand Architecture

2001–2001 **Summer Intern**, National University of Singapore.

Research Grants

2016-2017 **xGA: Global Arrays on Exascale Systems**, *PI*, Exascale Computing Project.
Total Award Amount: 1,000,000

2016-2017 **Convergence of Deep Learning and Machine Learning for HPC Modeling and Simulation**, *PI*, Total Award Amount: 450,000, DoE Advanced Scientific Computing Research.

2016-2017 **Task Lead**, High Performance Data Analytics Program on Two Tasks.

2016-2017 **Learning Control on Building Systems**, *PI*, Total Award Amount: 200,000, Laboratory Directed Research and Development.

2015-2016 **Task Lead**, High Performance Data Analytics Program.

2015-2016 **Scalable Subsampling for Extreme Scale Machine Learning Algorithms**, *PI*, Total Award Amount: 400,000, Laboratory Directed Research and Development.

2014-2015 **Scalable Feature Extraction and Sampling Algorithms for Streaming Data**, *PI*, Total Award Amount: 300,000, Laboratory Directed Research and Development.

2013-2014 **Scalable Aggregate Remote Memory Copy Interface on Portals4**, *PI*, Total Award Amount: 155,000, Intel.

2012-2013 **Scalable Knowledge Extraction on Large Scale Systems**, *PI*, Total Award Amount: 125,000, Laboratory Directed Research and Development.

2009-2012 **A Scalable Fault Tolerance Infrastructure and Algorithms with Programming Models and Scientific Applications**, *PI*, Total Award Amount: 900,000, Laboratory Directed Research and Development.

Supercomputer Time Allocations

2016-2017 **xGA on Leadership Class Facilities**, *PI*, Total Award Amount: 128K SUs, Argonne Leadership Class Facility.

2016-2017 **Scaling MaTEx on Intel KNL**, *PI*, Total Award Amount: 40K SUs.

2016-2017 **Scalable Machine Learning and Data Mining on OLCF Titan**, *PI*, Total Award Amount: 1 million core hours, Oak Ridge Director's Discretionary Award.

2015-2016 **Scalable Machine Learning and Data Mining on Blue Gene/Q**, *PI*, Total Award Amount: 2 million core hours, Argonne Director's Discretionary Award.

2015-2016 **Scalable Machine Learning and Data Mining on Large Scale Systems**, *PI*, Total Award Amount: 2 million core hours, PNNL Institutional Computing (PIC) Constance.

2014-2016 **Scalable Global Arrays on InfiniBand**, *co-PI*, Total Award Amount: 1.6 million core hours, PNNL Cascade Supercomputer.

Awards and Accomplishments

2015 **Best Student Paper Finalist**, *International Conference in High Performance Computing, Networking, Storage and Analysis (SC'15)*.

2015 **DOE Machine Learning Workshop**, *Committee Member and Panelist — Deep Learning on Big Data*.

2014 **Best Poster Finalist**, *International Conference in High Performance Computing, Networking, Storage and Analysis (SC'14)*.

2014 **DOE Data Council**, *Committee Member*.

2013 **DOE Resilience Council**, *Committee Member*.

2007 **Best Paper Finalist**, *International Conference on Cluster and Grid Computing (CCgrid'07)*.

2007 **TCPP Travel Award**, *International Parallel and Distributed Processing Symposium (IPDPS'07)*.

2006 **Ph. D. Fellowship**, *IBM*.

2006 **TCSC Travel Award**, *International Conference on High Performance Computing, Networking, Storage and Analysis (SC'06)*.

Patents

2013 **Flow Control For Reliable Message Passing** , *US8452888 B2*, IBM.
with Tsai Yang Jea, Hung Thai, Hanhong Xue, Chulho Kim, Uman Chan and Zen Piatek

Books Edited

ParCo'16 **Programming Models and Systems Software. Special Issue of the Parallel Computing** , *P. Balaji, Y. Chen. and A. Vishnu*, 2016.

ParCo'15 **Energy Efficient Supercomputing. Special Issue of the Parallel Computing** , *A. Vishnu, A. Marquez, and D. Nikolopoulos*, 2015.

JoSC'15 **Programming Models and Systems Software. Special Issue of the Journal of Supercomputing** , *Y. Chen, P. Balaji, and A. Vishnu*, 2015.

ParCo'15 **Programming Models and Systems Software. Special Issue of the Parallel Computing** , *P. Balaji, Y. Chen. and A. Vishnu*, 2015.

ParCo'13 **Programming Models and Systems Software. Special Issue of the Parallel Computing** , *A. Vishnu, P. Balaji, and Y. Chen.*, 2013.

JoSC'12 **Programming Models and Systems Software. Special Issue of the Journal of Supercomputing** , *A. Vishnu, P. Balaji, and Y. Chen.*, 2013.

IJHPCA'11 **Programming Models and Systems Software for High End Applications. Special Issue of the Journal of Supercomputing** , *P. Balaji, and A. Vishnu*, 2011.

IJHPCA'10 **Programming Models and Systems Software for High End Applications. Special Issue of the Journal of Supercomputing** , *P. Balaji, and A. Vishnu*, 2010.

Publications

ICMLA'18 **SMILES2prop: An Interpretable General-Purpose Deep Neural Network for Predicting Chemical Properties** , *G. Goh, C. Siegel, A. Vishnu, and N. Hodas* , International Conference on Machine Learning Applications, 2018.

RSI'18 **Improving Underwater Localization Accuracy with Machine Learning** , *L. Rauchenstein, A. Vishnu, X. Li, and Z. Deng*, Review of Scientific Instruments, 2018.

ECML-PKDD'18 **ColdRoute: Routing Cold Questions on Stack Exchange Sites** , *J. Sun, A. Vishnu, C. Siegel, A. Chakrabarti, and S. Parthasarathy*, European Conference on Machine Learning - Principles and Practice of Knowledge Discovery, 2018.

TACO'18 **NUMA-Aware Deep Learning Neural Networks** , *P. Roy, S. Song, S. Krishnamoorthy, A. Vishnu. D. Sengupta and X. Lio*, Transactions on Architecture and Code Optimization, 2018.

KDD'18 **Using Rule-Based Labels for Weak Supervised Learning: A ChemNet for Transferable Chemical Property Prediction** , *G. Goh, C. Siegel, A. Vishnu, and N. Hodas*, Knowledge Discovery and Data Mining, 2018.

HPDC'18 **Desh: Deep Learning for System Health Prediction of Lead Times to Failure in HPC** , *A. Das, F. Mueller, C. Siegel and A. Vishnu* , High-Performance Parallel and Distributed Computing, 2018.

WACV'18 **How much Chemistry does a Deep Neural Network Need to know to make accurate predictions?** , *G. Goh, C. Siegel, A. Vishnu, N. Hodas, and N. Baker* , Winter Conference on Applications of Computer Vision, 2018.

iWAPT'18 **Effective Machine Learning Based Format Selection and Performance Modeling for SpMV on GPUs** , *I. Nisa, C. Siegel, A. S. Rajam, A. Vishnu and P. Sadayappan* , Winter Conference on Applications of Computer Vision, 2018.

Arxiv'18 **GossipGrad: Scalable Deep Learning using Gossip Communication Based Asynchronous Gradient Descent** , *J. Daily, A. Vishnu, C. Siegel, T. Warfel, and V. Amatya* , Arxiv 2018 , 2018.

EuroMPI'17 **What does fault tolerant Deep Learning need from MPI?**, *V. Amatya, A. Vishnu, C. Siegel and J. Daily*, EuroMPI/USA, 2017.

ParLearning'17 **Scaling Deep Learning Workloads: NVIDIA DGX-1/Pascal and Intel Knights Landing** , *N. Gawande, J. Landwehr, J. Daily, N. Tallent, A. Vishnu, and D. Kerbyson*, International Workshop on Parallel and Distributed Computing for Large Scale Machine Learning and Big Data Analytics, 2017.

ICS'17 **Enabling Scalability-Sensitive Speculative Parallelization for FSM Computations**, *J. Qiu, Z. Zhao, B. Wu, A. Vishnu, and S. Song*, International Conference on Supercomputing, 2017.

IPDPS'17 **Generating Performance Models for Irregular Applications**, *R. Friese, N. Tallent, A. Vishnu, D. Kerbyson and A. Hoisie*, International Parallel and Distributed Processing Symposium, 2017.

JCC'17 **Deep Learning for Computational Chemistry**, *G. Goh, N. Hodas and, A. Vishnu*, Journal of Computational Chemistry, 2017.

Arxiv'17 - 1 **User-transparent Distributed TensorFlow** , *A. Vishnu, J. Manzano, C. Siegel and J. Daily*, Arxiv, 2017.

Arxiv'17 - 2 **Chemception: A Deep Neural Network with Minimal Chemistry Knowledge Matches the Performance of Expert-developed QSAR/QSPR Models.** , *G. Goh, C. Siegel, A. Vishnu, N. Hodas and N. Baker*, Arxiv, 2017.

BigData'16 **Adaptive Neuron Apoptosis for Accelerating Deep Learning on Large Scale Systems**, *C. Siegel, A. Vishnu and J. Daily*, International Conference on Big Data, 2016.

IPDPS'16 **Fault Modeling of Extreme Scale Applications using Machine Learning**, *A. Vishnu, N. Tallent, H. v. Dam, D. Kerbyson and A. Hoisie*, International Parallel and Distributed Processing Symposium, 2016.

ICPADS'16 **Accelerating Deep Learning with Shrinkage and Recall**, *S. Zheng, A. Vishnu and C. Ding*, International Conference on Parallel and Distributed Systems, 2016.

HiPC'16 **Fault Tolerant Frequent Pattern Mining**, *S. Abdulah, A. Vishnu and G. Agrawal*, International Conference on High Performance Computing, Data and Analytics, 2016.

ICPP'16 **Fault Tolerant Support Vector Machines** , *S. Abdulah, A. Vishnu and G. Agrawal*, International Conference on Parallel Processing, 2016.

SC'15 **A Case for Application-Oblivious Energy-Efficient MPI Runtime**, *A. Venkatesh, A. Vishnu, K. Hamidouche, N. Tallent, D. Panda, D. Kerbyson and A. Hoisie*, International Conference on High Performance Computing, Networking, Storage and Analysis, 2015.

Cluster'15a **Fast and Accurate Support Vector Machines on Large Scale Systems**, *A. Vishnu, J. Narasimhan, L. Holder, D. Kerbyson and A. Hoisie*, IEEE Cluster, 2015.

Cluster'15b **Large Scale Frequent Pattern Mining using MPI One-Sided Model**, *A. Vishnu, and K. Agarwal*, IEEE Cluster, 2015.

LSPP'15 **On the Impact of Execution Models: A Case Study in Computational Chemistry**, *D. Chavarria, M. Halappanavar, S. Krishnamoorthy, A. Vishnu, and A. Hoisie*, International Workshop on Large Scale Parallel Processing, IPDPS, 2015.

PPoPP'15 **Diagnosing the Causes and Severity of One-sided Message Contention**, *N. Tallent, A. Vishnu, H. v. Dam, J. Daily, D. Kerbyson, A. Hoisie*, Principle and Practice of Parallel Programming, 2015.

JPDC'14 **A Work Stealing Based Approach for Enabling Scalable Optimal Sequence Homology Detection**, *J. Daily, A. Kalyanaraman, S. Krishnamoorthy, and A. Vishnu*, Journal of Parallel and Distributed Computing, 2014.

HiPC'14 **On the Suitability of MPI as a PGAS Runtime**, *J. Daily, A. Vishnu, B. Palmer, H. v. Dam, and D. Kerbyson*, International Conference on High Performance Computing, 2014.

FGCS'14 **A Performance Comparison of Current HPC systems: Blue Gene/Q, Cray XE6 and InfiniBand systems.**, *J. Daily, D. Kerbyson, K. Barker, A. Vishnu and A. Hoisie*, Future Generation Computer Science, 2013.

JCTC'13 **A Case for Soft Error Detection and Correction in Computational Chemistry**, *H. v. Dam, A. Vishnu, and W. d. Jong*, Journal of Chemical Theory and Computation, 2013.

Cluster'13 **An overview of energy efficiency techniques in cluster computing systems**, *Giorgio Valentini, Walter Lassonde, Samee Ullah Khan, Nasro Min-Allah, Sajjad Ahmad Madani, Juan Li, Limin Zhang, Lizhe Wang, Nasir Ghani, Joanna Kolodziej, Hongxiang Li, Albert Y. Zomaya, Cheng-Zhong Xu, Pavan Balaji, Abhinav Vishnu, FrÃľdÃľric Pinel, Johnatan E. Pecero, Dzmitry Kliazovich, Pascal Bouvry*, International Journal on Cluster Computing, 2013.

ParCo'13 **A survey on resource allocation in high performance distributed computing systems**, *Hameed Hussain, Saif Ur Rehman Malik, Abdul Hameed, Samee Ullah Khan, Gage Bickler, Nasro Min-Allah, Muhammad Bilal Qureshi, Limin Zhang, Yongji Wang, Nasir Ghani, Joanna Kolodziej, Albert Y. Zomaya, Cheng-Zhong Xu, Pavan Balaji, Abhinav Vishnu, FrÃľdÃľric Pinel, Johnatan E. Pecero, Dzmitry Kliazovich, Pascal Bouvry, Hongxiang Li, Lizhe Wang, Dan Chen, Ammar Rayes: A survey on resource allocation in high performance distributed computing systems. Parallel Computing 39(11): 709-736 (2013)*, Parallel Computing, 2013.

JoSC'13 **Designing Energy Efficient Communication Runtime Systems: A View from PGAS Models**, *A. Vishnu, S. Song, A. Marquez, K. Barker, D. Kerbyson, K. Cameron, P. Balaji*, Journal of Supercomputing, 2013.

CASS'13 **Building Scalable PGAS Communication Subsystem on Blue Gene/Q**, *A. Vishnu, D. Kerbyson, K. Barker, and H. v. Dam*, Communication Architecture for Scalable Systems, 2013.

ICPADS'12 **A. Kerbyson, A. Vishnu, K. Barker, and A. Hoisie**, *A. Vishnu, J. Daily and B. Palmer*, International Conference on High Performance Computing, 2012.

HiPC'12 **Designing scalable PGAS communication subsystems on cray gemini interconnect**, *A. Vishnu, J. Daily and B. Palmer*, International Conference on High Performance Computing, 2012.

CCGrid'12 **Global Futures: A Multi-threaded Execution Model for Global Arrays-based Applications**, *D. Chavarria, S. Krishnamoorthy, and A. Vishnu*, International Conference on Cluster, Cloud and Grid Computing, 2012.

Computer'11 **Codesign Challenges for Exascale Systems: Performance, Power, and Reliability.**, *D. Kerbyson, A. Vishnu, K. Barker, and A. Hoisie*, IEEE Computer, 2011.

ISC'11 **Mapping communication layouts to network hardware characteristics on massive-scale blue gene systems**, *P. Balaji, R. Gupta, A. Vishnu and P. Beckman*, International Supercomputing Conference, 2011.

Cluster'11 **Energy Templates: Exploiting Application Information to Save Energy**, *D. Kerbyson, A. Vishnu, and K. Barker*, IEEE Cluster, 2011.

HotI'11 **Evaluating the Potential of Cray Gemini Interconnect for PGAS Communication Runtime Systems**, *A. Vishnu, M. Bruggencate, and R. Olson*, Symposium on High Performance Interconnects, 2011.

IPDPS'11 **Iso-Energy-Efficiency: An Approach to Power-Constrained Parallel Computation**, *S. Song, C. Su, R. Ge, A. Vishnu, K. Cameron*, International Parallel and Distributed Processing Symposium, 2011.

CASS'11 **Dynamic Time-Variant Connection Management for PGAS Models on InfiniBand**, *A. Vishnu, M. Krishnan and P. Balaji*, Communication Architecture for Scalable Systems, 2011.

EuroMPI'11 **Noncollective Communicator Creation in MPI**, *J. Dinan, S. Krishnamoorthy, P. Balaji, J. Hammond, M. Krishnan, V. Tipparaju, and A. Vishnu*, EuroMPI, 2011.

JCTC'11 **Designing a Scalable Fault Tolerance Model for High Performance Computational Chemistry: A Case Study with Coupled Cluster Perturbative Triples**, *H. v. Dam, A. Vishnu and W. d. Jong*, Journal of Chemical Theory and Computation, 2011.

CCGrid'10 **Efficient On-Demand Connection Management Mechanisms with PGAS Models over InfiniBand**, *A. Vishnu and M. Krishnan*, International Conference on Cluster, Cloud and Grid Computing, 2010.

GreenCom'10 **Designing Energy Efficient Communication Runtime Systems for Data Centric Programming Models**, *A. Vishnu, S. Song, A. Marquez, K. Barker, D. Kerbyson and P. Balaji*, International Conference on Green Computing and Communications, 2010.

CAC'10 **Designing topology-aware collective communication algorithms for large scale InfiniBand clusters: Case studies with Scatter and Gather**, *K. Kandalla, H. Subramoni, A. Vishnu and D. Panda* , Communication Architecture for Clusters, 2010.

HiPC'10 **Fault Tolerant Communication Runtime Support for Data Centric Programming Models**, *A. Vishnu, H. v. Dam, W. d. Jong, P. Balaji and S. Song*, International Conference on High Performance Computing, 2010.

CCPE'09 **Topology Agnostic Hot-Spot Avoidance with InfiniBand**, *A. Vishnu, M. Koop, A. Moody, A. Mamidala, S. Narrravula and D. Panda* , Concurrency and Computation: Practice and Experience, 2009.

Cluster'09 **A Hardware-Software Approach to Network Fault Tolerance with InfiniBand**, *A. Vishnu, M. Krishnan and D. Panda* , International Conference on Cluster Computing, 2009.

PPoPP'07 **On using connection-oriented vs. connection-less transport for performance and scalability of collective and one-sided operations: trade-offs and impact.**, *A. Mamidala, S. Narravula, A. Vishnu, G. Santhanaraman and D. Panda* , Principles and Practice of Parallel Programming, 2007.

CCGrid'07 **Hot-Spot Avoidance With Multi-Pathing Over InfiniBand: An MPI Perspective**, *A. Vishnu, M. Koop, A. Moody, A. Mamidala, S. Narravula and D. Panda* , International Conference on Cluster and Grid Computing, 2007.

CCGrid'07 **High Performance Distributed Lock Management Services using Network-based Remote Atomic Operations**, *S. Narravula, A. Mamidala, A. Vishnu, K. Vaidyanathan and D. Panda* , International Conference on Cluster and Grid Computing, 2007.

ICPP'07 **High Performance MPI over iWARP: Early Experiences**, *S. Narravula, A. Mamidala, A. Vishnu, G. Santhanaraman and D. Panda* , International Conference on Parallel Processing, 2007.

SC'06 **A software based approach for providing network fault tolerance in clusters with uDAPL interface: MPI level design and performance evaluation**, *A. Vishnu, P. Gupta, A. Mamidala, and D. Panda* , International Conference on High Performance Networking and Storage, 2006.

EuroMPI'06 **Efficient Shared Memory and RDMA Based Design for MPI-Allgather over InfiniBand**, *A.Mamidala, A. Vishnu, and D. Panda* , European Conference on MPI, 2006.

HotI'06 **Memory Scalability Evaluation of the Next-Generation Intel Bensley Platform with InfiniBand**, *M. Koop, W. Huang, A. Vishnu and D. Panda* , Symposium on High Performance Interconnects, 2006.

Micro'05 **Evaluating InfiniBand Performance with PCI Express**, *J. Liu, A. Mamidala, A. Vishnu and D. Panda* , IEEE Micro, 2005.

HiPC'05 **Supporting MPI-2 One Sided Communication on Multi-rail InfiniBand Clusters: Design Challenges and Performance Benefits.**, *A. Vishnu, G. Santhanaraman, W. Huang, H.-W. Jin and D. Panda* , International Conference on High Performance Computing, 2005.

HotI'05 **Can Memory-Less Network Adapters Benefit Next-Generation InfiniBand Systems?**, *S. Sur, A. Vishnu, H.-W. Jin, W. Huang and D. Panda* , Symposium on High Performance Interconnects, 2005.

SC'04 **Building Multirail InfiniBand Clusters: MPI-Level Design and Performance Evaluation**, *J. Liu, A. Vishnu and D. Panda* , International Conference on High Performance Networking and Storage, 2004.

HotI'04 **Performance Evaluation of InfiniBand with PCI Express**, *J. Liu, A. Mamidala, A. Vishnu and D. Panda* , Symposium on High Performance Interconnects, 2004.

Posters

SC'17 **Desh: Deep Learning for System Health Resilience**, *A. Das, C. Siegel, A. Vishnu and F. Mueller*, International Conference on High Performance Networking, Storage and Analysis, 2017.

ModSim'15 **Fault Modeling of Extreme Scale Applications using Machine Learning**, *A. Vishnu, H. v. Dam, N. Tallent, D. Kerbyson, A. Hoisie*, DOE Modeling and Simulation Workshop, 2015.

SC'14 **Diagnosing Network Bottlenecks: One-sided Message Contention**, *N. Tallent, A. Vishnu, H. v. Dam, J. Daily, D. Kerbyson, A. Hoisie*, International Conference on High Performance Networking, Storage and Analysis, 2014.

SC'13 **PGAS Models using MPI Runtime: Design Alternatives and Performance Evaluation**, *J. Daily, A. Vishnu, B. Palmer, and H. v. Dam*, International Conference on High Performance Networking, Storage and Analysis, 2013.

Position Papers

ModSim'14 **Exploring Machine Learning Techniques for Dynamic Modeling on Future Exascale Systems**, *S. Song, N. Tallent and A. Vishnu*, Modeling and Simulation of Exascale Systems and Applications, 2014.

ModSim'13 **Application-specific Modeling of Performance and Power in Concert**, *K. Barker, D. Kerbyson, A. Hoisie and A. Vishnu*, Modeling and Simulation of Exascale Systems and Applications, 2013.

ScalPerf'10 **Exploring Power Consumption in Extreme Scale Systems**, *K. Barker, D. Kerbyson, A. Hoisie, A. Marquez, and A. Vishnu*, Scalable Approaches to High Performance and High Productivity Computing, 2010.

Professional Activities

Chairman and Editorships

P2S2'18 **International Workshop on Parallel Programming Models and Systems Software**, *M. Si, A. Vishnu, and Y. Chen*, International Conference on Parallel Processing, 2018.

GraML'18 **International Workshop on the Intersection of Graph Algorithms and Machine Learning**, *A. Gebremedhin, and A. Vishnu*, International Parallel and Distributed Processing Symposium, 2018.

P2S2'17 **International Workshop on Parallel Programming Models and Systems Software**, *P. Balaji, A. Vishnu, and Y. Chen*, International Conference on Parallel Processing, 2017.

P2S2'16 **International Workshop on Parallel Programming Models and Systems Software**, *P. Balaji, A. Vishnu, and Y. Chen*, International Conference on Parallel Processing, 2016.

P2S2'15 **International Workshop on Parallel Programming Models and Systems Software**, *P. Balaji, A. Vishnu, and Y. Chen*, International Conference on Parallel Processing, 2015.

ParLearning'14 **International Workshop on Parallel and Distributed Computing for Large Scale Machine Learning and Big Data Analysis**, *A. Vishnu, and Y. Xia*, International Parallel and Distributed Processing Symposium, 2014.

P2S2'14 **International Workshop on Parallel Programming Models and Systems Software**, *P. Balaji, A. Vishnu, and Y. Chen*, International Conference on Parallel Processing, 2014.

P2S2'13 **International Workshop on Parallel Programming Models and Systems Software**, *P. Balaji, A. Vishnu, and Y. Chen*, International Conference on Parallel Processing, 2013.

P2S2'12 **International Workshop on Parallel Programming Models and Systems Software**, *P. Balaji, A. Vishnu, and Y. Chen*, International Conference on Parallel Processing, 2012.

P2S2'11 **International Workshop on Parallel Programming Models and Systems Software**, *P. Balaji, A. Vishnu, and Y. Chen*, International Conference on Parallel Processing, 2011.

P2S2'10 **International Workshop on Parallel Programming Models and Systems Software**, *P. Balaji, A. Vishnu, and Y. Chen*, International Conference on Parallel Processing, 2010.

Technical Program Committee

SC **2019, 2018**, *International Conference on High Performance Computing, Networking, Storage and Analysis*.

IPDPS **2019, 2018, 2017, 2016**, *International Parallel and Distributed Processing Symposium*.

HiPC **2018, 2017, 2016, 2015, 2014, 2013, 2012**, *International Conference on High Performance Computing*.

CCGrid **2019, 2016, 2014, 2012, 2011**, *International Conference on Cluster, Cloud and Grid Computing*.

FTXS **2018, 2017**, *International Workshop on Fault Tolerance for HPC at Extreme Scale*.

ESPM2 **2018, 2017**, *International Workshop on Extreme Scale Programming Models and Middleware* .

Cluster **2012, 2010**, *International Conference on Cluster Computing*.

ICPP **2012**, *International Conference on Parallel Processing*.

NCP **2012**, *International Conference on Network and Parallel Computing*.

PASA **2013**, *International Workshop on Power Aware Systems and Architecture*.

CASS **2013,2012**, *International Workshop on Communication Architecture for Scalable Systems*.

PGAS **2012**, *International Conferece on Partitioned Global Address Space Models*.

HPCC **2010**, *International Conferece on High Performance Computing and Communications*.

CloudCom **2012**, *International Conferece on Cloud Computing*.

ICCCN **2011**, *International Conferece on Computer and Communication Networks*.

Co-op Students and Post-Doctorate RA Advisees

Garrett Goh **2016 - 2017**, *Deep Learning on Computational Chemistry*.

Vinay Amatya **2016 - 2017**, *Deep Learning on Deep Memory Subsystems*.

Charles Siegel **2015 - 2017**, *Deep Learning on Large Scale Systems*.

Israt Nisa **2017**, *Machine Learning for Sparse Matrix Format Selection*.

Anwesha Das **2017**, *Deep Learning for Fault Log Analysis*.

Jiankai Sun **2017**, *Routing Cold Questions in Stack Exchange Sites*.

Probir Roy **2016**, *NUMA-Aware Caffe*, co-advised with Shuaiwen Song and Sriram Krishnamoorthy.

Junqiao Qiu **2016**, *Enabling Scalability-Sensitive Speculative Parallelization for FSM Computations*, co-advised with Shuaiwen Song.

Sameh Shohdy **2015**, *Fault Tolerant Support Vector Machines*.

Shuai Zheng **2015**, *Accelerating Deep Learning with Shrinkage and Recall*.

Akshay Venkatesh **2014**, *Energy Aware Message Passing Interface*.

Jesyanthi Narasimhan **2013**, *Fast and Accurate Support Vector Machines on Large Scale Systems*.

Shuaiwen Song **2010**, *Fault Tolerant PGAS Runtime Systems*.

PhD Dissertation Committee

Akshay Venkatesh **2016**, *The Ohio State University*.

Shuaiwen Song **2013**, *Virginia Polytechnic Institute and State University*.