Education

- Doctor of Philosophy, Computer Science and Engineering, The Ohio State University, Columbus, OH, 2006. Advisor: Dr. P. Sadayappan. Doctoral Thesis: **Fairness in Parallel Job Scheduling.**
- Master of Science, Computer Science and Engineering, The Ohio State University, Columbus, OH, 2004. Advisor: Dr. P. Sadayappan.
- Bachelor of Science, Magna Cum Laude, Computer Science and Engineering Physics with specializations in Computer Engineering and Electrical Engineering, John Carroll University, University Heights, OH, 2002

Selected Research & Professional Experiences (from over 25 RNET Projects)

- Project Manager/Senior Researcher, RNET Technologies, July 2005 - Present

  2019 DOE SBIR: Tensor Contraction and Operation Minimization for Extreme Scale Computational Chemistry (Phase I, Principal Investigator)

  2016 DOE SBIR: A Self-Configuring Machine Learning Tool for Predicting Optimal Numerical Methods (Phase II, Principal Investigator, DE-SC0013869)

  2016 DOE SBIR: Web Infrastructure for Remote Modeling and Simulation of Nuclear Reactors and Fuel Cycle Systems (Phase II, Principal Investigator, DE-SC0015748)

  2015 DOE SBIR: iNFORMER: A MapReduce-like Data-Intensive Processing Framework for Native Data Storage and Formats (Phase II, Principal Investigator, DE-SC0011312)

  2015 DARPA SBIR: Performance Portable Framework for Developing Graph Applications (Phase II, Principal Investigator, D16PC00183)

  2015 DARPA SBIR: Ultra-High Productivity Graph Processing using NVidia Optimized Giraph (Phase I, Principal Investigator, W911NF-15-P-0043)

  2014 NASA SBIR: Domain Specific Language based Parallelization for Geant4 for Space-based Applications on Current and Future Architectures (Phase I, Principal Investigator, NNX14CA44P)

  2010 DOE STTR: HPC Application Energy Measurement and Optimization Tools (Phase II, Principal Investigator, DE-SC0004510)

  2010 Air Force STTR: Scalable Multi-Tiered CFD and CSD Codes for Kestrel (Phase II, Principal Investigator, FA9550-12-C-0028)

  2009 DOE SBIR:Enhancement of GridFTP Performance Through GMPLS Integration and Hardware Offloading (Phase II, Principal Investigator, DE-SC0002182)

  2009 DOE SBIR:Optimization of the PETSc Library for Clusters of MultiCore Processors (Phase II, Principal Investigator, DE-SC0002434)

  DOE43d: FPGA-based Multiprocessor Architecture for LQCD Computations SBIR Phase I 2006 (Phase I, Senior Researcher, DE-FG02-05ER84164)

Selected Refereed Publications (from over 20 publications)

- "Long-haul Secure Data Transfer using Hardware-assisted GridFTP," Mohammad Rashti, Gerald Sabin, Rajkumar Kettimuthu, in FUTURE GENER COMP SY Journal, Elsevier Science, accepted for publication.
- "Automatic Kernel Acceleration of PETSc Krylov Solvers", Chekuri Choudary, Deepan Balasubramanian, Jeswin Godwin, Daniel Lowell, Azamat Mametjanov Boyana Norris, P. Sadayappan, Gerald Sabin, Sravya Tirukkovalur, in TWELFTH COPPER MOUNTAIN CONFERENCE ON ITERATIVE METHODS 2012
- "Enhancement of GridFTP through Hardware Offloading", M. Rashit, R. Kettimiuthu, G. Sabin, SC14 SCinet Workshop: Innovating the Network for Data Intensive Science
- "Stencil-Aware GPU Optimization of Iterative Solvers,C. Choudary, J. Godwin, J. Holewinski, D. Karthik, D. Lowell, A. Mametjanov, B. Norris, G. Sabin, P. Sadayappan, SISC, Copper Mountain Special Section 2012. Preprint ANL/MCS-P3008-0712, July 2012.
- "Scaling a Numerical Library to Emerging Compute Architectures", Chekuri S. Choudary, Jeswin Godwin, Deepan Karthik, Daniel Lowell, Boyana Norris, Gerald Sabin, P. Sadayappan, Sravya Tirukkovalur in "SIAM Conference on Parallel Processing for Scientific Computing" 2012
- An Integrated Approach to Locality Conscious Processor Allocation and Scheduling of Mixed Parallel Applications,N. Vydyanathan, S. Krishnamoorthy, G. Sabin, U. Catalyurek, T. Kurc, P. Sadayappan, and J. Saltz, IEEE Transaction on Parallel and Distributed Systems, Vol. 20, No. 9, Aug 2009
- A message passing benchmark for unbalanced applications,James Dinan, Stephen Olivier, Gerald Sabin, Jan Prins, P. Sadayappan, Chau-Wen Tseng, Journal of Simulation Modeling Practice and Theory (SIMPAT). Volume 16, Issue 9, Pages 1177-1189. October, 2008.
- An Integrated Approach for Processor Allocation and Scheduling of Mixed-Parallel Applications, Nagavijayalakshmi Vydyanathan, Sriram Krishnamoorthy, Gerald Sabin, Umit Catalyurek, Tahsin Kurc, P. Sadayappan, and Joel Saltz, Internal Conference on Parallel Processing 2006.
- Assessment and Enhancement Of Meta-Schedulers for Multi-Site Job Sharing, Gerald Sabin, Vishvesh Sahasrabudhe, P. Sadayappan, International Symposium on High Performance Distributed Computing 2005.
- On Fairness in Distributed Job Scheduling Across Multiple Sites, Gerald Sabin, Vishvesh Sahasrabudhe, P. Sadayappan, Cluster 2004.
- Job Fairness in Non-Preemptive Job Scheduling, Gerald Sabin, Garima Kochhar, P. Sadayappan, International Conference on Parallel Processing 2004.
- Scheduling of Parallel Jobs on a Heterogeneous Cluster of Multi-Processor Systems, Gerald Sabin, Rajkumar Kettimuttu, Arun Rajan, P. Sadayappan, Workshop On Job Scheduling Strategies For Parallel Processing 2003.