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Sudheer Kumar

Research Interests

High Performance Computing, Performance Optimization on Multi-cores and Accelerators

Education

Ph.D., Computer Science, Sri Sathya Sai Institute of Higher Learning, April 2013
- Advisor: *Prof. Ashok Srinivasan, Florida State University*
- Thesis: *Topology and Routing Aware Mapping on Parallel Processors*

M.Tech., Sri Sathya Sai Institute of Higher Learning, March 2006
- Advisor: *Mr. Shakti Kapoor, STSM, IBM Austin*
- Thesis: *Design and Implementation of Proc File System in MINIX Operating System*

B.Tech., RVR&JC College of Engineering, April 2004

Work Experience

Assistant Professor, Department of Mathematics & Computer Science, July 2011 - Present

Journal Publications

Dynamic Load Balancing for Petascale Quantum Monte Carlo Applications: The Alias Method, **C.D. Sudheer**, S. Krishnan, A. Srinivasan, and P. R. C. Kent. Computer Physics Communciations, Feb 2013, Impact Factor : 3.268, (5-year Impact Factor: 2.812).

Conference Publications

Optimization of the Hop-Byte Metric for Effective Topology Aware Mapping, **C.D. Sudheer**, Ashok Srinivasan, Proceedings of the 19th IEEE International Conference on High Performance Computing (HiPC), 2012, (Acceptance rate: 25%).

Optimizing Assignment of Threads to SPEs of the Cell BE Processor, **C.D. Sudheer**, T. Nagaraju, P.K. Baruah, Ashok Srinivasan, 10th IEEE International Workshop on Parallel and Distributed Scientific and Engineering Computing (PDSEC), Proceedings of the 23rd International Parallel and Distributed Processing Symposium, IEEE, 2009, (Citations: SG - 5).

High Throughput Compression of Floating point numbers in GPUs, Ajith Padyana, **C.D Sudheer**, P.K. Baruah, Ashok Srinvasan, 2nd IEEE International Conference on Parallel, Distributed and Grid Computing - 2012 Himachal Pradesh, December 2012.

Investigating Algorithmic Techniques for Enhancing Application Performance on Multicore Processors, **C.D. Sudheer** (Advisor: Ashok Srinivasan), PhD Forum at IEEE International Parallel and Distributed Processing Symposium, 2009.

A Communication Model for Determining Optimal Affinity on the Cell BE processor, **C.D. Sudheer**, Sriram, S.: In: Proc. 16th IEEE International Conference on High Performance Computing (HiPC), Student Research Symposium, Dec 2009.

Invited Presentations

An Overview of the Global Arrays Toolkit, Five-days Technology Workshop on Heterogeneous Computing - Many Core/ Multi GPU - Performance of Algorithms, Application Kernels (HeMPa), 2011, at CMSD, UoHYD by C-DAC Pune & CMSD.

Programming for Performance on Cell BE processor, Performance Enhancement on Emerging Parallel Processing Platforms Workshop (PEEP), 2008, jointly organized by C-DAC and IUCAA.

Professional Service

Technical Program Committee member, International Conference on High Performance Computing and Communications (HPCC), 2011, 2012.

TPC member, The 11th IEEE International Symposium on Parallel and Distributed Processing with Applications (ISPA), 2013.

TPC member, The 12th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP), 2012.

TPC member, Student Research Symposium, IEEE International Conference on High Performance Computing (HiPC), 2012.

Computer Access time Grants

XSEDE Research Allocation: Scaling Communication Performance for Massively Parallel Applications, 800,000 SUs, PI: Prof. Ashok Srinivasan, Florida State University.

Teragrid Startup Allocation, PI: Prof. P. Sadayappan, Ohio State University.

XSEDE Education Allocation:Programming for Performance on multicore and many-core processor, PI: Prof. 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.

Teaching

High Performance Computing with Accelerators, Summer 2012.
This course was highly successful resulting in 9 student papers, more than one third of the total papers, accepted for Student Research Symposium, at HiPC 2012. And also, 3 out of the 4 awards constituted for Best Presentation and Best Poster were secured by the students of this course. Course Webpage: http://dmacssite.github.com

Programming for Performance,Winter 2011, 2012 and 2013. http://progforperf.github.com

Parallel Computing,Winter 2013. http://parallelcomp.github.com

Computer Organization and Design, 2010, 2011 and 2012.

Processor Architecture and its Applications, 2008.

Operating Systems Design and Implementation, 2007.

Systems Programming using MINIX Operating System, 2006.

Academic Achievements

TCPP PhD Forum Travel Grant for attending the IPDPS 2009 conference in Italy.

Secured 96.84 percentile in Graduate Aptitude Test in Engineering (GATE-04) in Computer Science stream in 2004.

Achieved University first rank in C programming theory and laboratory exam in the 1st year of B.Tech.

References

Prof. Ashok Srinivasan, *Florida State University* (asriniva@cs.fsu.edu)

Prof. P. Sadayappan, *Ohio State University* (saday@cse.ohio-state.edu)

Mr. Shakti Kapoor, *STSM, IBM Austin* (skapoor@us.ibm.com)

Prof. Pallav Kumar Baruah, *Sri Sathya Sai Institute of Higher Learning* (pkbaruah@sssihl.edu.in)