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Sandia National Labs and Ohio State University Receive Best Algorithms Paper Award at IPDPS07

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Researchers from Sandia National Laboratories and the Ohio State University were awarded the Best Paper award in the Algorithms track of the 2007 International Parallel and Distributed Processing Symposium (IPDPS).

Their paper, "Hypergraph-based Dynamic Load Balancing for Adaptive Scientific Computations," presents a novel algorithm for redistributing data in adaptive parallel simulations. As an adaptive simulation's computational requirements change, the algorithm rebalances processor workloads while keeping interprocessor communication costs and data redistribution costs low. The new method exploits the robust and accurate hypergraph partitioning model to reduce average total communication costs by roughly 20% compared to traditional graph repartitioning methods. The algorithm will be released this winter in the Zoltan Parallel Data Management Toolkit, open-source software available at http://www.cs.sandia.gov/Zoltan. Authors of the paper are Umit Catalyurek and Doruk Bozdag of the Ohio State University, and Erik Boman, Karen Devine, Robert Heaphy, and Lee Ann Fisk Riesen of Sandia National Laboratories.

IPDPS is a highly competitive international conference (sponsored by IEEE) covering all aspects of parallel computation, including algorithms, applications, architectures, and system software. Only 109 out of 419 total submissions were accepted and the award-winning paper was judged best of the submissions to the Algorithms track. The award will be presented March 28, 2007, in Long Beach, CA.

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