Weijian ZHENG

zheng273@purdue.edu

RESEARCH INTERESTS

Parallel Computing and Parallel Machine Learning Algorithm Design.
High Performance Computing, Distributed Computing.
Performance Analysis and Optimization.

EDUCATION

Aug. 2014 - Present Purdue University
Ph.D. candidate in Computer Science GPA: 3.8/4.0
Relevant Courses: Operating Systems, Concepts in Computer Organization, High Performance Computing, Machine Learning, Distributed Computing, Programming Language, Algorithm Design and Implementation, Data Mining, Databases

Aug. 2011 - July 2014 Ball State University
B.S. in Computer Science (Summa Cum Laude) GPA: 3.9/4.0

PROJECTS

High Performance Synchronization-reducing Clustering Library Jan. 2016 - Present
- Design and implement parallel asynchronous Feel-The-Way algorithms using the hybrid MPI/Pthreads computing model.
- Significantly faster than the parallel standard k-means with less communication and similar costs.
- Keywords: massively parallel algorithm, synchronization-reducing algorithm, clustering algorithm, multi-thread programming.

Scalable Universal QR Factorization Solver (suCAQR) Aug. 2014 - Dec. 2015
- Design and implement a simplified, tuning-less scalable universal communication-avoiding QR factorization solver (suCAQR).
- Achieve 30 times and 30% faster performance than benchmarks ScaLAPACK and DPLASMA on 1024 cores.
- Keywords: scientific computing, performance analysis and optimization, dataflow runtime system.

Classifying Images of Bacteria Feb. 2015 - May 2015
- Given 1800+ images of bacteria, classifying them into four categories.
- Achieve over 95% classification accuracy and ranked second among 23 teams in "Unsupervised feature learning for classifying images of bacteria at the genus level" Kaggle competition.
- Keywords: unsupervised feature learning, representation learning, k-means, classification, image processing.

The Indiana State Parks History Tour App June 2013 - July 2013
- Developed the mobile App "Centennial State Park Tour Explored Through Visitor Smart-phone" sponsored by Indiana Department of Natural Resources.
- iOS application named "The Indiana State Parks History Tour" is available in iTunes store.
- Keywords: mobile App development.

SPECIALTIES

Parallel Computing:	Proficient in MPI, Pthreads and other parallel programming related tools
	3+ years of programming and research experience on HPC
Programming Languages:	C, C++, JAVA, Python, Spark, SQL, Matlab, SQL

PUBLICATIONS

W. Zheng, F. Song, L. Lin, Designing a Synchronization-reducing Clustering Method on Manycores: Some Issues and Improvements, in: Proceedings of the Workshop on Machine Learning in High Performance Computing Environments, Supercomputing 2017 (SC'17), Nov. 2017.

W. Zheng, F. Song, L. Lin, Z. Chen, suCAQR: A simplified communication-avoiding QR factorization solver using the TBLAS framework, in: Proceedings of the 22nd IEEE International Conference on Parallel and Distributed Systems (ICPADS'16), Dec. 2016.

W. Zheng, F. Song, L. Lin, Z. Chen, Scaling Up Parallel Computation of Tiled QR Factorizations by a Distributed Scheduling Runtime System and Analytical Modeling, Parallel Processing Letter. (under review)

W. Zheng, F. Song, D. Wang, Design and Implementation of an Efficient Parallel Feel-the-Way Clustering Algorithm on High Performance Computing Systems, The 37th ACM Symposium on Principles of Distributed Computing (ICPP'18). (in preparation)