Curriculum Vitae

Xiaoge Wang, Ph.D.
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Education

Jan. 1994	PhD in Computer Science, University of Illinois at Urbana-Champaign Thesis: Incomplete factorization preconditioning for linear least squares problems Thesis advisor: Professor Kyle Gallivan
Dec. 1984	MS in Computer Science, Tsinghua University Thesis: A Parallel algorithm for solving a class of partial differential equations Thesis advisor: Professor Kaicheng Lu
July 1982	BS in Computer Science, Tsinghua University Degree project: Design and implementation of the compiler of a circuit simulation language Project supervisor: Professor Xiling Liu

Work Experience

May. 2015 – present:
Research Specialist, Institute of Cyber Enabled Research (HPCC), Michigan State Univeristy, East Lansing, Michigan, USA.

Sep. 1995 – April. 2015:
Professor of Tsinghua University, Beijing, China.

Sep. 1993 - Aug. 1995:
Postdoctoral research associate in Department of Computer Science, Indiana University at Bloomington.

Professional Affiliations:

Member of ACM, IEEE-CS.

Research Grants and Awards:

I am PI or Co-PI of the following research grants:

1. “IRES Track 1: Algorithms and Software for SUpercomputers and emerging aRchitEctures (ASSURe)”, NSF, No. 1827093，2019。

2. “Parallel Coupling Technology for Earth System Modeling”, National High-Tech Research and Development Plan of China (863) No. 2010AA012302，2010.

3. “Courseware for an advanced undergraduates CS course”, IBM Innovation Award, 2010.

4. “Adaptive Software Integration Environment for Pervasive Computing”, National High Tech Research and Development Plan of China (863) No. 2006AA01Z198，2006.

5. “Study on Multi-level and Multi-scale Modeling on Material Structure and Algorithm Design”, 973-Program of China under Grant No. 2006CB605102，2006.

6. “ A Study on Reflective middleware for Ubiquitous Computing”, Honeywell-Tsinghua Research Collaboration Grant, 2003.

7. “Study on New Operating Systems Technology for Pervasive Computing”, National High-Tech Research and Development Plan of China (863) No. 2003AA1Z2090，2003.

8. “EzGrid – Study on Autonomous Computing Grid” IBM-Tsinghua Research Collaboration Grant, 2002.

9. “Basic Research on Power Systems Grid”, Tsinghua University Researh Grant, No. JC2003021，2003.

10. “Generalized Parallel Computing Environment for Remote Sensing Image

Processing", National Key Project in 9th 5-year Plan. 1996.

Research Interests

- Parallel and distributed computing, including algorithm design, implementation, performance modeling and tuning, testing and evaluation, GPU programming with OpenMP and OpenACC.
- Development of numerical methods and software to solve problems rising from the mathematical model of applications, especially those involving linear algebra and large sparse matrix computation.
- Data management, data movement, data sharing, data analysis and machine learning methods in solving scientific and engineering problems.
- Applications of high performance computing in any areas, includeing following the advance of computer technology, exploring potential of application programs on the machines with new technology and massive scale of processors and accelerators. Managing the large scale of workflow, costomize and scale up the computation from personal computer to computer cluster, and from computer cluster to cloud.

Selected Publications

[1] Xiaoge Wang, "Incomplete factorization preconditioning for linear least squares problems", Ph.D. thesis, University of Illinois at Urbana-Champaign, 1993.

[2] Randall Bramley, Xiaoge Wang, Dominique Pelletier, "Orthogonalization based iterative methods for generalized stokes problems", in "*Solution techniques for large scale CFD problems*", W.G. Habashi, ed., Centre de Recherce en Calcul Applique, 1995, pp. 217-238.

[3] Xiaoge Wang, Kyle A. Gallivan, Randall Bramley, "CIMGS: An incomplete orthogonalization preconditioner", *SIAM J. Sci. Comp.* Vol. 18, No. 2, March, 1997.

[4] Xiang Yu, Xiaoge Wang, "DATIS: A Data Transfer Interface for SPMD Programs of Scientific Computing*",* in the proceedings of the 8th SIAM conference on parallel processing for scientific computing, Minneapolis, Minnesota, USA, March, 1997.

[5] Xiaoge Wang, "Porting a Thermal Engineering Application Program onto a cluster of computers", in the proceedings of International Workshop on Computational Science and Engineering, Hefei, China, May, 1997.

[6] Jie Meng, Xiaoge Wang, Sanli Li, “THPI--Performance Tool in Networked Parallel Computing Environment”, in the proceedings of International Workshop on Computational Science and Engineering, Hefei, China, May, 1997.

[7] Kehong Wang, Meie Dai, Xiaoge Wang, Jie Meng, Li Ding, C. Yang, “Acquisition of information based on network computing mode and Java technology”, Journal of Tsinghua University (Sci & Tech), Vol. 38, No. S1, April 1998.

[8] Jie Meng, Xiaoge Wang, “Web-based interactive management and performance monitoring of networked parallel computing Environment”, in Proceedings of Asia Pacific Web Conference on Web Technologies and Applications(APWeb98), Sep.27-30,1998, pp. 281-286.

[9] Xiaoge Wang, Richard M. Chen, Xue Wu, Xinhua An, “A Class of Parallel Algorithms for Solving Large Sparse Linear Systems on Multiprocessors”, In Proc. of 4th International Conference/Exhibition on High Performance Computing in Asia-Pacific Region (HPC-ASIA2000), Vol.2, pp.1146-1149, published by IEEE Computer Society. ISBN 0-7695-0589-2.

[10] Qixin Wang, Xinhua An, Xiaoge Wang and Kehong Wang, “Overall Introduction to JiniSolve - a Jini Based Grid Computing Framework”, in Proceedings of PDCAT2001, pp. 157-165.

[11] Yu Chen, Xiaoge Wang, Z. Jiao, J. Xie, Zhihui Du, Sanli Li, “MyVIA: A design and implementation of the high performance virtural interface architecture”, in Proceedings of IEEE International Confernece on Cluster Computing 2002, Sep.23-26, 2002, pp. 160-167.

[12] Xinghua An, Xiaoge Wang, Zhihui Du, Dingsheng Liu, Guoqing Li, “Fine-grained parallel algorithm for remote sensing image mosaics for cluster system”, Qinghua Daxue Xuebao/Journal of Tsinghua University, v 42, no. 10, October, 2002, pp. 1389-1392.

[13] Xing Fang, Xiaoge Wang, Sanli Li, Chuan He, “A study on task scheduling in computational Grid”, in Procesedings of 6th joint conference on information science, March 8-12, 2002, Research Park, North Carolina, USA, pp. 215-219.

[14] Du Jiang, Zhou Niansheng, Du Zhihui, Wang Xiaoge, “A WS-inspection based decentralizaed service discovery service in OGSA”, International Conference on

Communication Technology Proceedings, ICCT2003, Beijing, China, April 9-11, 2003, pp. 1691-1697.

[15] Xiaoge Wang, “Experience in Service-Oriented High Performance Computing”, in Proceedings of International Conference of Parallel Algorithms and Computing Environments (ICPACE 2003), October 8-11, 2003, Hong Kong, pp. 131-134.

[16] Fang, Xing, Wang, Xiaoge, He, Chuan, Feng, Kuan, “Message middleware for cluster management systems”, Qinghua Daxue Xuebao/Journal of Tsinghua University, v 44, no. 1, January, 2004, pp. 41-44.

[17] Zhihui Du, Francis C.M. Lau, Cho-Li Wang, Wai-kin Lam, Chuan He, Xiaoge Wang, Yu Chen and Sanli Li, "Design of an OGSA-Based MetaService Architecture", Grid and Cooperative Computing-GCC2004, LNCS 3251, 2004, pp. 167-174.

[18] Zhen Wei, Lu Jiang, Wang Xiaoge, Chen Rong, “A New Component Oriented Programming Technology for Embeded Development”, Advances in Embeded Software and System, Science Press, ISBN 7-03-014681-6, pp. 569-570.

[19] Xu Yongjun, Chen Yu, Wang Xiaoge, “Design and Implementation of an Agile Kernel Compoment Runtime”, in Proceedings of ICESS2005, pp. 73-80.

[20] Du Zhao, Wang Xiaoge, ChenYu, “An Overview of Reflective Middleware”, Journal of Computer Research and Development, 42(12):2041-2047, 2005.

[21] Zhang Kuo, Wu Yanni, Zheng Zhenkun, Wang Xiaoge, Chen Yu, “A Component based Reflective Middleware Approach to Context-Aware Adaptive System”, in Proceedings of ICWE2005, LNCS 3579, pp. 429-434.

[22] Zhang Kuo, Wang Xiaoge; Wu Yanni; Zheng Zhenkun, “PURPLE: a reflective middleware for pervasive computing”, Proceedings of Third International Conference on Information Technology and Applications, vol.1, 2005, pp. 64-69.

[23] Gang Feng, Qingxuan Yin, Xiaoge Wang “THAOP: An aspect oriented programming framework”, Proceedings of 1st International Symposium on Pervasive Computing and Applications, 8, ISBN 1-4244-0325-1, IEEE Press, 2006, pp. 127-132.

[24] Qingxuan Yin, Gang Feng, Xiaoge Wang, “Increase Reliability of pervasive oriented component platform via N-version”, Proceedings of 1st International

Symposium on Pervasive Computing and Applications, 2006, ISBN 1-4244-0325-1, IEEE Press, 2006, pp. 95-98.

[25] Yanni Wu, Kuo Zhang, Xiaoge Wang, Jinlan Tian, “Extending metadata with scenarios in adaptive distributed system”, Journal of Network and Computer Applications, 30 (2007), pp. 1283-1294.

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[27] Xi Wang, Zhilei Xu, Xuezheng Liu, Zhenyu Guo, Xiaoge Wang, and Zheng Zhang, “Conditional Correlation Analysis for Safe Region-based Memory Management”, ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI), 2008.

[28] Xi Wang, Zhenyu Guo, Xuezheng Liu, Zhilei Xu, Haoxiang Lin, Xiaoge Wang, and Zheng Zhang, “Hang Analysis: Fighting Responsiveness Bugs”, ACM SIGOPS/EuroSys European Conference on Computer Systems (EuroSys), 2008.

[29] Wang Xiaoge, Yin Qingxuan, Zhang Guoxin, Liu Yi, “Performance Improvement of the Linear Systems Solver in a Structure Simulation Software”, Journal of Computer Research and Development, 45(Suppl.): pp. 163-167, 2008, ISSN 1000-1239/CN 11-1777/TP.

[30] Li Lu, Xiaoge Wang, “A Process Fusion Approach for MPI Performance Enhancement on Multi-core Systems”, Proceedings of 2009 15th International Conference on Parallel and Distributed Systems, pp. 967-972.

[31] Rahul Biswas, etc. Application of machine learning algorithms to the study of noise artifacts in gravitational-wave data, PHYSICAL REVIEW D 88, 062003 (2013).

[32] Hu Yong, Xiaomeng Huang, Xiaoge Wang, etc. “A Scalable Barotropic Mode Solver for the Parallel Ocean Program“, Euro-Par 2013 Parallel Processing Lecture Notes in Computer Science Volume 8097, 2013, pp. 739-750.

[33] Xiaoge Wang, Eric Lebigot, Zhi-hui Du, Jun-wei Cao, Yun-yong Wang, Fan Zhang, Yong-zhi Cai, Mu-zi Li, Zong-hong Zhu, Jin Qian, Cong Yin, Jian-bo Wang, Wen Zhao, Yang Zhang, David Blair, Li Ju, Chun-nong Zhao, Lin-qing Wen, “The

Data Analysis in Gravitational Wave Detection", Chinese Astronomy and Astrophysics 41 (2017) 1–31

[34] ZHAO Wen, etc. "Gravitation Wave and Gravitational-wave Sources", PROGRESS IN ASTRONOMY, Vol35,No. 3, Aug. 2017, P 316-344.

[35] Z. He∗, G. Shen, Y. Yamazaki, X. Wang, "Performance Optimization of Multiparticle Beam Dynamics Code IMPACT-Z on Nvidia GPGPU", Proceedings of IPAC2016, Busan, Korea , Page 3110-3113

[36] Qian Zhou, Fan Ye, Xiaoge Wang, Yuanyuan Yang, "Automatic Construction of Garage Maps for Future Vehicle Navigation Service", in IEEE ICC 2016

Interests and Hobbies

Interested in trying out all kinds of recipes. Reading books and watching movies are also enjoyable during my spare time. Hiking, walking, taiqi are also my interested exercises.