Yi Guo

Contact Information

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Rice University
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Research Interests

Runtime, Multi-core Programming, Compiler Optimizations

Education

Rice University, Houston, Texas USA

Ph.D. Candidate, Computer Science, December 2008

- Dissertation: "Scalable and Locality-Aware Work-Stealing Schedulers for Multi-Core Processors"
- Advisor: Vivek Sarkar

M.S., Computer Science, May 2007

- GPA: 4.07/4
- Thesis: "On Accelerating the Searches for Compilation Sequences in an Adaptive Compiler"
- Advisor: Keith D. Cooper, Devika Subramanian

Fudan University, Shanghai, China

B.S., Computer Science and Engineering, GPA 3.81/4, July, 2004

Research Experience

Rice University, Houston, TX

Habanero Multicore Software Project **Jan. 2008 - present**

Design and Implemented the work-stealing runtime for Habanero-Java programming language. Design the Habanero-C work-stealing runtime.

Adaptive Compilation **May. 2005 - May. 2007**

We study the interaction between compiler transformations and use searching techniques to search for an efficient compilation sequence. The compiler we work on is a low-level research compiler implemented in C.

Fudan University, Shanghai China

Accelerate Multimedia Applications Using SIMD Instructions **Sep. 2002 -May, 2004**

We use pattern matching to detect vectorization opportunities in the source code of multimedia programs, and rewrite the source program with SIMD intrinsic functions. We achieved an average 10% speedup after vectorization.

Work Experience

IBM Center for Advanced Studies, Toronto, ON, Canada

Visiting Student, Jun 2009 - Aug 2009

Design and implemented work-stealing runtime for IBM XL Compiler to support OpenMP 3.0.

Sun Microsystems Labs, Menlo Park, CA

Graduate Research Intern, May 2008 - Aug 2008

Designed and implemented a new level of intermediate representation in the compiler of the Maxine Java Virtual Machine. Build a path-sensitive data-flow analysis driver on that level.

Microsoft Cooperation, Redmond, WA

Software Developer Intern May 2007 - Aug 2007

Work in the popfly group. Popfly is a web-based IDE for non-professionals to build web-applications by composition of function blocks.

Honors and Awards

Tietze Fellowship, 2006-2007
George R. Brown Fellowship, 2005-2006
Rice University Doctoral Fellowship, 2004
Intel Fellowship, 2002
7th Place, Bronze Medal of ACM Programming Contest (ICPC) World Finals, Honolulu, HI, 2002
1st Place, Winner of ACM Programming Contest (ICPC) Asia Region, Hakodate, Japan, 2001
Gold Medal, International Olympiad in Informations, Beijing, China, 2000

Publications

Yi Guo, Jisheng Zhao, Vincent Cave and Vivek Sarkar "SLAW: a Scalable Locality-aware Adaptive Work-stealing Scheduler." *24th IEEE International Parallel and Distributed Processing Symposium (IPDPS), Apr 2010 (to appear)*

Yonghong Yan, Jisheng Zhao, Yi Guo, Vivek Sarkar "Hierarchical Place Trees: A Portable Abstraction for Task Parallelism and Data Movement." *22nd Workshops on Languages and Compilers for Parallel Computing (LCPC), Oct 2009*

Yi Guo, Rajkishore Barik, Raghavan Raman and Vivek Sarkar "Work-First and Help-First Scheduling Policies for Async-Finish Task Parallelism." *23rd IEEE International Parallel and Distributed Processing Symposium (IPDPS), May 2009*

Yi Guo and Vivek Sarkar "Scalable and Locality-Aware Work-Stealing Schedulers for Multi-Core Systems." *Technical Committee on Parallel Processing (TCPP) PhD Forum 2009*

Yi Guo "On Accelerating the Searches for Compilation Sequences in an Adaptive Compiler." *Master Thesis, Rice University 2007*

Yi Guo, Devika Subramanian and Keith D. Cooper "An Effective Local Search Algorithm for an Adaptive Compiler." *1st Workshop on Statistical and Machine learning approaches to ARchitectures and compilaTion (SMART) 2007*

Wei-hua Jiang, Chao Mei, Yi Guo, Jia-hua Zhu, Bin-yu Zang and Chuan-qi Zhu "Vectorization for Real-Life Multimedia Applications on Processors Multimedia Extensions." *Journal of Computers(Chinese), Vol. 8, 2005*