

Qiang Wu

Email: jqwu at cs dot princeton dot edu

Education

Princeton University **Ph.D., Computer Science, June 2006**

- Thesis: Architectural and Compiler techniques for Power and Performance Management in High-performance Processors
- Advisors: Professors Douglas Clark and Margaret Martonosi

Princeton University **M.A. Computer Science, May 2003**

U. of Sydney, Australia **M.S.E.E, with high distinction, May 1998**

Professional Experience

Infrastructure Software Engineer, Facebook Inc,	2009 – Present
Staff Engineer, Graphics Processor Group, AMD Inc,	2006 – 2009
Research Intern, Programming Systems Lab, Intel	2002, 2004
Research Assistant, Princeton University	2001 – 2006
Research Associate, Center for Adv. Studies, University of Sydney	1999 – 2001

Interested Areas

Computer software, large-scale computing, reliability, data center power and energy management, computer architecture and compilers, power-efficient systems.

Honors and Awards

Best Paper Award, 38th Intl. Symp. on Microarchitecture (MICRO-38), 2005
Intel Foundation Graduate Fellowship, 2005-2006
Top Picks paper selected by *IEEE Micro*, 2005
Princeton University Fellowship, 2001-2002
Australian Postgraduate Award, 1998

Publications

Journal papers

- [1] Q. Wu, M. Martonosi, D. W. Clark, V.J. Reddi, D. Connors, Y. Wu, J. Lee, and D. Brooks , “Dynamic Compiler Driven Control for Microprocessor Energy and Performance”, in *IEEE Micro Special Issue: Top Picks from Computer Architecture Conferences*, Vol. 26, No. 1, February, 2006.
- [2] Q. Wu, P. Juang, M. Martonosi, L-S Peh, and D. W. Clark, “Formal Control Techniques for Power-Performance Management”, in *IEEE Micro Special Issue on Energy-Efficient Design*, Vol. 25, No. 5, September, 2005, pp. 52-63.
- [3] Q. Wu, D. Popovic, D.J. Hill, and C. Parker, “System Security Enhancement Against Voltage Collapse via Coordinated Control”, *IEEE Transactions on Power Systems*, Vol. 16, No. 1, February. 2001, pp. 127-135.

- [4] Q. Wu, D. Popovic, and D.J. Hill, "Avoiding Sustained Oscillations in Power Systems with Tap Changing Transformers", *International Journal of Electrical Power and Energy Systems*, Vol. 22, No. 8, August, 2000, pp. 597-605.

Conference papers

- [5] Q. Wu, V.J. Reddi, Y. Wu, J. Lee, D. Connors, D. Brooks, M. Martonosi, and D. W. Clark, "A Dynamic Compilation Framework for Controlling Microprocessor Energy and Performance", in *Proceedings of the 38th IEEE/ACM International Symposium on Microarchitecture (MICRO-38)*, Barcelona, Spain, November 12-16, 2005, pp. 271-282. [Winner Best Paper Award]
- [6] P. Juang, Q. Wu, L-S Peh, M. Martonosi, and D.W. Clark, "Formal Coordinated, Distributed Energy Management of Chip Multiprocessors", *Proceedings of 2005 International Symposium on Low Power Electronics and Design (ISLPED-05)*, San Diego, CA, August, 2005
- [7] Q. Wu, P. Juang, M. Martonosi, and D. W. Clark, "Voltage and Frequency Control with Adaptive Reaction Time in Multiple-Clock-Domain Processors " in *Proceedings of the 11th International Symposium on High-Performance Computer Architecture (HPCA-11)*, San Francisco, CA, February 12-16, 2005, pp. 178-189.
- [8] Q. Wu, P. Juang, M. Martonosi, and D. W. Clark, "Formal Online Methods for Voltage/Frequency Control in Multiple Clock Domain Microprocessors " in *Proceedings of the 11th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS-XI)*, Boston, MA, October 10-13, 2004, pp. 248-259.
- [9] Q. Wu, A. Pyatakov, A. Spiridonov, E. Raman, D.W. Clark and D. I. August, "Exposing Memory Access Regularities Using Object-Relative Memory Profiling" in *Proceedings of the Second International Symposium on Code Generation and Optimization (CGO-04)*, Palo Alto, CA, March 20-24, 2004, pp. 315-324.
- [10] Q. Wu, D. Popovic, D.J. Hill, and M. Larsson "Tap Changing Dynamic Models for Power System Voltage Behavior Analysis", *Proceedings of 13th Power System Computation Conference (PSCC-13)*, Trondheim, Norway, July 1999, pp. 525-532.

Conference Presentations _____

- Conference Presentations: CGO-04, ASPLOS-04, HPCA-05, MICRO-05, 2004 – 2005
- "Adaptively-controlled Execution for Power and Performance", presented at Semiconductor Research Corporation (SRC) Annual Review in System Design in Irvine, CA, April 2005
- "Dynamic Compiler Based DVFS: Experimental Methods and Opportunities", presented at Programming Systems Lab, Intel Corporation in Santa Clara, September 2004

Computer Programming Skills and Experience _____

Mostly, use C/C++ (10+ year experience) to develop work; use Perl scripts to manage workload and tasks; use Matlab/Excel to visualize results; use Latex/word to write reports and papers

Programmed in both Linux and MS-VS (e.g. .Net 2003 and 2005) environment

Limited Java, X86 assembly, Verilog, ML experience from coursework and class projects

Biographical Information

- Citizenship: Australian
- Language: Mandarin (native), English (fluent)

References

Douglas Clark, Professor

Department of Computer Science, Princeton University, Princeton, NJ 08544

Email: doug at cs.princeton.edu Phone: 609-258-6314

Margaret Martonosi, Professor,

Department of Electrical Engineering, Princeton University, Princeton, NJ 08544

Email: mrm at princeton.edu Phone: 609-258-1912

Kai Li, Professor

Department of Computer Science, Princeton University, Princeton, NJ 08544

Email: li at cs.princeton.edu Phone: 609-258-4637

Youfeng Wu, Manager

Programming Systems Lab, Intel Corporation, Santa Clara, CA 95054

Email: youfeng.wu at intel.com Phone: 408-765-9415

David Brooks, Associate Professor

Division of Eng. and Applied Science, Harvard University, Cambridge, MA 02138

Email: dbrooks at eecs.harvard.edu Phone: 617-495-3989