

# Todd C. Mowry

## CURRICULUM VITAE

March, 2008

### Contact Information

Computer Science Department  
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### Education

Ph.D. in Electrical Engineering, Stanford University, March 1994.

- Thesis: “Tolerating Latency Through Software-Controlled Data Prefetching.”
- Supervisors: Anoop Gupta and Monica Lam.

M.S. in Electrical Engineering, Stanford University, June 1989.

B.S. in Electrical Engineering with Highest Distinction, University of Virginia, May 1988.

### Academic Appointments

*Starting in 7/08:* Professor, Computer Science Department (with a courtesy appointment in the Department of Electrical and Computer Engineering), Carnegie Mellon University.

*7/97–6/08:* Associate Professor, Computer Science Department (with a courtesy appointment in the Department of Electrical and Computer Engineering), Carnegie Mellon University.

*12/93–6/97:* Assistant Professor, Department of Electrical and Computer Engineering (with a courtesy appointment in the Department of Computer Science), University of Toronto.

*9/89–11/93:* Graduate Research Assistant, Stanford University.

### Honors and Awards

- Second Place, Audience Choice Award for Best Demo (for Claytronics) at the Intel Developers Forum, 2006. (Chosen among several hundred demos of Intel’s latest research and technology.)
- SCS Doctoral Dissertation Award co-won by Angela Demke Brown (Ph.D. advisee), 2005.
- Most Thought-Provoking Idea Award (for Claytronics), the Wild and Crazy Idea Session IV held at ASPLOS-XI, 2004.
- Best Paper Award, the 20th International Conference on Data Engineering (ICDE), 2004.
- SCS Doctoral Dissertation Award co-won by J. Gregory Steffan (Ph.D. advisee), 2003.
- Runner-Up for Best Paper Award, the ACM SIGMOD Conference, 2001.
- Alfred P. Sloan Research Fellow, 1999-2001.
- TR100 Award (awarded by MIT’s Technology Review magazine to the top 100 most promising young innovators in science and technology), 1999.
- Best Paper Award, the Second Symposium on Operating Systems Design and Implementation, 1996.
- IBM Faculty Development Awards, 1996, 1997, 1998, 2000, 2001, 2002, 2003.
- Arthur Samuel Thesis Award (awarded by the Stanford Computer Science department to the top two Ph.D. theses in a given year), 1994.

## Doctoral Thesis Supervision

Student	Thesis Title (or Topic)	Graduation Date
Chi-Keung Luk	Optimizing the Cache Performance of Non-Numeric Applications. ( <i>Nominated for the ACM Thesis Award by the University of Toronto Department of Computer Science.</i> )	January, 2000
J. Gregory Steffan	Hardware Support for Thread-Level Speculation. ( <i>Co-winner of the SCS Doctoral Dissertation Award.</i> )	April, 2003
Antonia Zhai	Compiler Optimization of Value Communication for Thread-Level Speculation.	January, 2005
Angela Demke Brown	Explicit Compiler-based Memory Management for Out-of-core Applications. ( <i>Co-winner of the SCS Doctoral Dissertation Award.</i> )	May, 2005
Christopher Colohan	Applying Thread-Level Speculation to Database Transactions.	November, 2005
Shimin Chen	Redesigning Database Systems in Light of CPU Cache Prefetching.	December, 2005
Amit Manjhi	Increasing the Scalability of Dynamic Web Applications	March, 2008
Olatunji Ruwase	Compiler Optimization for Log-Based Architectures	May, 2012 ( <i>expected</i> )
Theodoros Strigkos ( <i>ECE student</i> )	Log-Based Architectures and Parallelism	May, 2012 ( <i>expected</i> )
Evangelos Vlachos ( <i>ECE student</i> )	Hardware Support for Log-Based Architectures	May, 2012 ( <i>expected</i> )
Michelle Goodstein	Algorithms for Log-Based Architectures	May, 2012 ( <i>expected</i> )

## Masters Thesis Supervision

*NOTE: these students were all at the University of Toronto.*

Student	Thesis Title (or Topic)	Graduation Date
Matthew Lam	Multicast Support in Mesh Networks	July, 1996
Robert Ho	Doacross Parallelism in Single-Chip Multiprocessors	September, 1996
Angela Demke	Compiler-Inserted I/O Prefetching for Out-of-Core Applications	January, 1997
Gregory Steffan	The Potential for Thread-Level Data Speculation	January, 1997
Charles Chan	Prefetching in Networks of Workstations	February, 1998
Adley Lo	Multithreading in Networks of Workstations	February, 1998
Antonia Zhai	A Compiler Algorithm for Scheduling Non-Numeric Code with Explicitly Forwarded Data on a Speculative Multiprocessor	September, 1998
Daniel Sladic	Exploiting Fast Communication in Single-Chip Multiprocessing	September, 1998
Sherwyn Ramkissoon	Software-Controlled Multithreading	January, 1999

## Teaching Experience

### Graduate Courses Taught

Course Number	Title	Year	Enrollment	Instructor Rating
15-740	Computer Architecture	2007	26	4.33/5.00
		2001	31	4.48/5.00
		2000	28	4.46/5.00
		1999	26	4.58/5.00
15-745	Optimizing Compilers for Modern Architectures	2003	13	4.64/5.00
		2003	23	4.74/5.00
		2001	14	4.56/5.00
15-740	Basic Computer Systems	1998	27	4.47/5.00
ECE1755S	Parallel Computer Architecture	1997	6	N/A
		1996	12	N/A
		1995	15	N/A
		1994	9	N/A
ECE1760S	HW/SW Tradeoffs in High-Performance Computing	1996	8	N/A
		1995	12	N/A
ECE1753F	Optimizing Compilers	1994	20	N/A

(NOTE: The University of Toronto does not collect course or instructor ratings for graduate courses.)

### Undergraduate Courses Taught

Course Number	Title	Year	Enrollment	Instructor Rating
15-213	Intro to Computer Systems	2007	147	4.06/5.00
		2000	140	3.91/5.00
		1999	144	4.34/5.00
15-418/ 15-495	Parallel Computer Architecture and Programming	2004	16	3.92/5.00
		2002	23	4.80/5.00
		2002	14	4.56/5.00
15-347	Computer Architecture	1998	116	3.85/5.00
CSC372S	Microprocessor Software	1997	54	6.0/7.0
		1996	13	6.2/7.0
		1995	32	5.5/7.0
ECE540F	Optimizing Compilers	1996	34	5.68/7.0
		1995	35	5.44/7.0

## Publications

### Refereed Journal Articles

- Antonia Zhai, J. Gregory Steffan, Christopher B. Colohan, and Todd C. Mowry. Compiler and Hardware Support for Reducing the Synchronization of Speculative Threads. To appear in *ACM Transactions on Architecture and Code Optimization*, 2008.
- Shimin Chen, Anastassia Ailamaki, Phillip B. Gibbons, and Todd C. Mowry. Improving Hash Join Performance through Prefetching. In *ACM Transactions on Database Systems*, 32(3):1-32, September 2007.
- Christopher B. Colohan, Anastasia Ailamaki, J. Gregory Steffan, and Todd C. Mowry. CMP Support for Large and Dependent Speculative Threads. In *IEEE Transactions on Parallel and Distributed Systems*, 18(8):1041-1054, August 2007.
- J. Gregory Steffan, Christopher B. Colohan, Antonia Zhai and Todd C. Mowry. The STAMPede Approach to Thread-Level Speculation. In *ACM Transactions on Computer Systems*, 23(3):253-300, August 2005.
- Seth Copen Goldstein, Jason Campbell and Todd C. Mowry. Programmable Matter. In *IEEE Computer*, 38(6):99-101, June 2005.
- Angela Demke Brown, Todd C. Mowry and Orran Krieger. Compiler-Based I/O Prefetching for Out-of-Core Applications. In *ACM Transactions on Computer Systems*, 19(2):111-170, May 2001.
- Chi-Keung Luk and Todd C. Mowry. Architectural and Compiler Support for Effective Instruction Prefetching: A Cooperative Approach. In *ACM Transactions on Computer Systems*, 19(1):71-109, February 2001.
- Todd C. Mowry and Chi-Keung Luk. Understanding Why Correlation Profiling Improves the Predictability of Data Cache Misses in Nonnumeric Applications. In *IEEE Transactions on Computers*, 49(4), April 2000.
- Chi-Keung Luk and Todd C. Mowry. Automatic Compiler-Inserted Prefetching for Pointer-Based Applications. In *IEEE Transactions on Computers*, 48(2), February 1999.
- Mark Horowitz, Margaret Martonosi, Todd C. Mowry, and Michael D. Smith. Informing Memory Operations: Memory Performance Feedback Mechanisms and their Applications. In *ACM Transactions on Computer Systems*, 16(2):170-205, May 1998.
- Todd C. Mowry. Tolerating Latency in Multiprocessors through Compiler-Inserted Prefetching. In *ACM Transactions on Computer Systems*, 16(1):55-92, February 1998.
- Todd Mowry and Anoop Gupta. Tolerating Latency Through Software-Controlled Prefetching in Shared-Memory Multiprocessors. In *Journal of Parallel and Distributed Computing*, 12(2):87-106, 1991.

### Refereed Conference Papers

- Shimin Chen, Michael Kozuch, Theodoros Strigkos, Babak Falsafi, Phillip B. Gibbons, Todd C. Mowry, Michael Ryan, Olatunji Ruwase, and Evangelos Vlachos. Flexible Hardware Acceleration for Instruction-Grain Program Monitoring. To appear in *Proceedings of the 35th Annual International Symposium on Computer Architecture (ISCA)*, June 2008.
- Brian Kirby, Burak Aksak, James Hoberg, Todd C. Mowry, and Padmanabhan Pillai. A Modular Robotic System Using Magnetic Force Effectors. To appear in *Proceedings of the IEEE/RSJ 2007 International Conference on Intelligent Robots and Systems (IROS)*, October 2007.
- Michael Ashley-Rollman, Seth Goldstein, Peter Lee, Todd C. Mowry, and Padmanabhan Pillai. Meld: A Declarative Approach to Programming Ensembles. To appear in *Proceedings of the*

*IEEE/RSJ 2007 International Conference on Intelligent Robots and Systems (IROS)*, October 2007.

- Amit Manjhi, Phillip B. Gibbons, Anastassia Ailamaki, Charles Garrod, Bruce M. Maggs, Todd C. Mowry, Christopher Olston, Anthony Tomasic, and Haifeng Yu. Invalidation Clues for Database Scalability Services. In *Proceedings of the 2007 IEEE 23rd International Conference on Data Engineering (ICDE)*, pages 316-325, April 2007.
- Michael De Rosa, Peter Lee, Seth Goldstein, Jason Campbell, Padmanabhan Pillai, and Todd C. Mowry. Distributed Watchpoints: Debugging Large Multi-Robot Systems. In *Proceedings of the 2007 IEEE International Conference on Robotics and Automation (ICRA)*, pages 3723-3729, April 2007.
- Benjamin D. Rister, Jason Campbell, Padmanabhan Pillai, and Todd C. Mowry. Integrated Debugging of Large Modular Robot Ensembles. In *Proceedings of the 2007 IEEE International Conference on Robotics and Automation (ICRA)*, pages 2227-2234, April 2007.
- Shimin Chen, Phillip Gibbons, Michael Kozuch, Vasileios Liaskovitis, Anastassia Ailamaki, Guy Blelloch, Babak Falsafi, Limor Fix, Nikos Hardavellas, Todd C. Mowry and Chris Wilkerson. Scheduling Threads for Constructive Cache Sharing on CMPs. In *Proceedings of 18th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)*, pages 105-115, June 2007.
- Shimin Chen, Babak Falsafi, Phillip B. Gibbons, Michael Kozuch, Todd C. Mowry, Radu Teodorescu, Anastassia Ailamaki, Limor Fix, Gregory R. Ganger, Bin Lin, and Steven W. Schlosser. Log-Based Architectures for General-Purpose Monitoring of Deployed Code. In *Proceedings of the Workshop on Architectural and System Support for Improving Software Dependability (ASID), held with ASPLOS XII*, October 2006.
- Christopher B. Colohan, Anastassia Ailamaki, J. Gregory Steffan, and Todd C. Mowry. Tolerating Dependences Between Large Speculative Threads Via Sub-Threads. In *Proceedings of the 33rd Annual International Symposium on Computer Architecture (ISCA)*, pages 216-226, June 2006.
- Amit Manjhi, Anastassia Ailamaki, Bruce M. Maggs, Todd C. Mowry, Christopher Olston, and Anthony Tomasic. Simultaneous Scalability and Security for Data-Intensive Web Applications. In *Proceedings of the 2006 ACM SIGMOD International Conference on Management of Data*, pages 241-252, June 2006.
- Vasileios Liaskovitis, Shimin Chen, Phillip B. Gibbons, Anastassia Ailamaki, Guy E. Blelloch, Babak Falsafi, Limor Fix, Nikos Hardavellas, Michael Kozuch, Todd C. Mowry, and Chris Wilkerson. Parallel Depth First vs. Work Stealing Schedulers on CMP Architectures. In *Proceedings of 18th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)*, August 2006.
- Brian Kirby, Jason Campbell, Burak Aksak, Padmanabhan Pillai, James F. Hoburg, Todd C. Mowry, and Seth Copen Goldstein. Catoms: Moving Robots without Moving Parts. In *Proceedings of the Twentieth National Conference on Artificial Intelligence (AAAI)*, pages 1730-1731, July 2005.
- Christopher Olston, Amit Manjhi, Charles Garrod, Anastassia Ailamaki, Bruce M. Maggs, and Todd C. Mowry. A Scalability Service for Dynamic Web Applications. In *Proceedings of the Second Biennial Conference on Innovative Data Systems Research (CIDR)*, pages 56-69, January 2005.
- Christopher B. Colohan, Anastassia Ailamaki, J. Gregory Steffan, and Todd C. Mowry. Optimistic Intra-Transaction Parallelism on Chip Multiprocessors. In *Proceedings of the 31st International Conference on Very Large Data Bases (VLDB)*, pages 73-84, September 2005.
- Shimin Chen, Anastassia Ailamaki, Phillip B. Gibbons, and Todd C. Mowry. Inspector Joins. In *Proceedings of the 31st International Conference on Very Large Data Bases (VLDB)*, pages 817-828, September 2005.

- Antonia Zhai, Christopher B. Colohan, J. Gregory Steffan, and Todd C. Mowry. Compiler Optimization of Memory-Resident Value Communication Between Speculative Threads. In *Proceedings of the 2007 International Symposium on Code Generation and Optimization (CGO)*, pages 39-52, March 2004.
- Shimin Chen, Anastassia Ailamaki, Phillip B. Gibbons and Todd C. Mowry. Improving Hash Join Performance through Prefetching. In *Proceedings of the 20th International Conference on Data Engineering (ICDE)*, pages 116-127, April 2004. (*This paper received the Best Paper Award.*)
- Antonia Zhai, Christopher B. Colohan, J. Gregory Steffan and Todd C. Mowry. Compiler Optimization of Scalar Value Communication Between Speculative Threads. In *Proceedings of the Tenth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS-X)*, October 2002.
- Shimin Chen, Philip B. Gibbons, Todd C. Mowry and Gary Valentin. Fractal Prefetching B+-Trees: Optimizing Both Cache and Disk Performance. In *Proceedings of the 2002 ACM SIGMOD International Conference on Management of Data*, June 2002.
- J. Gregory Steffan, Christopher B. Colohan, Antonia Zhai and Todd C. Mowry. Improving Value Communication for Thread-Level Speculation. In *Proceedings of the Eighth International Symposium on High-Performance Computer Architecture (HPCA)*, February 2002.
- Shimin Chen, Philip B. Gibbons and Todd C. Mowry. Improving Index Performance through Prefetching. In *Proceedings of the 2001 ACM SIGMOD International Conference on Management of Data*, pages 235-246, May 2001. (*This paper received the Runner-Up for Best Paper Award.*)
- Angela Demke Brown and Todd C. Mowry. Taming the Memory Hogs: Using Compiler-Inserted Releases to Manage Physical Memory Intelligently. In *Proceedings of the Fourth Symposium on Operating Systems Design and Implementation (OSDI 2000)*, pages 31-44, October 2000.
- J. Gregory Steffan, Christopher B. Colohan, Antonia Zhai and Todd C. Mowry. A Scalable Approach to Thread- Level Speculation. In *Proceedings of the 27th Annual International Symposium on Computer Architecture*, pages 1-12, June 2000.
- Todd C. Mowry and Sherwyn R. Ramkissoon. Software-Controlled Multithreading Using Informing Memory Operations. In *Proceedings of the Sixth International Symposium on High-Performance Computer Architecture*, January, 2000.
- Chi-Keung Luk and Todd C. Mowry. Memory Forwarding: Enabling Aggressive Layout Optimizations by Guaranteeing the Safety of Data Relocation. In *Proceedings of the 26th Annual International Symposium on Computer Architecture (ISCA)*, pages 88-99, May 1999.
- Chi-Keung Luk and Todd C. Mowry. Cooperative Prefetching: Compiler and Hardware Support for Effective Instruction Prefetching in Modern Microprocessors. In *Proceedings of the 31st Annual International Symposium on Microarchitecture*, pages 182-193, December 1998.
- J. Gregory Steffan and Todd C. Mowry. The Potential for Using Thread-Level Data Speculation to Facilitate Automatic Parallelization. In *Proceedings of the Fourth International Symposium on High-Performance Computer Architecture*, pages 2-13, February, 1998.
- Charles Chan, Adley Lo, and Todd C. Mowry. Comparative Evaluation of Latency Tolerance Techniques for Software Distributed Shared Memory. In *Proceedings of the Fourth International Symposium on High-Performance Computer Architecture*, pages 300-311, February, 1998.
- Todd C. Mowry and Chi-Keung Luk. Predicting Data Cache Misses in Non-Numeric Applications Through Correlation Profiling. In *Proceedings of the 30th Annual International Symposium on Microarchitecture*, pages 314-320, December 1997.

- Todd C. Mowry, Angela K. Demke and Orran Krieger. Automatic Compiler-Inserted I/O Prefetching for Out-of-Core Applications. In *Proceedings of the Second Symposium on Operating Systems Design and Implementation (OSDI '96)*, pages 3-17, October 1996. (*This paper received the Best Paper Award.*)
- Chi-Keung Luk and Todd C. Mowry. Compiler-Based Prefetching for Recursive Data Structures. In *Proceedings of the Seventh International Conference on Architectural Support for Programming Languages and Operating Systems*, pages 222-233, October 1996.
- Edouard Bugnion, Jennifer M. Anderson, Todd C. Mowry, Mendel Rosenblum and Monica S. Lam. Compiler-Directed Page Coloring for Multiprocessors. In *Proceedings of the Seventh International Conference on Architectural Support for Programming Languages and Operating Systems*, pages 244-255, October 1996.
- Mark Horowitz, Margaret Martonosi, Todd C. Mowry, and Michael D. Smith. Informing Memory Operations: Providing Memory Performance Feedback in Modern Processors. In *Proceedings of the 23rd Annual International Symposium on Computer Architecture*, pages 260-270, May 1996.
- Todd C. Mowry, Monica S. Lam and Anoop Gupta. Design and Evaluation of a Compiler Algorithm for Prefetching. In *Proceedings of the Fifth International Conference on Architectural Support for Programming Languages and Operating Systems*, pages 62-73, October 1992.
- Anoop Gupta, John Hennessy, Kourosh Gharachorloo, Todd Mowry, and Wolf-Dietrich Weber. Comparative Evaluation of Latency Reducing and Tolerating Techniques. In *Proceedings of the 18th Annual International Symposium on Computer Architecture*, pages 254-263, May 1991.
- Anoop Gupta, Wolf-Dietrich Weber, and Todd Mowry. Reducing Memory and Traffic Requirements for Scalable Directory-Based Cache Coherence Schemes. In *Proceedings of International Conference on Parallel Processing*, pages 312-321, August 1990.

### Technical Reports

- Amit Manjhi, Anastassia Ailamaki, Bruce M. Maggs, Todd C. Mowry, Christopher Olston, and Anthony Tomasic. Simultaneous Scalability and Security for Data-Intensive Web Applications. Carnegie Mellon University Technical Report CMU-CS-06-116, March 2006.
- Charles Garrod, Amit Manjhi, Anastassia Ailamaki, Phil Gibbons, Bruce Maggs, Todd Mowry, Christopher Olston, and Anthony Tomasic. Scalable Consistency Management for Web Database Caches. Carnegie Mellon University Technical Report CMU-CS-06-128, July 2006.
- Amit Manjhi, Phillip B. Gibbons, Anastassia Ailamaki, Charles Garrod, Bruce M. Maggs, Todd C. Mowry, Christopher Olston, Anthony Tomasic, and Haifeng Yu. Invalidation Clues for Database Scalability Services. Carnegie Mellon University Technical Report CMU-CS-06-139, July 2006.
- Christopher B. Colohan, Anastassia Ailamaki, J. Gregory Steffan, and Todd C. Mowry. Supporting Large Speculative Threads for Databases and Beyond. Carnegie Mellon University Technical Report CMU-CS-05-109, July 2005.
- Christopher B. Colohan, Anastassia Ailamaki, J. Gregory Steffan, and Todd C. Mowry. Optimistic Intra-Transaction Parallelism on Chip Multiprocessors. Carnegie Mellon University Technical Report CMU-CS-05-118, March 2005.
- Shimin Chen, Anastassia Ailamaki, Phillip B. Gibbons, and Todd C. Mowry. Improving Hash Join Performance through Prefetching. Carnegie Mellon University Technical Report CMU-CS-03-157, October 2003.
- Shimin Chen, Phillip B. Gibbons, Todd C. Mowry, and Gary Valentin. Fractal Prefetching B+-Trees: Optimizing Both Cache and Disk Performance. Carnegie Mellon University Technical Report CMU-CS-02-115, March 2002.

- Spiros Papadimitriou and Todd C. Mowry. Exploring Thread-Level Speculation in Software: The Effects of Memory Access Tracking Granularity. Carnegie Mellon University Technical Report CMU-CS-01-145, July 2001.
- Shimin Chen, Phillip B. Gibbons and Todd C. Mowry. Improving Index Performance through Prefetching. Carnegie Mellon University Technical Report CMU-CS-00-177, December 2000.
- J. Gregory Steffan, Christopher B. Colohan and Todd C. Mowry. Extending Cache Coherence to Support Thread-Level Data Speculation on a Single Chip and Beyond. Carnegie Mellon University Technical Report CMU-CS-98-171, December 1998.
- Todd C. Mowry and Sherwyn R. Ramkissoon. Software-Controlled Multithreading Using Informing Memory Operations. Carnegie Mellon University Technical Report CMU-CS-98-169, October 1998.
- Chi-Keung Luk and Todd C. Mowry. Compiler and Hardware Support for Automatic Instruction Prefetching: A Cooperative Approach. Carnegie Mellon University Technical Report CMU-CS-98-140, June 1998.
- J. Gregory Steffan, Christopher B. Colohan and Todd C. Mowry. Architectural Support for Thread-Level Data Speculation. Carnegie Mellon University Technical Report CMU-CS-97-188, November 1997.
- Todd C. Mowry and Chi-Keung Luk. Predicting Data Cache Misses in Non-Numeric Applications Through Correlation Profiling. Carnegie Mellon University Technical Report CMU-CS-97-175, September 1997.
- J. Gregory Steffan and Todd C. Mowry. The Potential for Thread-Level Data Speculation in Tightly-Coupled Multiprocessors. University of Toronto Technical Report CSRI-TR-350, February 1997.
- Chi-Keung Luk and Todd C. Mowry. Predicting Data Cache Misses in Non-Numeric Applications Through Correlation Profiling. University of Toronto Technical Report CSRI-TR-359, February, 1997.
- Mark Horowitz, Margaret Martonosi, Todd C. Mowry, and Michael D. Smith. Informing Loads: Enabling Software to Observe and React to Memory Behavior. Stanford University Technical Report CSL-TR-95-673, July 1995.
- Todd C. Mowry. Tolerating Latency Through Software-Controlled Data Prefetching. Technical Report CSL-TR-94-628, Stanford University, June 1994.

#### **Patents Held**

- Todd C. Mowry. U.S. Patent 7,127,586: Prefetching hints. Issued October, 2006.
- Shimin Chen, Phillip B. Gibbons, and Todd C. Mowry. U.S. Patent 6,772,179: System and method for improving index performance through prefetching. Issued August, 2004.
- Todd C. Mowry. U.S. Patent 6,240,488: Prefetching hints. Issued May, 2001.
- Todd C. Mowry. U.S. Patent 5,732,242: Consistently specifying way destinations through prefetching hints. Issued March, 1998.
- Todd C. Mowry and Earl A. Killian. U.S. Patent 5,696,958: Method and apparatus for reducing delays following the execution of a branch instruction in an instruction pipeline. Issued December, 1997.

#### **Distinguished Lectures**

2/7/08: “*Pario: the Next Step Beyond Audio and Video*”, University of Toronto, Department of Electrical and Computer Engineering Distinguished Lecture Series.

## **Professional Activities**

### **Professional Societies**

- Member of the Institute of Electrical and Electronics Engineers (IEEE)
- Member of the Association of Computing Machinery (ACM)

### **Industrial Employment**

*5/04–6/07:* Intel Corporation, Pittsburgh, Pennsylvania: Director of the Intel Research Pittsburgh Lab.

*6/89–11/93:* Silicon Graphics, Inc., Mountain View, California (formerly MIPS Computer Systems, Sunnyvale California): Computer Architect (part-time).

### **Consulting**

*7/07–Present:* Intel Corporation, Pittsburgh, Pennsylvania: Research Advisor.

*8/96–4/04:* SandCraft, Inc., Santa Clara, California: Member of the Technical Advisory Board.

*1/96–4/04:* IBM, Toronto: Visiting Scientist.

*12/93–12/96:* Silicon Graphics, Inc., Mountain View, California: Computer Architecture Consultant.

## University Committee Work and Other Service Activities

### Committee Work

- Faculty Hiring Committees:
  - Computer Science Department: 2008.
  - Computer Systems Area: 2000, 2001, 2002, 2003, 2004.
- Chair of the Computer Science Department Head Selection Committee, 2007.
- CSD Ph.D. Admissions Committee, 2001, 2002, 2003.
- School of Computer Science Council, 2001-2004.
- Carnegie Mellon University Faculty Senate (Presidential Appointee), 2000-2001.
- Computer Systems Area Advocate, 2000-2004.
- Doctoral Review Committee, 1998-2004.
- ACM Thesis Award Nomination Committee, 1999.

### Journal, Conference and Workshop Organization

- Associate Editor, ACM Transactions on Computer Systems, 2001-present.
- Co-Program Chair (with John Shen) of the International Conference on Parallel Architectures and Compilation Techniques (PACT), 2001.
- Member of the ASPLOS program committee, 2000, 2004.
- Member of the ISCA program committee, 1998 and 2000.
- Member of the International Symposium on Microarchitecture program committee, 1998.
- Member of the Workshop on Architectural and System Support for Improving Software Dependability (ASID) program committee, 2005.
- Member of the Workshop on Memory System Performance (MSP) program committee (in conjunction with PLDI), 2002 and 2004.
- Member of the IBM CASCON program committee, 1995, 1996, 1997.
- Member of the First SUIF Workshop Program Committee, 1996.
- Organized the CASCON 97 workshop on Compiler Optimization, 1997.
- Initiated and organized the 1st Toronto / Rochester Workshop on Shared-Memory Multiprocessors, 1994.

### Miscellaneous

- Organizing the Computer Systems faculty lunches, 1999-present.
- Organized the Computer Systems seminar series in the CMU CS department, 1998-2001.