

CURRICULUM VITAE

MARY LOU SOFFA

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RESEARCH INTERESTS

Optimizing compilers, software engineering, program analysis, instruction level parallelism, program debugging and testing tools, software systems for the multicore

EDUCATION

Ph.D. in Computer Science, University of Pittsburgh
M.S. in Mathematics, Ohio State University
B.S. in Mathematics, University of Pittsburgh, magna cum laude, Phi Beta Kappa

ACADEMIC APPOINTMENTS

Owen R. Cheatham Professor of Sciences, Department of Computer Science, University of Virginia, 2004-present
Chair, Department of Computer Science, University of Virginia, 2004-2012
Professor, Department of Computer Science, University of Pittsburgh, 1990-2004
Graduate Dean in Arts and Sciences, University of Pittsburgh, 1991-1996
Visiting Associate Professor, Department of Electrical Engineering and Computer Science, University of California at Berkeley, January 1987-December 1987
Associate Professor, Department of Computer Science, University of Pittsburgh, 1983-1990
Assistant Professor, Department of Computer Science, University of Pittsburgh, 1977-1983

HONORS (Selected)

Distinguished Alumni, 50th Anniversary of Computer Science, University of Pittsburgh
IEEE TCSE Software Engineering Women in Science and Engineering Leadership Award, 2015
ACM SIGSOFT Influential Educator Award, 2014
Ken Kennedy Award, October 2012
IEEE Fellow, 2012
Anita Borg Technical Leadership Award, 2011
ACM SIGSOFT 2010 Distinguished Service Award, 2010
Named in Top 25 Software Engineer Scholars in World, July, CACM, 2007
Nico Habermann Award, June 2006
ACM Fellow, 1999
Distinguished paper, "A Family of Test Adequacy Criteria for Database-Driven Applications," (co-authored with Greg Kapfhammer), ACM SIGSOFT Foundations of Software Engineering

(FSE), 2003

Most Influential papers of 20 years in ACM/SIGPLAN Programming Languages Design and Implementation (PLDI), “Complete Removal of Redundant Expressions,” (co-authored with R. Bodik and R. Gupta), 40 out of 550 papers selected and appeared in a PLDI Anniversary issue, 2003

ACM/SIGPLAN Distinguished Service Award, June 2003

Girl Scout Woman of Distinction for 2003

Dissertation Adviser of Rastislav Bodik, winner of ACM SIGPLAN Award for the Best Dissertation in Programming Languages, 2000

ACM Fellow, 2013

Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring, White House, Washington, D.C., 1999

Teaching Award, Department of Computer Science, University of Pittsburgh, 1999 and 2001

Faculty Honor Roll, University of Pittsburgh, 1999

NSF Visiting Professorship for Women, University of California at Berkeley, 1987

KEYNOTE/DISTINGUISHED LECTURES

Distinguished Speaker, University of Michigan, 2016

Distinguished Speaker, University of British Columbia, 2015

Distinguished Speaker, Institute of Information Science, Academia Sinica Taiwan, 2014

Distinguished Speaker, University of Waterloo, 2013

Distinguished Speaker, Rice University, 2013

Distinguished Speaker, University of Texas, Austin, 2013

Keynote Speaker, SESENA workshop at ICSE, 2013

Distinguished Speaker, College of William and Mary, 2011

Keynote Speaker, International Conference on Software Testing, Verification and Validation, Paris, France, 2010

Distinguished Speaker, Triangle Computer Science, 2010

Deans Distinguished Lecture, University of Texas at San Antonio, April 2009

Distinguished Speaker, ISR, University of California, Irvine, 2009

Keynote Speaker, REU, University of Alabama, 2009

Keynote Speaker, 11th IEEE High Assurance Systems Engineering Symposium (HASE 2008)

WISE Distinguished Speaker, University of Delaware, 2008

Distinguished Speaker, University of Illinois at Chicago, 2007

Keynote Speaker, Mid-Atlantic Student Workshop on Programming Languages and Systems, April 2005

Keynote Speaker, Fifth International Conference on Quality Software, Melbourne, Australia, 2005

Keynote Speaker, NSF ITWF and ITR PIs Conference, October 2004

Distinguished Speaker, Stony Brook University, 2004

Distinguished Speaker, University of Nebraska, Lincoln, 2004

Distinguished Speaker, University of Illinois, Urbana-Champaign 2004

Keynote Speaker, Compiler Construction Conference, Barcelona, March 2004

Distinguished Speaker, IBM Lecturer Series, Notre Dame, Department of Computer Science,
November 2003
Distinguished Speaker, University of Maryland, 2002
Distinguished Speaker, University of Michigan, 2001
Distinguished Speaker, IBM T.J. Watson Research Center, 2001
Keynote Speaker, Model Checking and Program Analysis Seminar, Munich, Germany, February
2000

JOURNAL PUBLICATIONS

- Tanima Dey, Wei Wang, Jack Davidson, and Mary Lou Soffa, "ReSense: Mapping Dynamic Workloads of Co-located Multi-threaded Applications using Resource Sensitivity," **ACM Transactions on Architecture and Code Optimizations**, also presented at HiPEAC, High Performance and Embedded Architecture and Compilation Conference, Jan, 2014.
- Jim Cohoon, Joanne Cohoon, Mary Lou Soffa, "Educating Diverse Computing Students at the University of Virginia," **Computer**, 2013.
- Apala Guha, Kim Hazelwood and Mary Lou Soffa, "Memory Optimization of Dynamic Binary Translators for Embedded Systems," **Transactions in Architecture and Code Optimization**, Vol. 9, Issue 3, September, 2012
- Yuqiang Huang, Bruce Childers and Mary Lou Soffa, "Detecting Bugs in Register Allocation," **ACM Transactions on Programming Languages and Systems** 32(4): (2010).
- Sandra Katz, David Allbritton, John Aronis, Christine Wilson and Mary Lou Soffa, "Gender, achievement, and persistence in an undergraduate computer science program," **ACM SIGMIS Database** 37(4): 42-57 (2006).
- Min Zhao, Bruce Childers, and Mary Lou Soffa, "An Approach Toward Profit-Driven Optimization," **ACM Transactions on Architecture and Code Optimization** 3(3): 231-262 (2006).
- Barbara Ryder, Mary Lou Soffa, and Margaret Burnett, "The Impact of Software Engineering Research on Modern Programming Languages," **ACM Trans. Soft. Eng. Methodology**. 14(4): 431-477 (2005).
- Naveen Kumar, Bruce R. Childers, Dan Williams, Jack W. Davidson and Mary Lou Soffa, "Compile-time Planning for Overhead Reduction in Software Dynamic Translators," **International Journal on Parallel Programming**, 33(2-3): 103-114 (2005).
- Sandra Katz, David Allbritton, John Aronis, Christine Wilson and Mary Lou Soffa, "Gender and Race in Predicting Achievement in Computer Science," **Special Issue on Women and Minorities in Information Technology, IEEE Technology and Society**, 22(3): 20-27 (2003).
- Barbara G. Ryder and Mary Lou Soffa, "Influences on the Design of Exception Handling ACM SIGSOFT Project on the Impact of Software Engineering Research on Programming Language Design," **ACM SIGSOFT Software Engineering Notes**, 28(4): 29-35 (2003).
- Angela M. Balcaita, Doris L. Carver and Mary Lou Soffa, "Shortchanging the Future of Information Technology: The Untapped Resource," **Inroads, Special Issue on Women and Computing. SIGCSE Bulletin** 34(2): 32-25 (2002).
- Atif Memon, Martha E. Pollack and Mary Lou Soffa, "Hierarchical GUI Test-Case Generation Using Automated Planning," **IEEE Trans. Software Eng.** 27(2): 144-155 (2001).

- Deborah Whitfield and Mary Lou Soffa, "An Approach for Exploring Code Improving Transformations," **ACM Trans. Program. Lang. Syst.** 19(6): 1053-1084 (1997).
- Evelyn Duesterwald, Rajiv Gupta and Mary Lou Soffa, "A Practical Framework for Demand-Driven Interprocedural Data Flow Analysis," **ACM Trans. Program. Lang. Syst.** 19(6): 992-1030 (1997).
- Rajiv Gupta, Mary Lou Soffa and John Howard, "Hybrid Slicing: Integrating Dynamic Information with Static Analysis," **ACM Trans. Software Eng. Methodol.** 6(4): 370-397 (1997).
- Rajiv Gupta, Mary Jean Harrold and Mary Lou Soffa, "Program Slicing-Based Regression Testing Techniques," **Softw. Test., Verif. Reliab.** 6(2): 83-111 (1996).
- Chyi-Ren Dow, Shi-Kuo Chang and Mary Lou Soffa, "Visual Transformation Specifications," in **Software Visualization**, (Peter Eades and Kang Zhang, Eds.), World Scientific Pub. Co., 1996, 141-162.
- Robert Kramer, Rajiv Gupta and Mary Lou Soffa, "The Combining DAG: A Technique for Parallel Data Flow Analysis," **IEEE Trans. Parallel Distrib. Syst.** 5(8): 805-813 (1994).
- Brian A. Malloy, Errol L. Lloyd and Mary Lou Soffa, "Scheduling DAGS for Asynchronous Multiprocessor Execution," **IEEE Trans. Parallel Distrib. Syst.** 5(5): 498-508 (1994).
- Rajiv Gupta, Mary Lou Soffa and Denise Ombres, "Efficient Register Allocation Via Coloring Using Clique Separators," **ACM Trans. Program. Lang. Syst.** 16(3): 370-386 (1994).
- Deborah Whitfield and Mary Lou Soffa, "The Design and Implementation of Genesis," **Softw. Pract. Exper.** 24(3): 307-325 (1994).
- Mary Jean Harrold and Mary Lou Soffa, "Efficient Computation of Interprocedural Definition-Use Chains," **ACM Trans. Program. Lang. Syst.** 16(2): 175-204 (1994).
- Mary Jean Harrold, Rajiv Gupta and Mary Lou Soffa, "A Methodology for Controlling the Size of a Test Suite," **ACM Trans. Softw. Eng. Method.** 2(3): 270-285 (1993).
- Rajiv Gupta and Mary Lou Soffa, "Employing Static Information in the Generation of Test Cases," **Softw. Test. Verif. Reliab.** 3(1): 29-48 (1993).
- Lori L. Pollock and Mary Lou Soffa, "Incremental Global Reoptimizations of Programs," **ACM Trans. Program. Lang. Syst.** 14(2): 173-200 (1992).
- Mary Jean Harrold and Mary Lou Soffa, "Selecting and Using Data for Integration Testing," **IEEE Software** 8(2): 58-65 (1991).
- Rajiv Gupta and Mary Lou Soffa, "Compile-time Techniques for Improving Scalar Access Performance in Parallel Memories," **IEEE Trans. Parallel Distrib. Syst.** 2(2): 138-148 (1991).
- Mary Bivens and Mary Lou Soffa, "Incremental Register Allocation," **Softw. Pract. Exper.** 20(10): 1015-1047 (1990).
- Rajiv Gupta and Mary Lou Soffa, "Region Scheduling: An Approach for Detecting and Redistributing Parallelism," **IEEE Trans. Software Eng.** 16(4): 421-431 (1990).
- Brian A. Malloy and Mary Lou Soffa, "Conversion of Simulation Processes to Pascal Constructs," **Softw. Pract. Exper.** 20(2): 191-207 (1990).
- Rajiv Gupta and Mary Lou Soffa, "Compilation Techniques for a Reconfigurable LIW Architecture," **The Journal of Supercomputing**, Vol. 3(4): 271-304 (1989).
- Lori L. Pollock and Mary Lou Soffa, "An Incremental Version of Iterative Data Flow Analysis," **IEEE Trans. Softw. Eng.** 15(12): 1537-1549 (1989).
- Errol L. Lloyd, Mary Lou Soffa and Ching-Chy Wang, "On Locating Minimum Feedback Vertex

- Sets,” **Journal of Computer and System Sciences**, 37(3): 292-311 (1988).
- Jean R. Stephenson Blair, Phil Kearns and Mary Lou Soffa, “An Optimistic Implementation of the Stack-Heap,” **The Journal of Systems and Software** 5(3): 193-202 (1985).
- Donna J. Quammen, John P. Kearns and Mary Lou Soffa, “Efficient Storage Management for Temporary Values in Concurrent Programming Languages,” **IEEE Trans. Computers** 34(9): 832-840 (1985).
- Ching-Chy Wang, Errol L. Lloyd and Mary Lou Soffa, “Feedback vertex sets and cyclically reducible graphs,” **J. ACM** 32(2): 296-313 (1985).
- Ching-Chy Wang and Mary Lou Soffa, “Eager Reclamation,” **IEEE Trans. Software Eng.** 11(4): 437-439 (1985).
- Fernando Lafora and Mary Lou Soffa, “Reverse Execution in Debugging a Generalized Control Regime,” **Comput. Lang.** 9(3/4): 183-192 (1984).
- Lawrence A. Coon, John P. Kearns and Mary Lou Soffa, “The Contraction of Control Implementations,” **Comput. Lang.** 8(1): 15-25 (1983).
- John P. Kearns and Mary Lou Soffa, “The Implementation of Retention in a Coroutine Environment,” **Acta Inf.** 19: 221-233 (1983).
- Mary Lou Soffa, “Control Discipline Necessity: Making the Languages as General as the Implementation,” **BIT** 22(2): 169-182 (1982).
- John P. Kearns, Carol J. Meier and Mary Lou Soffa, “The Performance Evaluation of Control Implementations,” **IEEE Trans. Softw. Eng.** 8(2): 89-96 (1982).
- Gary Lindstrom and Mary Lou Soffa, “Referencing and Retention in Block Structured Coroutines,” **ACM Trans. Program. Lang. Syst.** 3(3): 263-292 (1981).
- W. Pauli and Mary Lou Soffa, “Coroutine Behavior and Implementation,” **Softw. Pract. Exper.** 10(3): 189-204 (1980).

REFEREED CONFERENCE/WORKSHOP PUBLICATIONS

- Wei Wang, Jack Davidson, and Mary Lou Soffa, “Predicting the Memory Bandwidth and Optimal Core Allocations for Multi-threaded Applications on Large-scale NUMA Machines, HPCA, 2016
- Wei Wang, Tanima Dey, Jack Davidson, Mary Lou Soffa, DraMon: Predicting Memory Bandwidth Usage of Multi-threaded Programs with High Accuracy and Low Overhead, High Performance Computer Architecture, Feb, 2014
- Tanima Dey, Wei Wang, Jack Davidson, and Mary Lou Soffa, “ReSense: Mapping Dynamic Workloads of Co-located Multi-threaded Applications using Resource Sensitivity,” HiPEAC, High Performance and Embedded Architecture and Compilation, Jan, 2014, **ACM Transactions on Architecture and Code Optimizations, 2014**
- Lingjia Tang, Jason Mars, Wei Wang, Tanima Dey, and Mary Lou Soffa, “ReQoS: Reactive Static/Dynamic Compilation for QoS in Warehouse Scale Computers, ASPLOS, 2013.
- Kristen Walcott-Justice, Jason Mars and Mary Lou Soffa, “THEME: A System for Testing Hardware Monitoring Events, ACM 2012 International Symposium on Software Testing and Analysis, pp. 12-22.
- Lingjia Tang, Jason Mars and Mary Lou Soffa, “Compiling for Niceness: Mitigating Contention for QoS in Warehouse Scale Computers,” ACM/IEEE International Symposium on Code

- Generation and Optimization, *CGO '12, Best paper award*
- Wei Wang, Tanima Dey, Jason Mars, Lingjia Tang, Jack Davidson and Mary Lou Soffa, "Performance Analysis of Thread Mappings with a Holistic View of the Hardware Resources," accepted for *ISPASS '12*
- Jing Yang, Kevin Skadron, Mary Lou Soffa and Kamin Whitehouse, "Potential of Dynamic Binary Parallelization," *Proceedings of the International Workshop on Unique Chips and Systems*, February 2012.
- Jason Mars, Lingjia Tang, Robert Hundt, Kevin Skadron and Mary Lou Soffa, "Bubble-Up: Increasing Utilization in Modern Warehouse Scale Computers via Sensible Co-locations," *ACM/IEEE MICRO* December 2011, *IEEE MICRO Top Pick* 2011.
- Jim Cohoon, Joanne M. Cohoon, and Mary Lou Soffa, "Focusing HS Teachers on Attracting Diverse Students in CS," *41st ASEE/IEEE Frontiers on Education Conference*, October 2011.
- Jonathan Misurda, Bruce R. Childers and Mary Lou Soffa, "Jazz2: A Flexible and Extensible Framework for Structural Testing in a Java VM," *9th International Conference on the Principles and Practice of Programming in Java*, August 2011.
- Wei Le and Mary Lou Soffa, "Generating Analyses for Detecting Faults in Path Segments," *International Symposium on Software Testing and Analysis*, July 2011.
- Lingjia Tang, Jason Mars, Neil Vachharajani, Robert Hundt, Mary Lou Soffa, "The Impact of Memory Subsystem Resource Sharing on Datacenter Applications," *Proceedings of the 37th Annual International Symposium on Computer Architecture (ISCA)*, June, 2011
- Lingjia Tang, Jason Mars and Mary Lou Soffa, "Contentiousness vs. Sensitivity: Improving Contention Aware Runtime Systems on Multicore Architectures," *ACM SIGPLAN International Workshop on Adaptive Self-Tuning Computing Systems for the Exaflop Era (EXADAPT)*, co-located with *PLDI*, June 2011
- Jason Mars and Mary Lou Soffa, "Loaf: A Framework and Infrastructure for Creating Online Adaptive Solutions," *ACM SIGPLAN International Workshop on Adaptive Self-Tuning Computing Systems for the Exaflop Era (EXADAPT)*, co-located with *PLDI*, June 2011
- Wei Le, Jing Yang, Mary Lou Soffa and Kamin Whitehouse, "Lazy Preemption to Enable Path-Based Analysis of Interrupt-Driven Code," *2nd International Workshop on Software Engineering for Sensor Network Applications*, May, 2011
- Mary Lou Soffa, Kristen Walcott, Jason Mars, "Exploiting Hardware Advances for Software Testing and Debugging" *Proceedings of the 33rd ACM/IEEE International Conference on Software Engineering (ICSE) NIER Track*, 2011
- Jing Yang, Kevin Skadron and Kamin Whitehouse, "Feasibility of Dynamic Binary Parallelization," *HotPar*, 2011
- Tanima Dey, Wei Wang, Jack Davidson, Mary Lou Soffa, "Characterizing Multi-threaded Applications based on Shared-Resource Contention," *IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS)*, Austin, Texas, April 2011
- Jason Mars, Lingjia Tang and Mary Lou Soffa, "Directly Characterizing Cross Core Interference Through Contention Synthesis," *International Conference on High Performance Embedded Architectures & Compilers (HiPEAC)*, Heraklion, Greece, January 2011
- Wei Le and Mary Lou Soffa, "Path-Based Fault Correlations," *18th Foundations of Software Engineering (FSE)*, Santa Fe, NM, November 2010
- Apala Guha, Kim Hazelwood and Mary Lou Soffa, "Balancing Memory and Performance

through Software Flushing of Software Code Cache,” *International Conference on Compilers Architecture and Synthesis for Embedded Systems (CASES)*, Scottsdale, AZ, October 2010

Jason Mars, Neil Vachharajani, Robert Hundt and Mary Lou Soffa, “Contention Aware Execution: Online Contention Detection and Response,” *ACM/IEEE International Symposium on Code Generation and Optimization (CGO)*, April 2010, 257-265.

Apala Guha, Kim Hazelwood and Mary Lou Soffa, “DBT Path Selection for Holistic Memory Efficiency and Performance,” *ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments (VEE)*, Pittsburgh, PA, March 2010, 145-156.

Min Zhao, Bruce Childers and Mary Lou Soffa, “A Framework for Exploring Optimization Properties,” *Compiler Conference*, York, United Kingdom, March 2009, 32-47.

Naveen Kumar, Bruce Childers and Mary Lou Soffa, “Transparent Debugging of Dynamically Optimized Code,” *International Symposium on Code Generation and Optimization (CGO)*, Seattle, Washington, March 2009, 275-286.

Apala Guha, Kim Hazelwood and Mary Lou Soffa, “Code Lifetime Based Memory Reduction for Virtual Execution Environments,” *Proceedings of the 6th Workshop on Optimizations for DSP and Embedded Systems (ODES)* Boston, Massachusetts, April 2008.

Jason Mars and Mary Lou Soffa, “Mats: Multicore Adaptive Trace Selection,” *Third Workshop on Software Tools for Multicore Systems (STMCS 2008), collocated with Code Generation and Optimization (CGO)*, April 2008.

Gregory M. Kapfhammer and Mary Lou Soffa, “Database-Aware Test Coverage Monitoring,” *ACM India Software Engineering Conference*, Hyderabad, India, February 2008, 77-86.

Mary Lou Soffa and Evelyn Duesterwald (Eds.): *Sixth International Symposium on Code Generation and Optimization (CGO 2008)*, April 5-9, 2008, Boston, Massachusetts, ACM 2008.

Wei Le and Mary Lou Soffa, “Marple: a demand-driven path-sensitive buffer overflow detector,” *Proceedings of the 16th ACM SIGSOFT International Symposium on Foundations of Software Engineering*, San Diego, California, November 2008, 272-282.

Mary Lou Soffa, “Path Sensitive Analysis for Security Flaws,” *11th Systems Engineering Symposium, (HASE)*, Nanjing, China, 2008, pg. 3.

Adam Smith, Joshua Geiger, Gregory M. Kapfhammer and Mary Lou Soffa, “Test Suite Reduction and Prioritization with Call Trees,” *Proceedings of the IEE/ACM International Conference on Automated Software Engineering*, Atlanta, Georgia, November, 2007, 539-540.

Gregory M. Kapfhammer and Mary Lou Soffa, “Using Coverage Effectiveness to Evaluate Test Suite Prioritizations,” In the *Proceedings of the ACM International Workshop on Empirical Assessment of Software Engineering Languages and Technologies*, Atlanta, Georgia, November 2007

Sara Alspaugh, Kristen R. Walcott, Michael Belanich, Gregory M. Kapfhammer and Mary Lou Soffa, “Efficient Time-Aware Prioritization with Knapsack Solvers,” In the *Proceedings of the ACM International Workshop on Empirical Assessment of Software Engineering Languages and Technologies*, Atlanta, Georgia, November 2007.

Nguyet T.M. Nguyen and Mary Lou Soffa, “Program Representations for Testing Wireless Sensor Network Applications,” *DOSTA 07 Workshop on Domain Specific Approaches to Software Test Automation*, in conjunction with the 6th ESEC/FSE Conference, September 2007, 20-26.

Wei Le and Mary Lou Soffa, “Refining Buffer Overflow Detection via Path Sensitive, Demand Driven Analysis,” *Program Analysis for Software Tools and Engineering (PASTE)*, San Diego, California, June 14, 2007, 63-68.

- Apala Guha, Kim Hazelwood and Mary Lou Soffa, "Reducing Exit Stub Memory Consumption in Code Caches," *International Symposium on High Performance Embedded Architectures and Compilers (HiPEAC)*, Ghent, Belgium, January 2007, 87-101.
- Apala Guha, Jason Hiser, Naveen Kumar, Jing Yang, Min Zhao, Shukang Zhou, Bruce R. Childers, Jack W. Davidson, Kim M. Hazelwood and Mary Lou Soffa, "Virtual Execution Environments: Support and Tools," in *Proceedings of the NSF Next Generation Software Program Workshop* held in conjunction with the *International Parallel and Distributed Processing Symposium*, Long Beach, California, USA. March 2007, pages 1-6.
- Jing Yang, Mary Lou Soffa, Leo Selavo and Kamin Whitehouse, "Clairvoyant: a comprehensive source-level debugger for wireless sensor networks," *The 5th ACM Conference on Embedded Networked Sensor Systems (Sensys)*, Sydney, Australia, November 2007, 189-203.
- Jason D. Hiser, Naveen Kumar, Min Zhao, Shukang Zhou, Bruce R. Childers, Jack W. Davidson, and Mary Lou Soffa, "Techniques and Tools for Dynamic Optimization," *NSF Next Generation Software Workshop, collocated with the International Parallel and Distributed Processing Symposium (NSFNGS '06)*. Rhodes Island, Greece, April 25-29, 2006, 312-320.
- Kristen R. Walcott, Mary Lou Soffa, Gregory M. Kapfhammer, and Robert S. Roos, "Time-Aware Test Suite Prioritization," *ACM SIGNOFF/SIGPLAN International Symposium on Software Testing and Analysis*, Portland, Maine, July 2006, 1-12.
- Yuqiang Huang, Bruce R. Childers, and Mary Lou Soffa, "Catching and Identifying Bugs in Register Allocation," *13th International Static Analysis Symposium*, Seoul, Korea, August 2006, 281-300.
- Jing Yang, Shukang Zhou, and Mary Lou Soffa, "Dimension: An Instrumentation Tool for Virtual Execution Environments," *Second International Conference on Virtual Execution Environments (VEE '06)*, Ottawa, Canada, June 14-16, 2006, 164-174.
- Gregory M. Kapfhammer, Mary Lou Soffa and Daniel Mosse, "Testing in resource constrained execution environments," *ACM/IEEE International Conference on Automated Software Engineering*, Long Beach, California, November 7-11, 2005, 418-422.
- Naveen Kumar, Bruce R. Childers and Mary Lou Soffa, "TDB: A Source-Level Debugger for Dynamically Translated Programs," *ACM SIGPLAN/SIGSOFT Sixth Int'l. Symposium on Automated and Analysis-Driven Debugging (AADEBUG'05)*, Monterey, California, September 19-21, 2005, 123-132.
- Naveen Kumar, Bruce R. Childers and Mary Lou Soffa, "Low Overhead Program Monitoring and Profiling," *ACM SIGPLAN/SIGSOFT Workshop on Program Analysis for Software Tools and Engineering (PASTE'05)*, Lisbon, Portugal, September 5-6, 2005, 28-34.
- Jonathan Misurda, James A. Clause, Juliya L. Reed, P. Gandra, Bruce R. Childers and Mary Lou Soffa, "Jazz: A Tool for Demand-Driven Structural Testing," *14th ETAPS International Conference on Compiler Construction (CC'05)*, Edinburgh, Scotland, April 2005, 242-245.
- Jonathan Misurda, James A. Clause, Juliya L. Reed, P. Gandra, Bruce R. Childers and Mary Lou Soffa, "Demand-Driven Structural Testing with Dynamic Instrumentation," *International Conference on Software Engineering*, St. Louis, May 2005, 156-165.
- Min Zhao, Bruce R. Childers and Mary Lou Soffa, "A Model-based Framework: An Approach for Profit-driven Optimization," *ACM SIGMICRO Int'l. Conference on Code Generation and Optimization (CGO'05)*, San Jose, California, March 2005, 317-327.
- Shukang Zhou, Bruce Childers, and Mary Lou Soffa, "Planning for Code Buffer Management in Distributed Virtual Execution Environments," *ACM/USENIX Virtual Execution Environments Conference (VEE'05)*, Chicago, Illinois, June 2005, 100-109.

- Naveen Kumar, Jonathan Misurda, Bruce R. Childers and Mary Lou Soffa, "Instrumentation in Software Dynamic Translators for Self-Managed Systems," *ACM SIGSOFT Workshop on Self-Managing Systems (WOSS'04) during the ACM SIGSOFT Int'l. Symposium on Foundations of Software Engineering*, 2004, 90-94.
- Kevin Scott, Naveen Kumar, Bruce R. Childers, Jack W. Davidson and Mary Lou Soffa, "Overhead Reduction Techniques for Software Dynamic Translation," *NSF Next Generation Software Workshop*, collocated with *18th International Parallel and Distributed Processing Symposium (IPDPS '04) – Workshop 10*, April 2004, 200a.
- Sandra Katz, David Allbritton, John Aronis, Christine Wilson and Mary Lou Soffa, *Proceedings of the 6th International Conference on Learning Sciences*, Santa Monica, CA 2004.
- Gregory M. Kapfhammer and Mary Lou Soffa, "A Family of Test Adequacy Criteria for Database-Driven Applications," *ACM SIGSOFT Foundations of Software Engineering Conference*, Sept. 2003, selected as a Distinguished Paper, 98-107.
- Min. Zhao, Bruce R. Childers and Mary Lou Soffa, "Predicting the Impact of Optimizations for Embedded Systems," *2003 ACM SIGPLAN Conference on Languages, Compilers, and Tools for Embedded Systems*, San Diego, CA, 1-11, 2003.
- Atif Memon and Mary Lou Soffa, "Regression Testing of GUIs," *ACM SIGSOFT Foundations of Software Engineering Conference*, Sept. 2003, 118-127.
- Mauricio L. Pilla, Amarildo T. da Costa, Felipe M. G. Franca, Bruce R. Childers and Mary Lou Soffa, "The Limits of Speculative Trace Reuse on Deeply Pipelined Processors," *15th Symposium of Computer Architecture and High Performance Computing (SBAC-PAD03)*, Brazil, 36-45.
- Sandra Katz, John Aronis, David Allbritton, Christine Wilson and Mary Lou Soffa, "A Study to Identify Predictors of Achievement in an Introductory Computer Science Course," *Proceedings of SIG Computer Personnel Research Conference '03, 2003*, New York: Association for Computing Machinery, 157-161.
- B. Childers, M. L. Soffa, J. Beaver, L. Ber, K. Cammarata, T. Kane, J. Litman, and J. Misurda, "SoftTest: A Framework for Software Testing of Java Programs," *Eclipse Technology Exchange (eTX) Workshop, held with the ACM SIGPLAN Conf. on Object-Oriented Programming, Systems, Languages, and Applications*, October 27, 2003, 79-83.
- Bruce Childers, Jack W. Davidson and Mary Lou Soffa, "Continuous Compilation: A New Approach to Aggressive and Adaptive Code Transformation," *Proceedings of the International Parallel and Distributed Processing Symposium (IPDPS'03)*, Nice, 2003, 205.
- K. Scott, N. Kumar, S. Verlusamy, B. Childers, J. Davidson and Mary Lou Soffa, "Retargetable and Reconfigurable Software Dynamic Translation," *Conference on Code Generation and Optimization*, San Francisco, CA, March 2003, 36-47.
- Clara Jaramillo, Rajiv Gupta and Mary Lou Soffa, "Debugging and Testing Optimizers through Comparison Checking," *Compiler Optimization Meets Compiler Verification Workshop, joint with ETAPS*, Grenoble, France, April, 2002.
- Alessandro Orso, Mary Jean Harrold, David S. Rosenblum, Gregg Rothermel and Mary Lou Soffa, "Using Component Metacontent to Support the Regression Testing of Component-Based Software," *International Conference on Software Maintenance*, Florence, Italy, November, 2001, 716-725
- Atif Memon, Mary Lou Soffa and Martha E. Pollock, "Coverage Criteria for GUI Testing," *8th European Software Engineering Conference and 9th ACM SIGSOFT Symposium on the Foundations of Software Engineering*, Vienna, Austria, Sept. 2001, 256-276.

- Tarun Nakra, Bruce R. Childers and Mary Lou Soffa, "Width-sensitive Scheduling for Resource Constrained VLIW Processors," *ACM Workshop on Feedback-Directed and Dynamic Optimization (FDDO)*, Monterey, December 2000.
- Atif M. Memon, Martha E. Pollack and Mary Lou Soffa, "Automated Test Oracles for GUIs," *Eighth International Symposium on the Foundations of Software Engineering, (FSE2000)*, San Diego, CA, November 6-10, 2000, 30-39.
- Neelam Gupta, Aditya Mathur and Mary Lou Soffa, "Generating Test Data for Branch Coverage," *15th IEEE International Conference on Automated Software Engineering (ASE'2000)*, Grenoble, France, September 2000, 219-228.
- Clara Jaramillo, Rajiv Gupta and Mary Lou Soffa, "FULLDOC: A Full Reporting Debugger for Optimized Code," *International Static Analysis Symposium, LNCS, Springer Verlag*, Santa Barbara, CA, June-July 2000, 240-259.
- Atif M. Memon, Martha E. Pollack, and Mary Lou Soffa, "A Planning-Based Approach to GUI Testing," *13th International Software/Internet Quality Week*, San Francisco, CA, May 2000.
- Atif M. Memon, Martha Pollack and Mary Lou Soffa, "Plan Generation for GUI Testing," *Fifth International Conference on Artificial Intelligence Planning and Scheduling*, Brackenridge, Co. April 14-19, 2000, 226-235.
- Neelam Gupta, Aditya Mathur and Mary Lou Soffa, "UNA Based Iterative Test Data Generation and its Evaluation," *The IEEE Automated Software Engineering Conference (ASE)*, Cocoa Beach, FL., October 1999.
- Clara Jaramillo, Rajiv Gupta and Mary Lou Soffa, "Comparison Checking: An Approach to Avoid Debugging of Optimized Code," *The Joint 7th European Software Engineering Conference (ESEC) and the ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE)*, Toulouse, France, September 1999, 268-284.
- Atif Memon, Martha Pollack and Mary Lou Soffa, "Using a Goal-driven Approach to Generate Test Cases for GUIs," *ACM/IEEE International Conference on Software Engineering (ICSE)*, Los Angeles, May 1999, 257-266. (Selected as a best paper).
- Rastislav Bodik, Rajiv Gupta and Mary Lou Soffa, "Load-Reuse Analysis: Design and Evaluation," *ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*, Atlanta, Georgia, May 1999, 64-76.
- Tarun Nakra, Rajiv Gupta and Mary Lou Soffa, "Value Prediction in VLIW Machines," *ACM/IEEE 26th International Symposium on Computer Architectures (ISCA)*, Atlanta, Georgia, May 1999, 258-269.
- Tarun Nakra, Rajiv Gupta and Mary Lou Soffa, "Global Context-based Value Prediction," *Proceedings Fifth International Symposium on High Performance Computer Architecture (HPCA)*, January 1999, 4-12.
- Neelam Gupta, Aditya P. Mathur and Mary Lou Soffa, "Automated Test Data Generation Using an Iterative Relaxation Method," *ACM SIGSOFT Foundations of Software Engineering (FSE)*, November 1998, 231-244.
- Clara Jaramillo, Rajiv Gupta and Mary Lou Soffa, "Capturing the Effects of Code Improving Transformations," *Proceedings of International Conference on Parallel Architectures and Compilation Techniques (PACT)*, October 1998, 118-123.
- David A. Berson, Rajiv Gupta and Mary Lou Soffa, "Integrated Instruction Scheduling and Register Allocation Techniques," *International Workshop on Languages and Compilers for Parallel Computing (LCPC)*, Springer Verlag, Chapel Hill, North Carolina, August 1998,

247-262.

- Rastislav Bodik, Rajiv Gupta and Mary Lou Soffa, "Complete Removal of Redundant Expressions," *Proceedings of ACM/SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*, June 1998, 1-15.
- Jodi Tims, Rajiv Gupta and Mary Lou Soffa, "Data flow Analysis Driven Dynamic Data Partitioning," *Fourth Workshop on Languages, Compilers, and Run-time Systems for Scalable Computers*, CMU, Pittsburgh, Pa. May 1998, 75-91.
- Rastislav Bodik, Rajiv Gupta and Mary Lou Soffa, "Refining Data Flow Information through Infeasible Path Detection and Tracing," *Proceeding Sixth European Software Engineering Conference and ACM SIGSOFT Foundations of Software Engineering*, Zurich, LNCS 1301, Springer Verlag, 1997 pages 361-377, 1997.
- Rastislav Bodik, Rajiv Gupta and Mary Lou Soffa, "Interprocedural Conditional Branch Elimination," *ACM/SIGPLAN 1997 Conference on Programming Languages Design and Implementation (PLDI)*, June 1997, 146-158.
- Evelyn Duesterwald, Rajiv Gupta and Mary Lou Soffa, "A Demand-Driven Analyzer for Data Flow Testing at the Integration Level," *International Conference on Software Engineering (ICSE)*, Berlin, Germany, March 1996, 575-584.
- David A. Berson, Pohua P. Chang, Rajiv Gupta and Mary Lou Soffa, "Integrating Program Optimizations and Transformations with the Scheduling of Instruction Level Parallelism," *Ninth Annual Workshop on Languages and Compilers for Parallel Computing*, Santa Jose, California, August 8-10, 1996, 207-221.
- Chyi-Ren Dow, Mary Lou Soffa and Shi-Kuo Chang, "A Unifying Framework for Undoing Code Transformations," *International Computer Symposium (ICS)*, Taiwan, December 1996.
- Rajiv Gupta and Mary Lou Soffa, "Priority Based Data Flow Testing," *IEEE-CS International Conference on Software Maintenance (ICSM)*, Nice, France, October 1995, 348-257.
- Rajiv Gupta and Mary Lou Soffa, "Hybrid Slicing: An Approach for Refining Static Slices using Dynamic Information," *ACM SIGSOFT Third Symposium on the Foundations of Software Engineering*, Washington, DC, October 1995, 29-40. (Selected as a best paper)
- Evelyn Duesterwald, Rajiv Gupta and Mary Lou Soffa, "Interprocedural Data Flow Analysis on Demand," *The 22nd Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL)*, San Francisco, California, January 1995, 37-48.
- David A. Berson, Rajiv Gupta and Mary Lou Soffa, "GURRR: A Global Unified Resource Requirements Representation," *ACM SIGPLAN Workshop on Intermediate Representations*, San Francisco, California, January 1995, 23-34.
- Patricia P. Pineo and Mary Lou Soffa, "A Practical Approach to Single Assignment Code," *Conference on Parallel Architectures and Compiler Technologies (PACT '95)*, Greece, July 1995, 147-158.
- Chyi-Ren Dow, Mary Lou Soffa and S.K. Chang, "An Efficient Technique to Remove Transformations," *IEEE ICPADS 94: 1994 International Conference on Parallel and Distributed Systems*, Hsinchu, Taiwan, December 1994, 392-397
- Chyi-Ren Dow, Shi-Kuo Chang and Mary Lou Soffa, "An Overview of the PIVOT Environment for Program Restructuring," *IEEE 1994 International Computer Symposium*, Hsinchu, Taiwan, December 1994.
- Rajiv Gupta and Mary Lou Soffa, "A Framework for Partial Data Flow Analysis," *IEEE-CS International Conference on Software Maintenance (ICSM)*, Victoria, British Columbia,

September 1994, 4-13.

David A. Berson, Rajiv Gupta and Mary Lou Soffa, "Resource Spackling: A Framework for Integrating Register Allocation in Local and Global Schedulers," *International Conference on Parallel Architectures and Compilation Techniques*, IFIP Transactions A-50, Montreal, Canada, August 1994, 135-146.

Chyi-Ren Dow, Mary Lou Soffa, and S.K. Chang, "Undoing Code Transformations in an Independent Order," *International Conference on Parallel Processing (ICPP)*, Chicago, Illinois, August 1994, 108-115.

Patricia Prather Pineo and Mary Lou Soffa, "A Practical Approach to the Symbolic Debugging of Parallelized Code," *International Conference on Compiler Construction (CC)*, Edinburgh, Scotland, April 1994, 339-356.

Evelyn Duesterwald, Rajiv Gupta and Mary Lou Soffa, "Reducing the Cost of Data Flow Analysis By Congruence Partitioning," *International Conference on Compiler Construction (CC)*, Edinburgh, Scotland, April 1994, 356-373.

Chyi-Ren Dow, Shi-Kuo Chang and Mary Lou Soffa, "Program Visualization for Parallelized Code with the Aid of Visual Transformation Specifications," *Software Automation for Productivity Improvement Series on Software Engineering and Knowledge Engineering*, 1994.

Lori Pollock, Mary Bivens and Mary Lou Soffa, "Debugging Optimized Code Via Tailoring," *ISSTA*, Seattle, Washington, August 1994.

Debbie Whitfield and Mary Lou Soffa, "Investigating Properties of Code Transformations," *International Conference on Parallel Processing*, St. Charles, Illinois, August 1993, 156-160.

Evelyn Duesterwald, Rajiv Gupta and Mary Lou Soffa, "A Practical Data Flow Framework for Array Reference Analysis and its Application in Optimizations," *ACM SIGPLAN'93 Conference on Programming Language Design and Implementation (PLDI)*, Albuquerque, New Mexico, June 1993, 68-77.

David A. Berson, Rajiv Gupta and Mary Lou Soffa, "URSA: A Unified ReSource Allocator for Registers and Functional Units in VLIW Architectures," *Conference on Architectures and Compilation Techniques for Fine and Medium Grain Parallelism*, IFP Transactions A-23, Orlando, Florida, January 1993, 243-254.

Chyi-Ren Dow, Shi-Kuo Chang and Mary Lou Soffa, "A Software System for the Visualization of Parallelizing Programs," *The International Computer Symposium*, Taiwan, December 1992, 768-775.

Brian A. Malloy, Rajiv Gupta and Mary Lou Soffa, "A Shape Matching Approach for Scheduling Fine-Grained Parallelism," *The 25th Annual ACM/IEEE International Symposium on Microarchitecture (MICRO)*, Portland, Oregon, December 1992, 264-267.

Rajiv Gupta, Mary Jean Harrold and Mary Lou Soffa, "An Approach to Regression Testing using Slicing," *IEEE-CS International Conference on Software Maintenance*, Orlando, Florida, November 1992, 299-308.

Chyi-Ren Dow, Shi-Kuo Chang and Mary Lou Soffa, "A Visualization System for Parallelizing Programs," *ACM International Conference on Supercomputing '92*, Minneapolis, November 1992, 194-203.

Tia Watts, Mary Lou Soffa and Rajiv Gupta, "Techniques for Integrating Parallelizing Transformations and Compiler Based Scheduling Methods," *International Conference on Supercomputing'92*, Minneapolis, Minnesota, November 1992, 830-839.

- Evelyn Duesterwald, Rajiv Gupta and Mary Lou Soffa, "Register Pipelining: An Integrated Approach to Register Allocation for Scalar and Subscripted Variables," *International Workshop on Compiler Construction (CC) LNCS 641* Springer Verlag, Paderborn, Germany, October 1992, 192-206.
- Rajiv Gupta and Mary Lou Soffa, "Automatic Generation of a Compact Test Suite," *The Twelfth IFIP World Computer Congress*, Vol. I, Madrid, Spain, September 1992, 237-243.
- Evelyn Duesterwald, Rajiv Gupta and Mary Lou Soffa, "Distributed Slicing and Partial Re-execution for Distributed Programs," *Fifth Workshop on Languages and Compilers for Parallel Computing*, LNCS 757 Springer Verlag, Yale University, New Haven, Connecticut, August 1992, 497-511.
- Brian Malloy, and Errol L. Lloyd and Mary Lou Soffa, "A Fine Grained Approach to Scheduling Asynchronous Multiprocessors," *4th International Conference on Computing and Information*, Toronto, Canada, May 1992, 139-142.
- Chyi-Ren Dow, Shi-Kuo Chang and Mary Lou Soffa, "A Visual Optimization Specification Language," *Advanced Visual Interfaces Workshop*, Rome, Italy, World Scientific Series in Computer Science, Vol. 36, World Scientific Press, May 1992, 289-303.
- Shan Fan Liu and Mary Lou Soffa, "Parallel Task Assignment by Graph Partitioning," *PARLE '92*, Paris, France, June 1992, 965-966.
- Robert Kramer, Rajiv Gupta and Mary Lou Soffa, "The Combining DAG: A Technique for Parallel Data Flow Analysis," *The Sixth International Parallel Processing Symposium (IPPS)*, Beverly Hills, California, March 1992, 652-655.
- Evelyn Duesterwald, Rajiv Gupta and Mary Lou Soffa, "Vigorous Data Flow Testing through Output Influences," *The Second Irvine Software Symposium*, University of California, Irvine, California, March 1992, 131-145.
- Patricia Prather Pineo and Mary Lou Soffa, "The Symbolic Debugging of Code Transformed for Parallel Execution," *ACM/SIGPLAN Debugging Workshop '91*, Albuquerque, New Mexico, November 1991, 23-29.
- Evelyn Duesterwald and Mary Lou Soffa, "Concurrency Analysis in the Presence of Procedures using a Data Flow Framework," *ACM/IEEE Proceedings of Symposium on Testing, Analysis, and Verification*, Victoria, Canada, October 1991, 138-148.
- Ravi Sharma and Mary Lou Soffa, "Parallel Generational Garbage Collection," *Object-Oriented Programming Systems, Languages, and Applications (OOPSLA)*, October 1991, 16-32.
- Deborah Whitfield and Mary Lou Soffa, "Automatic Generation of Global Optimizations," *ACM SIGPLAN '91 Conference on Programming Language Design and Implementation*, Toronto, Canada, June 1991, 120-129.
- Patricia Prather Pineo and Mary Lou Soffa, "Debugging Parallelized Code Using Code Liberation Technique," *ACM SIGPLAN Workshop on Parallel and Distributed Debugging*, Santa Cruz, California, pp. 108-119, May, 1991.
- Ben Heggy and Mary Lou Soffa, "Architectural Support for Register Allocation in the Presence of Aliasing," *ACM International Conference on Supercomputing '90*, pp. 720-729, November 1990, 730-739.
- Mary Jean Harrold, Rajiv Gupta and Mary Lou Soffa, "A Methodology for Controlling the Size of a Test Suite," *IEEE-CS International Conference on Software Maintenance*, San Diego, California, November 1990, 302-310.
- Mary Jean Harrold, Rajiv Gupta and Mary Lou Soffa, "TBM: A Testbed Management Tool," *The*

- Seventh International Conference on Testing Computer Software*, San Francisco, California, June 1990, 47-56.
- Rajiv Gupta, Lori L. Pollock and Mary Lou Soffa, "Parallelizing Data Flow Analysis," *Workshop on Parallel Compilation*, Kingston, Ontario, May 1990.
- Deborah Whitfield and Mary Lou Soffa, "An Approach to Ordering Optimizing Transformations," *Second ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP)*, March 1990, 137-146.
- Mary Jean Harrold and Mary Lou Soffa, "Computation of Interprocedural Definition and Use Dependencies," *IEEE 1990 International Conference on Computer Languages*, March 1990, 297-306.
- Lori Pollock and Mary Lou Soffa, "Incremental Global Optimization for Faster Recompilations," *IEEE 1990 International Conference on Computer Languages*, New Orleans, La., March 1990, 281-290. (Selected as a best paper.)
- Mary Jean Harrold and Mary Lou Soffa, "Interprocedural Data Flow Testing," *ACM Software Testing, Analysis and Verification Symposium*, Key West, Florida, December 1989, 158-167.
- Rajiv Gupta, Mary Lou Soffa, and Tim Steele, "Register Allocation via Clique Separators," *ACM SIGPLAN'89 Conference on Programming Language Design and Implementation (PLDI)*, Portland, Oregon, June 1989, 264-275.
- Mary Jean Harrold and Mary Lou Soffa, "An Incremental Data Flow Testing Tool," *International Conference on Testing Computer Software*, May 1989.
- M. P. Bivens and M. L. Soffa, "Reuse of Compiler Analysis in a Programming Environment," *ACM 1989 Computer Science Conference* February 1989, 368-373.
- Mary Jean Harrold and Mary Lou Soffa, "An Incremental Approach to Unit Testing," *IEEE/ACM Conference on Software Maintenance (ICSM)*, October 1988, 362-367.
- Rajiv Gupta and Mary Lou Soffa, "Compile-time Techniques for Efficient Utilization of Parallel Memories," *ACM SIGPLAN Symposium on Parallel Programming: Experience with Applications, Languages and Systems*, New Haven, July 1988, 235-246.
- Rajiv Gupta and Mary Lou Soffa, "A Matching Approach to Utilizing Fine-Grained Parallelism," *The Twenty-first Annual Hawaii International Conference on System Sciences*, Vol. I, Kona, Hawaii, January 1988, 148-156.
- Lori Pollock and Mary Lou Soffa, "High-Level Debugging with the Aid of an Incremental Optimizers," *Proceedings of Hawaii International Conference on System Sciences*, January 1988, 524-532.
- Rajiv Gupta and Mary Lou Soffa, "A Reconfigurable LIW Architecture," *International Conference on Parallel Processing (ICPP)*, St. Charles, Illinois, August 1987, 893-900.
- M. P. Bivens and Mary Lou Soffa, "Incremental Generation of High-Quality Code," *ACM National Computer Conference*, Chicago, Illinois, June 1987, 189-197.
- Rajiv Gupta and Mary Lou Soffa, "Region Scheduling," *The Second ACM International Conference on Supercomputing*, Vol. III, Santa Clara, May 1987, 141-148.
- Brain Malloy and Mary Lou Soffa, "An Efficient Implementation of SimCal," *International Conference on Modeling and Simulation*, Pittsburgh, Pennsylvania, April 1987.
- Rajiv Gupta and Mary Lou Soffa, "SHAPE: A Highly Adaptable and Parallel System," *ACM Computer Science Conference*, Cincinnati, Ohio, February 1986, 107-114.
- Brian Malloy and Mary Lou Soffa, "SimCal: The Merger of Simula and Pascal," *IEEE Winter Simulation Conference*, February 1986, 397-403.

- Lori Pollock and Mary Lou Soffa, "Incromint - An INCRemental Optimizer for Machine INdependent Transformations," *ACM SoftFair II*, San Francisco, California, December 1985, 162-171.
- Rajiv Gupta and Mary Lou Soffa, "The Efficiency of Storage Management Schemes for Ada Programs," *ACM/SIGAda Ada International Conference*, Paris, May 1985, 164-172. Also published in *Sigplan Notices*, Vol. 20, No. 11, November 1985, 30-38.
- Lori L. Pollock and Mary Lou Soffa, "Incremental Compilation of Locally Optimized Code," *ACM SIGPLAN Principles of Programming Languages (POPL) Symposium*, January 1985, 152-164.
- Ching-Chy Wang, Errol L. Lloyd and Mary Lou Soffa, "Feedback vertex sets in polynomial time - A new class," *Twenty-Second Annual Allerton Conference*, Illinois, October 1984, 291-298.
- John P. Kearns and Mary Lou Soffa, "A Laboratory for Experimental Work in the Efficient Implementation of Concurrent High Level Languages," *Workshop on Real-Time Operating Systems*, Niagara Falls, New York, August 1983. Also appeared in *Real-time Systems Newsletter*, 1984, 46-50.
- L. Cheng, Mary Lou Soffa and Y.H. Yang, "Simulation of an I/O Driven Requirements Language," *6th IEEE COMPSAC*, September 1982, 213-218.
- John P. Kearns and Mary Lou Soffa, "Performance Comparison of Copy-less Coroutine Implementations," *5th IEEE COMPSAC*, 1981, 213-218.
- S. Robinson and Mary Lou Soffa, "An Instructional Tool for Beginning Programming Students," *Eleventh SIGCSE Technical Symposium On Computer Science Education*, 12(1), February 1980.
- M. Lemon, Mary Lou Soffa and G. Lindstrom, "Control Separation in Programming Languages," *1977 Annual ACM Conference*, Washington, D.C., 1977.

GRANTS

- National Science Foundation, SHF: Cloud Mentoring: Guiding Cloud Sers for Cost Performance through Testing and Recommendation, 08/01/2016-07/31/2019
- Google Grant, *Adaptive Scheduling in the Heterogeneous Datacenter*, 2012
- National Science Foundation, "Collaborative Research: *REEmact: A Robust Execution Environment for Fragile Multicore Systems*, Sept., 2008-August, 2012
- National Science Foundation, *Outreach and Pedagogy to Increase Undergraduate Diversity at Engineering Schools*, May, 2008 – April 2011.
- Google Grant, *Contention-Aware Online Adaption*, 2010
- Microsoft, "Testing for Security," 2004-2006
- National Science Foundation, "Adapting Program Code Continuously and Adaptively," (Co-PI: Bruce Childers), September 2003-March, 2006
- National Science Foundation, "Advance: From Associate Professor to Full with Distinguished Professors Leading the Way," (Co-PI: Jane Cunny), September 2003-March 2006, \$250K
- CRAW Graduate Student Cohort, Microsoft \$50K, ACM \$40K, (Co-PI: Jane Cunny), January 2004-January 2006
- National Science Foundation, "Continuous Compilation: A New Approach to Aggressive and Adaptive Code Transformations," (Co-PI: Bruce Childers), September 2002-March, 2004, \$180,000
- IBM Eclipse Project, "SoftTest: An Eclipse Plug-in for Scalable and Flexible Software Testing of Java Programs," November, 2002, \$28,000

National Science Foundation, “*Group Travel Grant for Faculty from Minority Institutions to Attend FSE-10*,” September 2002-September 2003, \$25,000

National Science Foundation, “*Learning Behaviors and Background Characteristics that Promote Retention of Women and Minorities in Undergraduate Computer Science Programs*,” (Co-PI: Sandra Katz), September 2000-December 2003, \$528,167

Commonwealth of Pennsylvania, Link to Learn – “*Increasing the participation of women and minorities in computer science*,” April 2000-March 2002. \$301,530

National Science Foundation, “*Presidential Award for Mentoring*,” September 1999-August, 2001, \$10,000.

National Science Foundation, “*A Framework for Path and Resource Sensitive Optimizations*,” Grant CCR-980859, (Co-PI: Rajiv Gupta), September 1998-August, 2002, \$360,000

National Science Foundation, “*Experimental Software Systems: Experimental Evaluation of Scalable Optimization Techniques*,” Grant EIA-9806525, (Co-PIs: Rajiv Gupta, Lori Pollock, David Whalley), October 1998-August 2002, \$400,000

Hewlett Packard Laboratories, Palo Alto, California, “*Optimizations Techniques for Superscalar/VLIW Architectures*,” (Co-PI: Rajiv Gupta), January 1996-December 1998, \$103,034

Hewlett Packard Laboratories, Palo Alto, California, “*Debugging of Optimized Code*,” (Co-PI: Rajiv Gupta), January 1996-December 1998, \$338,421

National Science Foundation, “*Demand Driven Computation of Partial Data Flow and its Application in Software Engineering*,” Grant CCR-9402226, (Co-PI: Rajiv Gupta), September 1995-May, 1999, \$240,000

National Science Foundation, “*Grant for Faculty at Minority and Women's Colleges and Universities*,” (Co-PI: Barbara Ryder and Edith Schonberg), February 1994-August 1995, \$20,000

National Science Foundation, “*Unifying Framework for Parallelizing Transformations*,” Grant CCR 9109089, July 1991-December 1994, \$283,265

National Science Foundation, “*Fine and Coarse Grain Incremental Compilation*,” CCR-8801104, Optimized Code, May 1988-January 1991, \$162,198

National Science Foundation, Research Instrumentation - *Hypercube*, (Co-PIs: R. Melhem and T. Znati), January 1990-December 1990, \$124,300

National Science Foundation Professorship for Women, “*Incremental Code Optimization and Generation*,” University of California, Berkeley, January 1987-December 1987, \$82,565

National Science Foundation, Grant MCS-8119341, “*Implementation of Concurrency*,” May 1982-June 1987, \$203,945

National Science Foundation, Grant MCS79-06102, “*Control Implementation in Programming Language*,” September 1979-February 1984, \$92,012

National Science Foundation, Computer Science and Computer Engineering Research Equipment, 1982, (Co-PI: P. Kearns), \$60,000

National Science Foundation, Computer Science Department Research Equipment, 1979, \$40,000

INVITED SPEAKER (selected)

IBM Yorktown, 2012

Temple University CIS Department Colloquium Series, Philadelphia 2009

Microsoft Research, Beijing, China, 2006

New Faculty Symposium at ICSE – May, 2006. Title: Mentoring and Advising Graduate Students
Mid-Atlantic Student Workshop on Programming Languages and Systems, 2005

PROFESSIONAL ACTIVITIES

Editorial Boards

ACM Transactions on Software Engineering Methodology, 2003-2009
Computer Languages, 1987-2008
South African Journal of Computing, 1996-present
Journal of Empirical Software Engineering, 2003-2011
International Journal of Parallel Programming, 1995-2003
ACM Transactions on Programming Languages and Systems, 1993-2001
IEEE Transactions on Software Engineering, 1994-2000

Boards and Advisory Committees

ACM Council, 2000 to 2016
ACM Publications Board, 2005 to present
Swedish Research Council Evaluation Board, 2016
Virginia Tech CS Advisory Board, 2006
CMU School of Computer Science Advisory Board, 2005
Computing Research Association (CRA) Board of Directors, elected by CS & E Department
Chairs of Ph.D. granting institutions (mostly); member: 1996-2006; Vice Chair: 1997-
2001
Swedish Research Council, 2000-2005
ACM SIGPLAN Programming Languages Design and Implementation (PLDI) Conference,
2001-2005
NSF Advance Project, Georgia Tech, 2002-2006
Software Tools and Technology Transfer, Springer, 1998-present

Steering Committees

ASPLOS, 2009 to 2012
IEEE/IFIPS International Conference on Parallel Architectures and Compilation Techniques
(PACT), 2001-2003
ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA), 1998-
present
ACM SIGSOFT/SIGPLAN Program Analysis for Software Tools and Engineering (PASTE),
1998-present
ACM/SIGPLAN Programming Languages Design and Implementation Conference (PLDI),
2001-2005

Conference/Program Chair

Conference Chair for ASPLOS, Washington, DC 2009
Conference Chair for IEEE/ACM Code Generation and Optimizations, Boston, 2008
Chair of CRA-W Graduate Cohort Workshop – 200 junior graduate students meet for a
weekend to discuss issues of being a women in a computer science and engineering

department and skills needed to achieve goals, funded by Microsoft and Google
Chair of CRA-W Cohort of Associate Professors, funded by NSF
Co Chair of CRA Workshop for New Chairs, Snowbird Conference, 2006
Program Co-Chair, IEEE TCSE/ACM SIGSOFT International Conference on Software Engineering (ICSE), Shanghai, China, 2006
Chair, Emerging Technologies: Can Optimization Technology Meet the Demands? Dagstuhl Workshop, 2003
Chair, Doctoral Workshop, IEEE TCSE/ACM SIGSOFT International Conference on Software Engineering, 2001 and 2003
Conference Chair, ACM SIGSOFT Foundations of Software Engineering Conference (FSE) Sept. 2002
Program Chair, ACM/SIGPLAN Programming Languages Design and Implementation Conference (PLDI), June 2001
Program Chair, IEEE/IFIPS International Conference on Parallel Architectures and Compilation Techniques (PACT), October 2000
Chair, Recruitment and Retention of Women and Minorities Panel, CRA Snowbird Conference, July 2000
Chair, Mentoring Senior Faculty for Career Options Panel, CRA Workshop on Careers for Women in Computer Science and Engineering, May 1999
Conference Chair, ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA), March 1998
Conference Co-Chair, ACM SIGPLAN Programming Languages Design and Implementation, June 1994

Program Committee Member (since 1990)

International Symposium on Microarchitecture, 2016
SIGPLAN/SIGOPS International Conference on Virtual Execution Environments, 2016
SIGPLAN Conference on Code Generation and Optimization, 2015
ACM/IEEE Super Computing, 2014
Foundations of Software Engineering, Tutorial Committee, 2014
Regression Testing Workshop, 2012
ACM Foundations of Software Engineering, 2012
PACT, 2011, 2012
SIGPLAN Code Generation and Optimization, 2011
Workshop on Software Engineering for Sensor Network Applications, 2011
International Conference on Software Testing, 2010, 2011
Static Analysis Symposium, 2010
ACM SIGPLAN Programming Language Design and Implementation, 2009, 2010
Computer Conference, 2009
The 2007 International Conference for High Performance Computing and Communications (SC07), Reno, Nevada, 2006
Sixth International Conference on Aspect-Oriented Software Development, Vancouver, Canada, 2007
Virtual Execution Environments, San Diego, 2007

Sixth International Symposium on Automated and Analysis-Driven Debugging (AADEBUG 2005)

Virtual Execution Environments, 2005

IEEE TCSE/ACM SIGSOFT International Conference on Software Engineering (ICSE), 2005

ACM SIGARCH/SIGOPS/SIGPLAN, International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2004

Static Analysis Symposium (SAS), Verona, Italy, May 2004

Second Technology Exchange Workshop, held with ETAPS 2004

Second Value-Prediction and Value-Based Optimization Workshop, held with ASPLOS 2004

ACM SIGPLAN/SIGACT Principles of Programming Languages (POPL), 2004

IEEE TCSE/ACM SIGSOFT International Conference on Software Engineering (ICSE), 2004

ACM SIGPLAN, Conference on Languages, Compilers and Tools for Embedded Systems, LCTES, 2003

Static Analysis Symposium (SAS), San Diego, California, 2003

Compiler Optimization meets Compiler Verification (COCV), ETAPS, 2003

ACM SIGPLAN International Symposium on Code Generation and Optimization (CGO), 2003

IEEE/IFIPS International Conference on Parallel Architectures and Compilation Techniques (PACT), October 2002

Second Workshop on Compilers and Operating Systems for Low Power (COLP01), 2001

ACM SIGPLAN Conference on Programming Languages Design and Implementation (PLDI), June 2001

Static Analysis Symposium (SAS), September 2001

IEEE TCSE/ACM SIGSOFT International Conference on Software Engineering May 2001

ACM SIGSOFT International Conference on Foundation of Software Engineering (FSE), November 2000

ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA), August 2000

Static Analysis Symposium (SAS'99), September 1999

IEEE/IFIPS International Conference on Parallel Architectures and Compilation Techniques (PACT), October 1999

Static Analysis Symposium (SAS'98), September 1998

IEEE International Conference on Parallel and Distributed Computing and Systems (PDCS'98), October 1998

Grace Hopper Conference, September 1997

IEEE International Conference on Distributed Computing Systems, 1996

IEEE/IFIPS Fourth International Conference on Parallel Architectures and Compilation Techniques (PACT'96), 1996

IEEE International Symposium on Microarchitectures (MICRO), 1995

IEEE TCSE/ACM SIGSOFT International Conference on Software Engineering, 1994

International Workshop on Automated and Algorithmic Debugging, 1993, 1994, 1996

ACM SIGARCH/SIGOPS/SIGPLAN, Architectural Support for Programming Languages and Operating Systems (ASPLOS), 1992 and 1994

ACM SIGPLAN/SIGACT Symposium on Principles of Programming Languages (POPL),
1992
Second Conference on Parallel and Distributed Computing, 1990

Member/Officer/Co-Chair

CRA-E, 2013 – 2015
ACM Council, 2008-20016
ACM Publications Board, 2006 – present
Organizing Team, National Center for Women in Information Technology (NCWIT)
Organizing Team of Grace Hopper Conference, San Diego, October 2006
Computer Research Association (CRA) Committee on Status of Women in CSE, Co-chair,
1999-2002, member 1996-present
CRA Committee on Government Affairs, 1998-2000
ACM SIG Board, Council Representative, 2000-2002
ACM SIG Board, Member-at-Large, 1998-2000
ACM/SIGPLAN Chair, 1997-1999
ACM/SIGPLAN Executive Committee, 1991-2001
ACM/SIGPLAN Vice Chair for Conferences, 1995-1997
ACM/SIGPLAN Treasurer, 1991-1995
ACM/SIGPLAN Professional Activities Committee (PAC), 1993-1995
ACM/SIGSOFT Member-at-Large, 1993-1997
Panel member in CRA Workshop for Women's Careers in Computer Science and
Engineering, February 1996 and May 1996
Expert adviser for faculty position, University of Linkoping, Sweden, 1997-98
OOPSLA Doctoral Symposium Committee, 1996
Advisory Committee, Department of Computer Science, University of Virginia, 1993- 1995
Distinguished Visitor Program, University of Montana, April 1993
ACM, ACM/SIGPLAN, ACM/SIGSOFT, IEEE, IEEE Computer Society

Ph.D. STUDENTS – advisor/co advisor

Graduated

Wei Wang, Addressing Professor Over-Provisioning on Large Scale Multi-Core Platforms,
2015, Post doc, University of Virginia
Tanima Dey, ReSense: A Unified Framework for Improving Performance and Reliability in
Multicore Architectures, 2013, Research Scientist, Intel
Jing Yang, *Trace-Based Dynamic Binary Parallelization*, August 2012, Research Scientist,
Citadel, Inc.
Kristen Walcott-Justice, *Testing in a Resource-Constrained Environment*, 2012 Assistant
Professor, University of Colorado at Colorado Springs
Lingjia Tang, *Mitigating Resource Contention in Warehouse-Scale Computers*, Assistant
Professor, University of Michigan, 2012
Jason Mars, *Rethinking the Architecture of Warehouse-Scale Computers*, Assistant Professor,
University of Michigan, 2012
Wei Le, *Towards A Practical, Path-Based Framework for Detecting and Diagnosing Faults*,

December 2010, Assistant Professor, Rochester Institute of Technology.

Apala Guha, *Memory Optimization of Dynamic Binary Translators for Embedded Systems*, August 2010, Intel, Santa Clara

Greg Kapfhammer, *Testing Applications Using Databases*, August 2008, Associate Professor, Allegheny College

Naveen Kumar, *Debugging Adaptive Code*, August 2008, Intel

Min Zhao, *Profit Driven Optimization*, August 2007, HP Labs

Atif Memon, *A Framework for Testing Graphical User Interfaces*, July 2001, Associate Professor, University of Maryland.

Tarun Nakra, *A Framework for Value Prediction in VLIW*, June 2001, Research Scientist, IBM Research

Clara Jaramillo, *Source Level Debugging Techniques and Tools of Optimized Code*, August 2000; Assistant Professor, Chatham College (first job)

Rastislav Bodik, *Code Optimizations for Fine-Grained Architectures*, December 1999, Recipient of 2000 SIGPLAN Dissertation Award, Associate Professor, University of California at Berkeley

Neelam Gupta: *Automated Test Data Generation using Relaxation Methods*, August 1999, Assistant Professor, University of Arizona

Jodi Tims, *Automatic Generation of Data Distributions for Distributed Memory Machines*, August 1998, Department Chair, St. Francis College

Tia Watts, *Integrating Parallelizing Transformations and Compiler-based Scheduling Methods*, December 1997, Associate Professor, Indiana University of Pennsylvania

David Berson, *Integrating Instruction Scheduling, Register Allocation, and Program Transformations for Fine-Grained Architectures*, November 1996, Senior Scientist, Motorola/Starcore

Evelyn Duesterwald, *A Demand Driven Approach for Efficient Interprocedural Data Flow Analysis*, May 1996, Research Scientist, IBM T.J. Watson Research Center

Chy-Ren Dow, *A Visualization System for Transformed Parallelized Programs*, August 1994, Associate Professor, Feng-Chia University, Taiwan

Pat Pineo, *Value Tracking in Code Transformed for Parallelism*, April 1993, Professor, Edinboro University, Pennsylvania

Deborah Whitfield, *A Unifying Framework for Optimizing Transformations*, August 1991, Professor, Slippery Rock College

Brian Malloy, *A Fine-Grained Approach to Scheduling Asynchronous Execution on Multiprocessors*, April, 1991 Associate Professor, Clemson University

Ravi Sharma, *Data Partitioning: An Approach to Parallel Storage Reclamation*, 1990, AT&T

Mary Jean Harrold, *An Approach to Incremental Testing*, 1988, Professor, Georgia Tech

Mary Bivens, *Generation of High-Quality Target Code*, August 1987, Professor, Allegheny College

Rajiv Gupta, *Design of a Highly Parallel System*, 1987, Professor, University of California, Riverside

Lori Pollock, *An Approach to Incremental Compilation of Optimized Code*, April 1986, Associate Professor, University of Delaware

George Logothetis, *On the Automatic Generation of Error-Repairing LL- and LR-based parsers*, April 1983, AT&T

Ching-Chy Wang, *An Axiomatic Approach to Control Description and Implementation*,
August 1983, CEO, Leverage Design Acceleration Corporation
Fernando Lafora-Garcia, *The Design and Implementation of Debugging Systems for
Languages with Advanced Control Structures*, August 1982, DEC Corporation, Spain

External Member Ph.D. committees

Peng Liu, Hong Kong University, 2014
Manos Renieris, Brown University, 2006
David Lacey, Oxford University, 2003
Bruno Blanchet, Ecole Polytechnique, Paris France, 2000
Nahid Shahmehri, University of Linkoping, Sweden, 1991, first woman PH.D. in Sweden

M.S. STUDENTS

Adviser on 70 M.S. students' projects

CONSULTING

Zymark
Corporation Mellon Institute - Carnegie Mellon
University Bell Laboratories
Westinghouse
Airbrake Company
Westinghouse Electric Corporation

UNIVERSITY/DEPARTMENT ACTIVITIES (SELECTED)

University Activities

University of Virginia
SEAS P & T Committee, 2016
SEAS Research Advisory Committee Search Committee, Stephenson Chair in Data
Science, 2016
Director UVA Academic Search Portal,
Charge/NSF Advance Program, 2012-2016
Provost Promotion and Tenure Committee, 2013-2106
Search Committee, SEAS Associate Dean for Research and Graduate Programs, 2014
Search Committee, SEAS Associate Dean for Development, 2010
BACS Committee, 2009

University of Pittsburgh
Chancellor's Committee on Diversity, 2000-2004
Faculty Sponsor and helped organize: Organization of Women in Science (OWIS), 1997-2004
University of Pittsburgh Board of Trustee's Committee on Diversity, 2001-2003
Member of 3 team internal review committee of the Department of Biological Sciences, 1997
Member, Provost Committee on Sexual Harassment, 1995-1998

Member, Provost Committee on Internet, 1995-2000
Chair, Search Committee for Provost, 1993-94
University Research Council, 1991-1996
University Council on Graduate Studies, 1991-1996
Provost's Subcommittee for the Evaluation of Academic Programs (SEAP), 1991-1996
Conference for Women Graduate Students, workshop leader, November, 1990
Provost's Advisory Committee for Undergraduate Programs, 1990-1991
Provost's Advisory Committee for Women's Concerns, 1989-1991
College of Arts and Science Committee on Quantitative and Formal Reasoning, 1989-1991
Provost Development Fund, reviewer, 1989, 1995
Affirmative Action Committee, 1988-1990
Conference for Women Graduate Students, workshop leader, October 1988
FAS Tenure Council, 1985-1989
Member, Department of Electrical Engineering Chair Search Committee, 1985
Computer Center Executive Committee, 1977-1984
"Computer Science and Engineering," NSF Sponsored Conference, U. of Pittsburgh, June 1981: Workshop Leader in 2 sessions
"Careers for Women in Computers, Engineering and Science," NSF Sponsored Conference, University of Pittsburgh, June 1982: Workshop Leader

Department Activities

University of Virginia

Peer Review Committee, 2016

Engineering Committee, 2014-2016
Diversity Committee Chair, 2012- present
Undergraduate Committee, 2013- 2016

University of Pittsburgh

Organized first CS Day, held annually 2000-2003
Chair, Graduate Program Committee, 2001-2003
Developed and editor for first departmental newsletter, Links, 1997-2000
Member, Graduate Admissions and Financial Aid, 1977-1990, 1996-2002
Member, Faculty Search Committee, 1980-1984, 1990-1996
Chair, Undergraduate Curriculum, 1989-1991
Chair, Faculty Search Committee, 1988-89
Member, Graduate Curriculum, 1986-1988
Member, EE/CS Committee, 1988
Chair, Department Chairperson Search Committee, 1984
Chair, Undergraduate Curriculum, 1982-1983
Course Scheduler, 1978-1983
TA/TF Coordinator, 1978-1982
Member, Publications Committee, 1977-1978

TEACHING

Graduate Courses/Seminars

University of Virginia

Computer Science Perspectives CS696/CS6190

Compilers

Concurrency in Software

Software Testing

University of Pittsburgh

Advanced Program Analysis

Compiler Design

Advanced Compiler Design Compiling

Techniques for Parallel Systems

Seminar on Programming Languages

Seminar on Programming Languages Control Structures

Undergraduate Courses

University of Virginia

Software Testing

Compiler Design and Implementation

Programming Languages for Web Applications

University of Pittsburgh

Programming Languages for the Web

Survey of Programming Languages

Assembly Languages

Introduction to Computer Programming

Structure and Design of Programming Languages

Introduction to Compiler Design

Operating Systems

Introduction to Information Structures