

**Vita**  
**Lori L. Pollock**  
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## Personal Data

Address:

Dept. of Computer and Information Sciences  
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University of Delaware  
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## Research Interests

Software analysis, software testing, green software engineering,  
software maintenance tools, compiler optimization for parallel architectures, computer science education.

## Education

Ph.D. Computer Science, April 1986, University of Pittsburgh, Pittsburgh, PA  
Dissertation: *An approach to incremental compilation of optimized code*  
Advisor: Mary Lou Soffa

M.S. Computer Science, August 1983, University of Pittsburgh

B.S. Computer Science, magna cum laude, June 1981, Allegheny College, Meadville, PA

B.S. Economics, magna cum laude, June 1981, Allegheny College, Meadville, PA

## Professional Experience

September 2004 to present:

**Professor**, Department of Computer and Information Sciences, University of Delaware.

September 2012 to May 2013:

**Research Consultant**, ABB Inc.

September 1998 to 2003:

**Associate Professor**, Department of Computer and Information Sciences, University of Delaware.

September 1998 to May 1999, September 2012 to August 2013:

**Research Consultant**, Army Research Laboratory, Aberdeen, MD.

September 1992 to September 1998:

**Assistant Professor**, Department of Computer and Information Sciences, University of Delaware.

June-August, 1993 and 1994:

**Research Scientist**, Supercomputing Research Center, Bowie, MD.

September 1991 to August 1992:

**Visiting Assistant Professor**, Department of Computer and Information Sciences, University of Delaware.

January 1986 to May 1990:

**Assistant Professor**, Department of Computer Science, Rice University.

September 1982 to September 1984:

**Teaching assistant and Instructor**, Department of Computer Science, University of Pittsburgh.

June-August 1982:

**Programmer**, Hagerstown Cash Register, Inc., Hagerstown, MD.

## Honors and Awards

Invited Keynote Speaker, 3rd International Workshop on Software Engineering

Research and Industrial Practice (SER&IP 2016) at ICSE, 2016.

Best Research Paper Award, International Conf on Program Comprehension (ICPC), 2013.

Best Research Paper Award, International Conf on Mining Software Repositories, (MSR), 2013

Keynote Speaker, International Conference on Software Maintenance, 2012.

ACM Distinguished Scientist, 2010.

University of Delaware E. Arthur Trabant Award for Diversity, as faculty on UD ADVANCE team, 2012.

Best Research Paper, International Conference on Software Testing (ICST) 2011.

ACM SIGSOFT Best Paper Award, Automated Software Engineering (ASE) 2010.

Best Paper Award, International Conf on Mining Software Repositories (MSR) 2009.

CRA-W awarded US Public Service Award by National Science Board, 2005. (active member)

CRA-W awarded US Presidential Award for Mentoring in Science, Engineering, and Mathematics, 2004.

University of Delaware E. Arthur Trabant Award for Women's Equity, 2004.

University of Delaware Faculty Excellence in Teaching Award; May 2001

Mellon Predoctoral Fellowship; January 1985 - August 1985

Gulf Oil Foundation Scholarship; September 1981 - May 1982

Member of Phi Beta Kappa

Member of Pi Gamma Mu Honorary Social Science Fraternity

Doane Scholar, Allegheny College, 1979-1980

Alden Scholar, Allegheny College, 1977-1979, 1981

## Journal Publications and Book Chapters

Chrystalla Mouza, Alison Marzocchi, Yi-Cheng Pan, Lori Pollock, "Development, Implementation and Outcomes of an Equitable Computer Science After-School Program: Findings from Middle-School Students," **Journal of Research on Technology in Education (JRTE)**, accepted for publication.

Kostadin Damevski, David Shepherd, Lori Pollock, "A Field Study of How Developers Locate Features in Source Code", **Empirical Software Engineering**, Springer January 2015, pages 1-24.

Emily Hill, David Binkley, Dawn Lawrie, Lori Pollock, K. Vijay-Shanker, "An Empirical Study of Identifier Splitting Techniques," **Empirical Software Engineering**, Springer Link, August 2013.

Sara E. Sprenkle, Lori L. Pollock, Lucy M. Simko, "Configuring Effective Navigation Models and Abstract Test Cases for Web Applications by Analyzing User Behavior," **Journal of Software Testing, Verification, and Reliability**, 2013.

Xiaoran Wang, Lori Pollock, K. Vijay-Shanker, "Automatic Segmentation of Method Code into Meaningful Blocks: Design and Evaluation," **Journal of Software: Evolution and Process**, Wiley, 2013.

Lori Pollock, K. Vijay-Shanker, Emily Hill, Giriprasad Sridhara, David Shepherd, "Natural Language-based Software Analyses and Tools for Software Maintenance," Book chapter in **Lecture Notes in Computer Science**, Springer Verlag, 2012.

Zachary P. Fry, David Shepherd, Emily Hill, Lori Pollock, K. Vijay-Shanker, "Analyzing Source Code: Looking for Useful Verb-Direct Object Pairs in All the Right Places," **IET Software Special Issue on Natural Language in Software Development**, Vol. 2, No. 1, pages 27-36, February 2008.

Sreedevi Sampath, Sara Sprenkle, Emily Gibson, Lori Pollock, Amie Souter Greenwald, “Applying Concept Analysis to User-Session-Based Testing of Web Applications,” **IEEE Transactions on Software Engineering, (TSE)**, Vol. 33, No. 10, October 2007.

Amie Souter and Lori Pollock, “Construction of Contextual Def-Use Associations for Object-oriented Software,” **IEEE Transactions on Software Engineering, (TSE)**, Vol. 29, No. 11, November 2003.

Cheer-Sun D. Yang and Lori L. Pollock, “All-Uses Testing of Shared Memory Parallel Programs,” **Software Testing, Verification, and Reliability Journal**, 13, pp. 3-24, John Wiley and Sons, 2003.

Amie L. Souter and Lori L. Pollock, “Characterization and Automatic Identification of Type Infeasible Call Chains,” **Information and Software Technology**, 44 (13), pp. 721-732, Elsevier Science, 2002.

Dixie Hisley, Punyam Satya-narayana, Gagan Agrawal, Lori Pollock, “Porting and Performance Evaluation of Irregular Codes using OpenMP,” **Concurrency: Practice and Experience**, Volume 12, pages 1241-1259, 2000.

James B. Fenwick, Jr. and Lori L. Pollock, “Efficient Tuple Space Programming Environment,” invited book chapter in **High Performance Cluster Computing: Programming and Applications**, Volume 2, pp. 175-196, ed., Rajkumar Buyya, Prentice Hall, 1999.

Cindy Norris and Lori Pollock, “Experiences with Cooperating Register Allocation and Instruction Scheduling,” in **International Journal on Parallel Programming**, Vol. 26, No. 3, pp. 241-284, September 1998.

Cindy Norris and Lori Pollock, “Design and Implementation of RAP: A PDG-based Register Allocator,” **Software Practice and Experience**, Vol. 28, (4), pp. 401-424, April 1998.

James B. Fenwick and Lori Pollock, “Issues and Experiences of Implementing a Distributed Tuplespace,” **Software Practice and Experience**, Vol. 27, No. 10, pp. 1199-1232, 1997.

Mark Chu-Carroll and Lori Pollock, “Composite Tree Parallelism: Language Support for General Purpose Parallel Programming”, **Journal of Programming Languages**, Vol. 5, Issue 1, pp. 1-36, 1997.

Alan Carle and Lori Pollock, “On the Optimality of Incremental Evaluators for Hierarchical Attribute Grammars,” in **ACM Transactions on Programming Languages and Systems**, pp. 16-29, January 1996.

Alan Carle and Lori Pollock, “A Context-Based Incremental Evaluator for Hierarchical Attribute Grammars,” **Journal of Programming Languages**, pp. 1-30, March 1995.

Alan Carle and Lori Pollock, “Matching-Based Incremental Evaluators for Hierarchical Attribute Grammar Dialects,” **ACM Transactions on Programming Languages and Systems**, pp. 394-429, March 1995.

Lori Pollock and Mary Lou Soffa, “Incremental Global Reoptimization of Programs,” **ACM Transactions on Programming Languages and Systems**, pp. 173-200, April 1992.

Lori Pollock and Mary Lou Soffa, “An Incremental Version of Iterative Data Flow Analysis,” **IEEE Transactions on Software Engineering**, pp. 1537-1549, December 1989.

## Highly Refereed Conference Publications

Kostadin Damevski, David Shepherd, Lori Pollock, “A Field Study of How Developers Locate Features in Source Code,” selected as 1 of 7 Journal First presentations at **International Conference on Software Engineering (ICSE)**, May 2016.

Irene Manotas, Christian Bird, Rui Zhang, David Shepherd, Will Snipes, Ciera Jaspan, Caitlin Sadowski, Lori Pollock, James Clause, “An Empirical Study of Practitioners Perspectives on Green Software Engineering,” **International Conference on Software Engineering (ICSE)**, May 2016.

Chrystalla Mouza, Alison Marzocchi, Yi-Cheng Pan, Lori Pollock, “Equitable Computer Science Teaching: Implementation and Outcomes from Middle School Students”, **American Educational Research Annual Meeting**, 2016.

Chrystalla Mouza, Lori Pollock, Kathleen Pusecker, Kevin Guidry, Ching-Yi Yeh, James Atlas, Terry Harvey, “Evaluation and Reflection on a Three-Pronged Approach to Professional development for CS Principles,” **ACM SIGCSE Computer Science Education**, 2016.

Xiaoran Wang, Lori Pollock, and K. Vijay-Shanker, “Developing a Model of Loop Actions by Mining Loop Characteristics from a Large Code Corpus,” **International Conference on Software Maintenance and Evolution (ICSME)**, September 2015.

C. Mouza, Y. Pan, L. Pollock, J. Atlas, T. Harvey, “Bringing Computational Thinking to Middle School: A School-University Partnership,” **European Association for Research in Learning and Instruction**, August 2015.

Emily Hill, David Shepherd, Lori Pollock, “Exploring the Use of Concern Element Role Information in Feature Location Evaluation,” **International Conference on Program Comprehension (ICPC)**, May 2015.

Lori Pollock, Chrystalla Mouza, James Atlas, Terry Harvey, “Field Experiences in Teaching Computer Science: Course Organization and Reflections,” **ACM SIGCSE Computer Science Education Conference (SIGCSE)**, March 2015.

Kostadin Damevski, David Shepherd, Lori Pollock, “Scaling Up Evaluation of Code Search Tools Through Developer Usage Metrics,” **22nd IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER)**, March 2015.

Chrystalla Mouza, Yi-Cheng Pan, Lori Pollock, James Atlas and Terry Harvey., “Partner4CS: Bringing Computational Thinking to Middle School Through Game Design,” **FabLearn Conference on Creativity and Fabrication in Education**, Oct 2014.

Cagri Sahin, Lori Pollock and James Clause, “How Do Code Refactorings Affect Energy Usage?” **International Symposium on Empirical Software Engineering and Measurement (ESEM)**, Sept 2014.

James A. Ross, David A. Richie, Song J. Park, Dale R. Shires, and Lori L. Pollock, “A Case Study of OpenCL on an Android Mobile GPU,” **IEEE High Performance Extreme Computing Conference (HPEC)**, Sept 2014.

Irene Manotas, Lori Pollock, James Clause, “SEEDS: A Software Engineer’s Energy-optimization Decision Support Framework,” **International Conference on Software Engineering (ICSE)**, June 2014.

Kostadin Damevski, David Shepherd, Lori Pollock, “A Case Study of Paired Interleaving for Evaluating Code Search Techniques,” **European Conference on Software Maintenance and Reengineering (CSMR/WCRE)**, Feb 2014.

Samir Gupta, Sana Malik, Lori Pollock, K. Vijay-Shanker, “Part-of-Speech Tagging of Program Identifiers for Improved Text-based Software Engineering,” **International Conference on Program Comprehension (ICPC)**, **Conference Best Research Paper Award**, May 2013.

Laura Moreno, Andrian Marcus, Lori Pollock, K. Vijay-Shanker, “JSummarizer: An Automatic Generator of Natural Language Summaries for Java Classes,” **International Conference on Program Comprehension (ICPC) (Demo Paper)**, May 2013.

Laura Moreno, Jairo Aponte, Giriprasad Sridhara, Andrian Marcus, Lori Pollock, K. Vijay-Shanker, “Automatic Generation of Natural Language Summaries for Java Classes,” **International Conference on Program Comprehension (ICPC)**, May 2013.

Sara Sprenkle, Camille Cobb and Lori Pollock, “Leveraging User-Privilege Classification to Customize Usage-based Statistical Models of Web Applications,” **International Conference on Software Testing, Verification and Validation (ICST)**, IEEE, April 2012.

Richard Burns, Lori Pollock, and Terry Harvey, “Integrating Hard and Soft Skills: Software Engineers Serving Middle School Teachers,” **ACM SIGCSE Computer Science Education**, (SIGCSE), February 2012.

Emily Hill, Lori Pollock, and K. Vijay-Shanker, “Improving Source Code Search with Natural Language Phrasal Representations of Method Signatures”, **Automated Software Engineering (ASE)** (short paper), November 2011.

Xiaoran Wang, Lori Pollock, and K Vijay-Shanker. ”Automatic Segmentation of Method Code into Meaningful Blocks to Improve Readability.” **Working Conference on Reverse Engineering (WCRE 2011)** , October 2011.

Giriprasad Sridhara, Lori Pollock, and K Vijay-Shanker. ”Generating Parameter Comments and Integrating with Method Summaries.” **International Conference on Program Comprehension (ICPC)**, IEEE, June 2011.

Giriprasad Sridhara, Lori Pollock, and K Vijay-Shanker. "Automatically Detecting and Describing High Level Actions within Methods." **International Conference on Software Engineering (ICSE)**, ACM, May 2011.

Sara Sprenkle, Lori Pollock, and Lucy Simko. "A Study of Usage-Based Navigation Models and Generated Abstract Test Cases for Web Applications." **International Conference on Software Testing, Verification and Validation (ICST)**, IEEE, March 2011. Best Research Paper Award.

Giriprasad Sridhara, Emily Hill, Divya Muppaneni, Lori Pollock, and K. Vijay-Shanker, "Towards Automatically Generating Summary Comments for Java Methods," **International Conference on Automated Software Engineering (ASE)**, September 2010. ACM SIGSOFT Best Paper Award.

Antony Danalis, Lori Pollock, Martin Swamy, John Cavazos, "MPI-aware Compiler Optimizations for Improving Communication-computation Overlap," **International Conference on Supercomputing (ICS'09)**, June 2009.

Eric Enslin, Emily Hill, Lori Pollock, K. Vijay-Shanker, "Mining Source Code to Automatically Split Identifiers for Software Analysis," **6th IEEE Working Conference on Mining Software Repositories (MSR)**, May 2009. Best Paper Award

Emily Hill, Lori Pollock, K. Vijay-Shanker, "Automatically Capturing Source Code Context for Software Maintenance and Reuse," **Intl Conf on Software Engineering (ICSE)**, May 2009.

Ben Breech, Lori Pollock, and John Cavazos, "RUGRAT: Runtime Test Case Generation using Dynamic Compilers," **International Symposium on Software Reliability Engineering (ISSRE)**, November 2008.

Giriprasad Sridhara, Emily Hill, Lori Pollock and K. Vijay-Shanker, "Identifying Word Relations in Software: A Comparative Study of Semantic Similarity Tools," **International Conference on Program Comprehension (ICPC)**, June 2008.

Sara Sprenkle, Lori Pollock, Holly Esquivel, Barbara Hazelwood, Stacey Ecott, "Automated Oracle Comparators for Testing Web Applications," **IEEE International Symposium on Software Reliability Engineering (ISSRE)**, November 2007.

Emily Hill, Lori Pollock, K. Vijay-Shanker, "Exploring the Neighborhood with Dora to Expedite Software Maintenance", **Automated Software Engineering (ASE)**, November 2007.

David Shepherd, Lori Pollock, K. Vijay-Shanker, "Case Study: Supplementing Program Analysis with Natural Language Analysis to Improve a Reverse Engineering Task," **ACM SIGPLAN-SIGSOFT Workshop on Program Analysis for Software Tools and Engineering**, June 2007.

David Shepherd, Zachary P. Fry, Emily Gibson, Lori Pollock, and K. Vijay-Shanker, "Using Natural Language Program Analysis to Locate and Understand Action-Oriented Concerns", **International Conference on Aspect Oriented Software Development (AOSD 2007)**, March 2007.

Ben Breech and Lori Pollock, "An Attack Simulator for Systematically Testing Program-based Security Mechanisms," **International Symposium on Software Reliability Engineering, (ISSRE)** November 2006.

Sreedevi Sampath, Sara Sprenkle, Emily Gibson and Lori Pollock, "Web Application Testing with Customized Test Requirements—An Experimental Comparison Study," **International Symposium on Software Reliability Engineering, (ISSRE)**, November 2006.

Ben Breech, Mike Tegtmeier, and Lori Pollock, "Integrating Influence Mechanisms into Impact Analysis for Increased Precision," **International Conference on Software Maintenance (ICSM)**, September 2006.

David Shepherd, Lori Pollock, K. Vijay-Shanker, "Towards Supporting On-Demand Virtual Remodularization Using Program Graphs," **International Conference on Aspect-Oriented Software Development (AOSD)**, March 2006.

Sara Sprenkle, Emily Gibson, Sreedevi Sampath, and Lori Pollock, "Automated Replay and Failure Detection for Web Applications," **International Conference of Automated Software Engineering, (ASE)**, pp. 253–262. November 2005.

David Shepherd, Jeffrey Palm, Lori Pollock, and Mark Chu-Carroll, "Timna: A Framework for Combining Aspect Mining Analyses," **20th IEEE/ACM International Conference on Automated Software Engineering, (ASE)**, November 2005.

Anthony Danalis, Ki-Yong Kim, Lori Pollock, and Martin Swany, “Transformations to Parallel Codes for Communication-Computation Overlap,” **International Conference for High Performance Computing, Networking, Storage and Analysis (SC2005)**, November 2005.

Sara Sprenkle, Sreedevi Sampath, Emily Gibson, Amie Souter, and Lori Pollock, “An Empirical Comparison of Test Suite Reduction Techniques for User-session-based Testing of Web Applications,” **International Conference on Software Maintenance (ICSM)**, September 2005.

David Shepherd, Thomas Roper, and Lori Pollock, “Using AOP to Ease Evolution,” **International Conference on Software Maintenance (ICSM) Industrial Track**, September 2005.

Sreedevi Sampath, Valentin Mihaylov, Amie Souter, and Lori Pollock, “Scalable User-session based Testing of Web Applications Through Concept Analysis,” **Automated Software Engineering**, September 2004.

Sreedevi Sampath, Valentin Mihaylov, Amie Souter, and Lori Pollock, “Composing a Framework to Automate Testing of Operational Web-Based Software”, **International Conference on Software Maintenance**, September 2004.

David Shepherd, Emily Gibson, Lori Pollock, “Automated Mining of Desirable Aspects,” **International Conference on Software Engineering Research and Practice (SERP)**, June 2004.

Lori Pollock, Kathleen McCoy, Sandra Carberry, Namratha Hundigopal, Xiaoxin You, “Increasing High School Girls’ Self Confidence and Awareness of CS through a Positive Summer Experience,” **ACM SIGCSE Technical Symposium on Computer Science Education**, March 2004.

Mike Jochen, Lisa Marvel, and Lori Pollock, “Tamper Detection Marking of Object Files,” **Military Communications Conference, MILCOM**, 5 pages, October 2003.

Amie Souter, David Shepherd, Lori Pollock, “Testing with Respect to Concerns,” **International Conference on Software Maintenance (ICSM)**, pp. 54-63, September 2003.

Dixie Hisley, Matt Bridges, and Lori Pollock, “Static Interprocedural Slicing of Shared Memory Parallel Programs, **International Conference on Parallel and Distributed Processing Techniques and Applications** , (PDPTA’02), pp. 658-664, June 2002.

Amie Souter, Tiffany Wong, Stacey Shindo, and Lori Pollock, “TATOO: Testing and Analysis Tool for Object-Oriented Software,” **Tools and Algorithms for the Construction and Analysis of Systems, (TACAS)**, pp. 389-403, April 2001.

Lori Pollock, “Integrating an Intensive Experience with Communication Skills Development into a Computer Science Course,” **ACM Computer Science Education Conference (SIGCSE) 2001**, pp. 287-291, February 2001.

Lori Pollock and Mike Jochen, “Making Parallel Programming Accessible to Inexperienced Programmers through Cooperative Learning,” **ACM Computer Science Education Conference (SIGCSE) 2001**, pp. 224-228, February 2001.

Tom Way, Ben Breech, Lori Pollock, “Region Formation Analysis with Partial Inlining for Scalable Region-based Compilation,” **International Conference on Parallel Architectures and Compilation Techniques (PACT’00)**, pp. 24-36, October 2000.

Amie L. Souter and Lori L. Pollock, “OMEN: A Strategy for Testing of Object-oriented Software”, **International Symposium on Software Testing and Analysis (ISSTA’00)**, pp. 49-59, August 2000.

Gary M. Zoppetti, Gagan Agrawal, Lori L. Pollock, Jose Nelson Amaral, Xinan Tang, and Guang Gao, “Automatic Compiler Techniques for Thread Coarsening for Multithreaded Applications,” **International Conference on Supercomputing (ICS’00)**, pp. 306-315, May 2000.

Dale Shires, Lori Pollock, and Sara Sprenkle, “Program Flow Graph Construction for Static Analysis of MPI Programs,” **International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA)**, pp. 1847-1853, June 1999.

James B. Fenwick, Jr. and Lori L. Pollock, “Static Optimization of Distributed Tuplespace Message Communications,” **Second European IASTED International Conference on Parallel and Distributed Systems (EuroPDS’98)**, pp. 293-298, July 1998.

- James B. Fenwick, Jr. and Lori L. Pollock, "Data Flow Analysis Across Tuplespace Process Boundaries," **1998 International Conference on Computer Languages (ICCL'98)**, pp. 272-281, May 1998.
- Cheer-Sun D. Yang, Amie L. Souter, and Lori L. Pollock, "All-du-path Coverage for Parallel Programs," **International Symposium on Software Testing and Analysis (ISSTA'98)**, pp. 153-162, March 1998.
- Cindy Norris and Lori Pollock, "An Experimental Study of Several Cooperative Register Allocation and Instruction Scheduling Strategies," **28th IEEE/ACM Annual International Symposium on Micro-Architecture (MICRO-28)**, pp. 169-179, November 1995.
- Cindy Norris and Lori Pollock, "Register Allocation Sensitive Region Scheduling, ", **International Conference on Parallel Architectures and Compilation Techniques '95**, pp. 1-10, June 1995.
- Lori Pollock, Mary Bivens, and Mary Lou Soffa, "Debugging Optimized Code Via Tailoring", workshop session of **International Symposium on Software Testing and Analysis**, pp. 201-202, August 1994.
- Cindy Norris and Lori Pollock, "Register Allocation over the Program Dependence Graph," **ACM SIGPLAN Conference on Programming Language Design and Implementation**, pp. 266-277, June 1994.
- Mark C. Carroll and Lori Pollock, "Composites: Trees for Data Parallel Programming," **International Conference on Computer Languages**, pp. 43-54, May 1994.
- Cindy Norris and Lori Pollock, "A Scheduler-Sensitive Global Register Allocator," **Supercomputing 1993**, pp. 804-813, November 1993.
- Lori Pollock and Mary Lou Soffa, "Incremental Global Optimization for Faster Recompilations, **IEEE 1990 International Conference on Computer Languages**, pp. 281-290, March 1990.
- Alan Carle and Lori Pollock, "Modular Specification of Incremental Transformation Systems," **11th International Conference on Software Engineering**, pp. 178-187, May 1989.
- Lori Pollock and Mary Lou Soffa, "Incremental Compilation of Locally Optimized Code," **Proceedings of the Twelfth POPL Conference**, New Orleans, LA, pp. 152-164, January 1985.
- Lori Pollock and Mary Lou Soffa, "INCROMINT - An INCRemental Optimizer for Machine INdependent Transformations," **Proceedings of SOFTFAIR II - A Second Conference on Software Development Tools, Techniques, and Alternatives**, San Francisco, CA, pp. 162-171, December 1985.

## Refereed Conference and Workshop Publications

- Lavigne, N.C., Mouza, C., Dagher, Z., Mead, H., Buckley, J., Pollock, L., Cirillo, M., and Roberts, D., "Learning to Teach Engineering Design by Being a Designer," **American Educational Research Association Annual Meeting**, Learning and Instruction Poster, 2016.
- Ryan Serva, Zachary R. Senzer, Lori Pollock, and K. Vijay-Shanker, "Automatically Mining Negative Code Examples from Software Developer Q & A Forums," **Fourth International Workshop on Software Mining (SoftMine) with ASE**, November 2015.
- Kostadin Damevski, David Shepherd, Nicholas Kraft and Lori Pollock, "Supporting Developers in Porting Software via Combined Textual and Structural Analysis of Software Artifacts," **Workshop on Computational Science & Engineering Software Sustainability and Productivity Challenges (CSESSP Challenges Workshop)**, October 2015 Sponsored by NITRD and SDP Coordinating Group.
- David Shepherd, Kostadin Damevski, Lori Pollock, "How and When to Transfer Software Engineering Research via Extensions," **Software Engineering in Practice (SEIP) Track of ICSE**, May 2015.
- David Shepherd, Kostadin Damevski, Lori Pollock, "How and When to Transfer Software Engineering Research via Extensions," **Software Engineering in Practice (SEIP) Track of ICSE**, May 2015.
- Lisa Marvel, Stephen Raio, Lori Pollock, David Arty, Gerard Chaney, Giorgio Bertoli, Christopher Paprcka, Wendy Choi, Erica Bertoli, Sandra K. Young, "A Comparison of Two Hands-on Laboratory Experiences in Computers, Networks, and Cyber Security for 10th-12th Graders (poster and abstract), **ACM Special Interest Group on Computer Science Education (SIGCSE)**, March 2014.

Emily Hill, David Shepherd, Lori Pollock, K. Vijay-Shanker, “Differentiating Roles of Program Elements in Action-oriented Concerns,” **International Conference on Software Maintenance (ICSM) (Early Research Achievement Track)**, Sept 2013.

David Richie, James Ross, Jordan Ruloff, Song Park, Lori Pollock, Dale Shires, “Investigation of Parallel Programmability and Performance of a Calxeda ARM Server Using OpenCL,” **The Sixth Workshop on Unconventional High Performance Computing (UCHPC)**, August 2013.

Matthew Howard, Samir Gupta, Lori Pollock, K. Vijay-Shanker, “Automatically Mining Software-Based, Semantically-Similar Words from Comment-Code Mappings,” **The 10th Working Conference on Mining Software Repositories, Conference Best Research Paper Award**, May 2013

Dave Binkley, Dawn Lawrie, Lori Pollock, Emily Hill, K. Vijay-Shanker, “A Dataset of Evaluating Identifier Splitters,” **The 10th Working Conference on Mining Software Repositories**, (data paper) May 2013.

Irene Manotas, Cagri Sahin, James Clause, Lori Pollock, Kristina Winbladh, “Investigating the Impacts of Web Servers on Web Application Energy Usage,” **Second International Workshop on Green and Sustainable Software**, May 2013.

Kostadin Damevski, David Shepherd, and Lori Pollock, “An Implicit Feedback-based Approach to the Evaluation of Text Analysis Techniques for Software Engineering,” **First Workshop on the Next Five Years of Text Analysis in Software Maintenance** with ICSE, June 2012.

C. Sahin, F. Cayci, I. L. M. Gutiérrez, J. Clause, F. Kiamilev, L. Pollock, and K. Winbladh. Initial explorations on design pattern energy. In **Proceedings of the First International Workshop on Green and Sustainable Software (GREENS)** with ICSE, pages 55–61, June 2012.

Richard Burns, Terry Harvey, and Lori Pollock, “An Experience Report on Cross-Semester Student Critique and Action in an Integration Software Engineering, Service Learning Course,” **ACM First International Workshop on Software Engineering Education based on Real-World Experiences**, June 2012.

C. Sahin, F. Cayci, J. Clause, F. Kiamilev, L. Pollock, and K. Winbladh. Towards power reduction through improved software design. **Proceedings of IEEE EnergyTech**, May 2012.

Lori Pollock and Terry Harvey, “Combining Multiple Pedagogies to Boost Learning and Enthusiasm,” **16th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE)**, June 2011.

Emily Hill, Lori Pollock, and K. Vijay-Shanker, “Investigating How to Effectively Combine Static Location Techniques,” **ICSE Workshop on Search-driven Development: Users, Infrastructure, Tools and Evaluation (SUITE)**, May 2011.

Lori Pollock, “Living and Learning the Grant-writing Experience for a Semester,” **Lilly-East Conference on College and University Teaching**, 75-minute presentation, April 2009.

Antony Danalis, Aaron Brown, Lori Pollock, Martin Swamy, and John Cavazos, “Gravel: a communication library to fast path MPI,” **Euro PVM/MPI Conference**, September 2008.

Sara Sprenkle, Holly Esquivel, Barbara Hazelwood, Lori Pollock, “WebVizOr: A Visualization Tool for Applying Automated Oracles and Analyzing Test Results of Web Applications,” **Testing: Academic and Industrial Conference - Practice and Research Techniques (TAIC PART)**, August 2008.

Antony Danalis, Lori Pollock, Martin Swamy, and John Cavazos, “Implementing an Open64-based Tool for Improving the Performance of MPI Programs,” **Open64 Workshop** at CGO, April 2008.

Emily Hill, Zachary P. Fry, Haley Boyd, Giriprasad Sridhara, Yana Novikova, Lori Pollock, and K. Vijay-Shanker, “AMAP: Automatically Mining Abbreviation Expansions in Programs to Enhance Software Maintenance Tools,” **5th Working Conference on Mining Software Repositories (MSR)**, May 2008.

Sara Sprenkle, Emily Hill, and Lori Pollock, “Learning Effective Oracle Comparator Combinations for Web Applications,” **First International Workshop on Software Test Evaluation (STEV)**, October 2007.



Lori Pollock, K. Vijay-Shanker, David Shepherd, Emily Hill, Zachary P. Fry, Kishen Maloor, “Introducing Natural Language Program Analysis,” Group Research Presentation, **ACM SIGPLAN-SIGSOFT Workshop on Program Analysis for Software Tools and Engineering**, June 2007.

Anthony Danalis, Lori Pollock, and Martin Swamy, “Automatic MPI application transformation with ASPHALT,” **Workshop on Performance Optimization for High-Level Languages and Libraries (POHLL 2007)**, March 2007.

Sreedevi Sampath, Sara Sprenkle, Emily Gibson, and Lori Pollock, “Integrating Customized Test Requirements with Traditional Requirements in Web Application Testing,” **Workshop on Testing, Analysis and Verification of Web Services and Applications (TAV-WEB)**, July 2006.

Sara Sprenkle, Emily Gibson, Sreedevi Sampath, and Lori Pollock, “A Case Study of Automatically Creating Test Suites from Web Application Field Data,” **Workshop on Testing, Analysis and Verification of Web Services and Applications (TAV-WEB)**, July 2006.

Anthony Danalis, Lori Pollock, Martin Swamy, “An Automatic System for Parallel Application Transformation,” **Commodity Cluster Symposium, (CCS)**, June 2006.

Mike Jochen, Anteneh Anteneh, Lori Pollock, and Lisa Marvel, “Towards the Safe Use of Dynamically Transformed Itinerant Software,” **Military Communications Conference, AFCEA/IEEE, (MILCOM)**, October 2005.

Lewis Fishgold, Anthony Danalis, Lori Pollock, and Martin Swamy, “An Automated Approach to Improving Communication-Computation Overlap in Clusters,” **Parallel Computing (ParCo)**, September 2005.

Mike Jochen, Anteneh Addis Anteneh, Lori Pollock, and Lisa Marvel, “Enabling Control over Adaptive Program Transformation for Dynamically Evolving Mobile Software Validation,” **First Workshop on Software Engineering for Secure Systems, (SESS)**, May 2005.

Ben Breech and Lori Pollock, “A Framework for Testing Security Mechanisms for Program-based Attacks,” **First Workshop on Software Engineering for Secure Systems, (SESS)**, May 2005.

David Shepherd, Tom Tourwe, and Lori Pollock, “Using Language Clues to Discover Crosscutting Concerns,” **First International Workshop on the Modeling and Analysis of Concerns in Software (MACS)**, May 2005.

Sreedevi Sampath, Sara Sprenkle, Emily Gibson, Lori Pollock and Amie Souter, “Analyzing Clusters of Web Application User Sessions,” **Workshop on Dynamic Analysis (WODA)**, May 2005.

Ben Breech, Mike Tegtmeier, and Lori Pollock, “Comparison of Online and Dynamic Impact Analysis Algorithms,” **9th European Conference on Software Maintenance and Reengineering (CSMR)**, March 2005.

Anteneh Addis Anteneh, Mike Jochen, Lori Pollock, and Lisa Marvel, “Initial Studies of Distributed, Adaptive Program Transformation Controls,” (short paper), **Conference on Information Sciences and Systems, (CISS)**, March 2005.

David Shepherd and Lori Pollock, “Interfaces, Aspects, and Views,” **The Workshop on Linking Aspect Technology and Evolution, (LATE)**, March 2005.

David Shepherd, Jeffrey Palm, and Lori Pollock, “Fast Prototyping and Evaluation of Aspect Mining Analyses via Timna,” **First Workshop on Aspect Reverse Engineering**, October 2004.

B. Breech, A. Danalis, Stacey Shindo, and Lori Pollock, “Online Impact Analysis via Dynamic Compilation Technology,” **International Conference on Software Maintenance**, (short paper), September 2004.

Sreedevi Sampath, Amie L. Souter, and Lori Pollock, “Towards Defining and Exploiting Similarities in Web Application Use Cases through User Session Analysis,” **Second International Workshop on Dynamic Analysis**, May 2004.

Mike Jochen, Lisa Marvel, and Lori Pollock, “A Framework for Tamper Detection Marking of Mobile Applications,” **International Symposium on Software Reliability Engineering, (ISSRE)** November 2003, 10 pages.

Tom Way and Lori Pollock, “Evaluation of a Region-based Partial Inlining Algorithm for an ILP Optimizing Compiler,” **IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS 2002)**, pp. 705-710, Cambridge, Mass., November 2002.

- Amie L. Souter and Lori L. Pollock, "Putting Escape Analysis to Work for Software Testing," **International Conference on Software Maintenance**, pp. 430-439, October 2002.
- Mike Jochen, Lisa Marvel, and Lori Pollock, "MOST: A Tamper Detection Tool for Mobile Java Software," **Third Annual IEEE Information Assurance Workshop**, June 2002, 7 pages.
- Tom Way and Lori Pollock, "A Region-based Partial Inlining Algorithm for an ILP Optimizing Compiler," **International Conference on Parallel and Distributed Processing Techniques and Applications**, (PDPTA'02), short paper, pp. 552-556, June 2002.
- Mike Jochen, Lisa Marvel, and Lori Pollock, "Bandwidth Efficient Tamper Detection for Distributed Java Systems," **High Performance Computing Systems, HPCS02**, pp. 258-267, June 2002.
- Dixie Hisley and Lori Pollock, "Enabling Programmer-controlled Combined Memory Consistency for Compiler Optimization," **International Conference on Parallel and Distributed Computing and Networks (PDCN)**, pp. 185-190, February 2002.
- Amie Souter and Lori Pollock, "Incremental Call Graph Reanalysis for Object-Oriented Software Maintenance," **International Conference on Software Maintenance, (ICSM)**, pp. 682-691, November 2001.
- Amie L. Souter and Lori L. Pollock, "Type Infeasible Call Chains," **IEEE International Workshop on Source Code Analysis and Manipulation (SCAM)**," pp. 196-205, November 2001.
- Tom Way, Ben Breech, Wei Du, and Lori Pollock, "Demand-driven Inlining Heuristics in Region-based Optimization for ILP Architectures," **IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS)**, pp. 90-95, August 2001.
- Tom Way, Ben Breech, Wei Du, Veselin Stoyanov, and Lori Pollock, "Using Path-spectra-based Cloning in Region-based Optimization for Instruction-level Parallelism," **ISCA 14th International Conference on Parallel and Distributed Computing Systems, (ISCA PDCS)**, pp. 83-90, August 2001.
- Amie L. Souter and Lori L. Pollock, "Contextual Def-Use Associations for Object Aggregation," **Workshop on Program Analysis for Software Tools and Engineering (PASTE'01)**, pp. 13-19, June 2001.
- Dixie Hisley and Lori Pollock, "Analysis and Optimization of Shared Memory Parallel OpenMP Programs with Combined Memory Consistency Modeling," **Army Science Conference**, pp. 675-682, December 2000.
- Dixie Hisley, Punyam Satya-narayana, Gagan Agrawal, Lori Pollock, "Porting and Performance Evaluation of Irregular Codes using OpenMP," **First European Workshop on OpenMP (EWOMP)**, pp. 47-59, October 1999.
- Amie L. Souter, Lori L. Pollock, and Dixie Hisley, "Inter-class Def-Use Analysis with Partial Class Representations," **Workshop on Program Analysis for Software Tools and Engineering (PASTE'99)**, pp. 47-56, September 1999.
- Gary Zoppetti, Gagan Agrawal, and Lori Pollock, "Thresholding for Automatic Work Distribution for Recursive, Multithreaded Functions," (poster and short paper), **Workshop on Languages and Compilation Techniques for Parallel Computing (LCPC)**, Lecture Notes in Computer Science 1863, Springer, pp. 485-489, August 1999.
- James B. Fenwick, Jr. and Lori L. Pollock, "Tuple Counting Data Flow Analysis and Its Use in Communication Optimization," (poster and paper), **High Performance Computing and Networking (HPCN) Europe'99**, pp. 1282-1285, April 1999.
- Tom Way and Lori L. Pollock, "Using Path Spectra to Direct Function Cloning," **Workshop on Profile and Feedback-directed Compilation**, pp. 40-47, October 1998.
- Dixie Hisley, Gagan Agrawal, and Lori Pollock, "Performance Studies of the Parallelization of a CFD Solver on the Origin 2000," **Army Science Conference**, pp. 227-232, June 1998.
- Dixie Hisley, Gagan Agrawal, and Lori Pollock, "Evaluating the Effectiveness of a Parallelizing Compiler," **Fourth Workshop on Languages, Compilers, and Run-time Systems for Scalable Computers, (LCR'98)**, Lecture Notes in Computer Science 1511, Springer, pp. 195-204, May 1998.
- Cheer-Sun Yang and Lori Pollock, "An All-du-path Coverage Algorithm for Testing Shared Memory Parallel Programs," **The Sixth Asian Test Symposium**, pp. 263-268, November 1997.

James B. Fenwick and Lori Pollock, "Optimizing the Use of Distributed Queues in Tuplespace," **International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'97)**, pp. 212-217, June 1997.

Cheer-Sun Yang and Lori Pollock, "The Challenges in Automated Testing of Multithreaded Programs," **14th International Conference on Testing Computer Software**, pp. 157-166, June 1997.

James B. Fenwick and Lori Pollock, "Global Compiler Analysis for Optimizing Shared Tuple Space Communication on Distributed Memory Systems", **1996 International Conference on Parallel and Distributed Computing and Systems (PDCS)**, pp. 62-66, October 1996.

Mark Chu-Carroll and Lori Pollock, "Design and Implementation of a General Purpose, Parallel Programming System," **The International Conference and Exhibition on High Performance Computing and Networking (HPCN'96)**, pp. 499-507, April 1996.

Cheer-Sun Yang and Lori Pollock, "Towards a Structural Load Testing Tool," **Workshop Session of International Symposium on Software Testing and Analysis**, pp. 201-208, January 1996.

Chris Makowski and Lori Pollock, "Efficient Register Allocation Via Parallel Graph Coloring," **Programming Languages Track of ACM Symposium on Applied Computing**, pp. 123-129, February 1995.

Lori Pollock and Mary Lou Soffa, "High-Level Debugging with the Aid of an Incremental Optimizer," **Twenty-first Annual Hawaii International Conference on System Sciences**, pp. 524-532, January 1988.

"Incremental Code Optimization - Abstract", **ACM Computer Science Conference**, Philadelphia, PA, February 1984.

## Workshop Publications and Non-proceedings Posters

Kathryn Baldwin, Camille Cobb, Caroline Hopkins, Sara Sprenkle, Lori Pollock, "Investigating Data Models for Automatically Generating Tests for Web Applications," **Grace Hopper Conference Research Poster**, November 2009.

Eric Enslin, Emily Hill, Lori Pollock, and Vijay-Shanker, "Mining Source Code to Automatically Split Identifiers for Software Analysis", **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS)**, April 2009, 10 pages.

Anthony Danalis, Lori Pollock, and Martin Swamy, "Automatic MPI application transformation with ASPHALT," **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS)**, April 2007, 10 pages.

David Shepherd and Lori Pollock, "Using Natural Language Program Analysis to Locate and Understand Action-Oriented Concerns," **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS)**, April 2007, 10 pages.

Sara Sprenkle, Emily Gibson, Sreedevi Sampath, Lori Pollock, "Towards Automatically Creating Test Suites from Web Application Field Data", **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS)**, April 2006, 10 pages.

Ben Breech, Lori Pollock, "Towards Systematic Testing of Security Mechanisms," **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS '05)**, April 2005, 10 pages.

David Shepherd, Emily Gibson, Lori Pollock, "Design and Evaluation of an Aspect Mining Tool," **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS '04)**, April 2004, 10 pages.

Lori Pollock, "Research Career Mentoring Deja vu...", **Computing Research News**, 2003.

Mike Jochen, Lisa Marvel, and Lori Pollock, "Zero-Footprint Tamper Detection for Object Files", **Proceedings of the CTA C&N Annual Symposium**, April 2003, 5 pages.

Mike Jochen, Lisa Marvel, and Lori Pollock, "Mobile Code Security via Fragile Tamper Detection Marking," **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS '01)**, April 2001, 7 pages.

Dixie M. Hisley and Lori L. Pollock, "Analysis of Parallelized Communication Software Under a Hybrid Memory Consistency Model," **Advanced Telecommunications/Information Distribution Research Program (ATIRP)**, March 2001, 5 pages.

Lori L. Pollock and Cheer-Sun Yang, "Extending Program-based Testing for Parallelized Communication Software," **Advanced Telecommunications/Information Distribution Research Program (ATIRP)**, March 2000, 5 pages.

Amie Souter and Lori Pollock, "A New Strategy for Testing Object-oriented Software," **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS '00)**, April 2000, 11 pages.

John Graham and Lori L. Pollock, "An Experimental Study of Potential Parallelism in an Implementation of MIL-STD 188-220", **Advanced Telecommunications/Information Distribution Research Program (ATIRP)**, January 1999, 5 pages.

Dixie Hisley, Gagan Agrawal, and Lori Pollock, "Evaluating the Effectiveness of a Parallelizing Compiler," **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS '98)**, April 1998, 10 pages.

Thomas P. Way, Cheer-Sun Yang, and Lori L. Pollock, "Potential Performance Improvements of MIL-STD 188-220A Through Parallelism," **Advanced Telecommunications/Information Distribution Research Program (ATIRP)**, January 1998, 5 pages.

Tom Way and Lori Pollock, "Towards Identifying and Monitoring Optimization Impacts," **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS '97)**, April 1997, 11 pages.

Cheer-Sun Yang and Lori Pollock, "Identifying Redundant Test Cases for Testing Explicitly Parallel Language Constructs," **Advanced Telecommunications/Information Distribution Research Program (ATIRP)**, pp. 265-270, January 1997, 5 pages.

Cheer-Sun Yang and Lori Pollock, "Providing All-du-path Coverage for Testing Shared Memory Parallel Programs," **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS '97)**, April 1997, 10 pages.

James B. Fenwick and Lori Pollock, "Identifying Tuple Usage Patterns in an Optimizing Linda Compiler," **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS '96)**, pp. 6.1-6.11, April 1996, 10 pages.

James B. Fenwick and Lori Pollock, "Implementing an Optimizing Linda Compiler using SUIF," **The First SUIF Workshop**, pp. 90-105, January 1996, 16 pages.

Mark Carroll and Lori Pollock, "Parallelism for the Masses: Compiler and Language Support for General Purpose Parallel Programming," **Mid-Atlantic Student Workshop on Programming Languages and Systems (MASPLAS'95)**, April 1995, 10 pages.

Lori Pollock, Rajiv Gupta, and Mary Lou Soffa, "Parallelizing Data Flow Analysis," **Workshop on Parallel Compilation**, Kingston, Ontario, pp. 6.1-6.12, May 1990, 10 pages.

## Technical Reports not published elsewhere

Camille Cobb, Haley Archer-McClellan, Deirdre Tobin, Sara Sprenkle, and Lori Pollock, "Naming Analysis in the Web Application Domain," Technical Report 2013-001, January 2013.

David Shepherd and Lori L. Pollock, "Ophir: A Framework for Automatic Mining and Refactoring of Aspects," Technical Report 2004-03, October 2003.

Tom Way, Cheer-Sun Yang, and Lori Pollock, "Implications for Parallelizing MIL-STD188-220A," Technical Report 9707, University of Delaware, December 1996.

Amie Souter, James B. Fenwick, and Lori Pollock, "A Visualization Tool for Intermediate Program Representations," Technical Report 9708, University of Delaware, January 1997.

“An Approach to Incremental Compilation of Optimized Code,” Ph.D. Dissertation, Technical Report 86-3, Dept. of Computer Science, University of Pittsburgh, April 1986.

## Software Engineering and Compiler Optimization Research Grants

PI, “SHF: SMALL: Automatically Supporting Developer Learning in Context,” **NSF**, \$515,726, 9/1/2014–8/31/2017, Co-PI: Vijay Shanker.

PI, “CI-P: Collaborative Research: Advanced Text Analysis Infrastructure for Software Engineering,” **NSF**, \$100,000, 6/1/2011–5/31/2013, Co-PIs: Vijay Shanker, Emily Hill, Andrian Marcus.

Faculty Mentor Co-PI, “Measuring Power Usage from a Software Engineer’s Perspective: Toward Power Awareness and Management at the Development Level,” **University of Delaware Research Foundation**, Strategic Initiatives Award, \$55,000, 12/1/2011-6/30/2013. Co-PIs: James Clause, Kristina Winbladh, Fouad Kiamilev.

Co-PI, “SHF: EAGER: Exploring Relations between Power Consumption and Software Engineering,” **NSF**, EAGER Program, \$96,462, 6/1/2012-5/31/2013, PI: Kristina Winbladh and Co-PIs James Clause and Fouad Kiamilev. Award CCF-1216488.

Co-PI, “Cybersecurity in Tactical Environments,” **DECI/Army CERDEC**, \$706,999, (my part \$72,467), 05/1/2011-05/24/2012, PI C. Cotton, Co-PIs Gonzalo Arce, S. Bohacek, C. Boncelet, J. Cavazos, F. Kiamilev.

Co-PI, **University of Delaware International Research Award**, International Workshop on the Development of the Breeder’s Toolbox: Novel Software for Plant improvement in Developing Countries,” \$10,000, 5/2010-5/2011, Co-PIs: Randy Wissler, Blake Meyers, Jong Soo Lee.

PI, “SHF: Small: Analyzing and Modeling Natural Language Usage in Software to Improve Maintenance Tools,” **NSF**, Computer and Communication Foundations, Computing Processes and Artifacts, \$496,913, 9/1/09-8/31/12, Co-PI: Vijay K. Shanker. Award CCF-0915803.

PI, “Applying and Integrating Natural Language Processing Analysis of Programs to Aid in Software Maintenance and Evolution,” **NSF** Computer and Communication Foundations, Computing Processes and Artifacts, \$400,000, 7/15/07-6/30/10, Co-PI: Vijay K. Shanker. Award CCF-0702401.

Co-PI, “Collaborative: CSR-AES: System Support for Auto-tuning MPI Applications,” **NSF** Computer and Network Systems, Computer Systems, \$260,000, 09/1/07 - 08/31/10. PI: Martin Swamy. Award 0720712.

Co-PI, “An Integrated Approach to Improving Communication Performance in Clusters,” **NSF** CSR ASE, \$350,000, 07/28/05 - 08/01/08. PI: Martin Swamy. Award 0509170.

Co-PI, “A Novel Approach to Software Pipelining of Multi-Dimensional Loops,” **NSF** Computing Processes and Artifacts, \$300,000, 12/01/04-11/31/07, PI: Guang Gao. Award 0429781.

Principal Investigator, “ITR: Bandwidth Efficient Techniques for Ensuring Mobile Code Integrity and Authentication,” **NSF** ITR, \$328,173, 9/01/02-8/31/06.

Principal Investigator with Co-PI Guang Gao, “Increasing Parallel Program Performance with the LC memory Consistency Model,” **NSF** Compilers and Operating Systems, \$270,000, 6/01/01-5/31/04. REU Supplement: \$11,750.

Faculty Participant, “Collaborative Technology Alliance in Communications and Networking,” **Army Research Laboratory**, \$3,500,000, 5/31/01-5/30/08.

Principal Investigator, “Validation of Mobile Code Integrity,” **Army Research Laboratory**, \$25,000, 10/1/00 - 9/30/01.

Co-PI, “Acquisition of an Avalon-Beowulf Cluster and Development of Discipline-Specific Parallel Research Tools,” **NSF** Major Research Infrastructure Program, \$500,000 from NSF, with additional \$338,881 matching funds from UD, 10/1/99 - 10/1/02, Co-PIs: William H. Matthaeus, David Seckel, Gary Zank, Krzysztof Szalewicz.

Co-PI, “Experimental Evaluation of Scalable Optimization Techniques,” **NSF** Experimental Software Systems, \$400,000, 9/1/98 - 9/1/01, Co-PIs: Mary Lou Soffa, Rajiv Gupta, David Whalley.

Principal Investigator, "POWRE: Visiting Professorship: Program Based Testing of Parallel Programs," **NSF** Professional Opportunities for Women in Research and Education, 6/1/98 - 9/1/99, \$57,457.

NSF REU Supplement to POWRE grant, 8/00-2/01, \$5,000.

Co-PI, "Compiling Irregular Applications on a Multi-threaded Architecture," **NSF**, \$320,000, 8/1/98 - 7/31/01, Co-PIs: Gagan Agrawal and Guang Gao.

Principal Investigator, "Parallel and Distributed Computing: Systems and Application Development Infrastructure," **NSF** CISE Research Infrastructure Award, 5 years starting September 1, 1997, \$633,513, with matching funds of \$273,400 from U. of Delaware, Co-PIs: Sandra Carberry, Guang Gao, Errol Lloyd, Gagan Agrawal, Ashfaq Khokhar. REU Supplements: 1/99, \$10,000; 8/00: \$10,000; 7/01: \$12,000; 6/02: \$17,000.

Faculty Participant with 11 other EE/CIS faculty, **Telecommunications/Information Distribution Federated Research Laboratory** with the Army Research Laboratory, Aberdeen, my portion: \$43,500 per year, 1/1996-2000.

CRA Mentor, Distributed Mentor Project for undergraduate summer research (sponsored by **CRA**, funded by NSF), Funded \$6000 to 2 undergraduate students (summer 06) and 1 undergraduate (summer 07) for 10 weeks of research under my supervision.

CRA Mentor, Distributed Mentor Project for undergraduate summer research (sponsored by **CRA**, funded by NSF), Funded \$2000 to PI and \$5000 to 1 undergraduate student for 10 weeks of research under my supervision, summer 2003, 2004, 2005.

CRA Mentor, Distributed Mentor Project for undergraduate summer research (sponsored by **CRA**, funded by NSF), Funded \$2000 to PI and \$5000 to 1 undergraduate student for 10 weeks of research under my supervision, summer 2002.

CRA Mentor, Distributed Mentor Project for undergraduate summer research (sponsored by **CRA**, funded by NSF), Funded \$5000 to 2 undergraduate students for 10 weeks of research under my supervision, summer 2001.

CRA Mentor, Distributed Mentor Project for undergraduate summer research (sponsored by **CRA**, funded by NSF), Funded \$5000 to 2 undergraduate students for 10 weeks of research under my supervision, summer 2000.

CRA Mentor, Distributed Mentor Project for undergraduate summer research (sponsored by **CRA**, funded by NSF), Funded \$5000 to one undergraduate student for 10 weeks of research under my supervision, summer 1998.

Principal Investigator, "Automatic Tunable Compiler Optimization for ILP Architectures," Arts and Science Research Award, **University of Delaware**, \$2,000, February 1997-98.

Principal Investigator, "Cooperative Register Allocation and Instruction Scheduling," Career Advancement Award, **NSF**, \$59,993, September 1, 1993 - February 28, 1995.

REU Supplement: \$5000.

Principal Investigator, "Experimental Investigation of Parallelism in Register Allocation," **University of Delaware Research Foundation Grant**, \$20,000, January 1, 1993 - June 30, 1994.

Principal Investigator, "Incremental Optimization in a Programming Environment," **NSF**, \$116,780, June 1987 - December 1989.

Co-PI, "Parallelism in Language Translation," with Willy Zwaenepoel and Hans Boehm, **NSF**, \$119,903, May 1988 - May 1990.

Principal Investigator, "Incremental Data Flow Analysis: A Performance Study," **Rice University Research Grant**, \$975, 1986-1987.

CRA Mentor, Distributed Mentor Project for undergraduate summer research (sponsored by **CRA**, funded by NSF), Funded \$5000 to one undergraduate student from Bucknell University for 10 weeks of research under my supervision, summer 1995.

CRA Mentor, Distributed Mentor Project for undergraduate summer research (sponsored by **CRA**, funded by NSF), Funded \$5000 each to 2 undergraduate students, one from Bucknell University, and one from Carnegie Mellon University, to come to U. of Delaware to spend the summer doing research under my supervision, summer 1994.

## Education and Broadening Participation Research Grants

Co-PI, "Partner4CS: Building Sustainable Networks for Supporting the Teaching of Computer Science," **State of Delaware Federal Research and Development Grant**, \$853,814, awarded Sept 2015. PI: Chrystalla Mouza, UD College of Education.

Co-PI, "Bringing Computational Thinking to GenEd," **University of Delaware Center for Teaching and Assessment of Learning Transformation Grant**, \$16,500, 7/1/2015-6/30/2017. Collaborative with PI Chrystalla Mouza and Co-PI Zoubeida Dagher, UD College of Education.

PI, "Exploring Virtual Interactive Models for Large Scale Research Mentoring of Undergraduate Women in Computing," \$182,279, awarded 6/2015 to Computing Research Association with PI Pollock. Co-PIs: Erik Russell, Jane Stout, CRA.

PI, "Collaborative Research: Exploring Partnered Teaching of Interdisciplinary CS+X Courses," **NSF DUE IUSE**, \$144,000, (Pollock: \$31,854), awarded 02/09/2015. Collaborative with Paul Ruvolo, Olin College; Darakhshan J. Mir, Wellesley College; Sumita Mishra, RIT.

Co-PI, "Spatial Training in Preschool: Identifying the Malleable Factors," **Institute of Education Sciences**, \$1,559,434, (Pollock: \$27,622), 09/1/2014-08/31/2018, PI: Roberta Golinkoff.

Faculty Participant, "5A00070 High Quality Professional Development for High Need Schools: Supporting Teachers to Improve Student Learning," **Delaware Department of Education**, \$200,00 (Pollock \$2168), 0/1/2014-8/31/2018. PI: Carol Vukelich, UD College of Education.

PI, "CS 10K: Developing and Supporting Computer Science Teachers Via Strategic Partnering," **NSF**, \$853,814, 9/1/2012-8/31/2015, Co-PIs: James Atlas, Alfinio Flores, Terry Harvey, Chrystalla Mouza.

Co-PI, "Curriculum Development: CISC 415/615/CPEG 615: Software Testing and Maintenance," JP Morgan Chase, PI: James Clause, \$54,000, 06/01/2012-12/20/2012.

Key Organizer, UDoCS Workshop for High School Teachers, held July 2012, funding secured from University of Virginia's NSF Grant for Tapestry Workshops, \$37,000.

PI, "BPC-DP: Partnering Middle School Teachers with Undergraduate Computer Science Teams to Bring Computing to Underrepresented Youth," **NSF**, Broadening Participation in Computing, \$586,395, 11/15/2009-12/31/12, Co-PI: Terry Harvey, Award CNS-0940501.

Co-PI, "Systems Mentoring Workshop," **NSF**, \$25,000, 2008-2009.

Co-PI, "Computing Museum Research Project," **University of Delaware College of Arts and Sciences Transformational Grant**, \$25,000, 2006-2007.

Principal Investigator, "Workshop: Support for the CRA-W Career Mentoring Workshop for Women in Research Careers in Computer Science and Engineering," **NSF**, \$63,650, 4/15/2005-4/14/06.

Co-PI, "Travel Grant: Women's Grant Cohort Project," **NSF**, \$25,000, 2/20/04 - 3/01/05.

Principal Investigator, "Support for CRA-W FCRC Career Mentoring Workshop for Women in Research Careers in Computer Science and Engineering," **NSF**, \$85,634, 4/15/03-5/15/04.

Principal Investigator, "SEP - An Experiment in Engaging High School and Undergraduate Women in Computer Science," **NSF**, \$99,992, 1/1/01 - 7/1/02, with Co-PIs Sandee Carberry and Kathy McCoy.

Principal Investigator, "Problem-based Learning in CIS: Prototype," University of Delaware CTE Instructional Improvement Grant, \$4250, 9/1/99 - 9/1/00.

Principal Investigator, "An Undergraduate Laboratory for Teaching Parallel Computing," **NSF**, \$52,400, June 1, 1995 - June 1, 1997, Co-PI: Errol Lloyd, matching funds of \$52,400 provided by the U. of Delaware.

Principal Investigator, "Introduction to Parallel Computing," **Pittsburgh Supercomputing Center**, supercomputing resources for new course, February 11, 1993 - June 15, 1993, and September 1, 1994 - February 1, 1995. Supercomputing resources at **NCSA**, September 1, 1994 - January 1, 1995.

## Invited Presentations

“Building Power Tools for Software Engineers through Natural Language Analysis of Software and Related Artifacts,” University of North Texas, 2016.

“SEEDS: A Software Engineer’s Energy-optimization Decision Support Framework,” CREST Workshop, London, 2015.

“Mentoring 101,” CRA-W Career Mentoring Workshop, SIGCSE 2015.

“Recruiting and Mentoring Students,” New Faculty Symposium, ICSE 2015.

“Leadership and Taking Risks/Starting a New Initiative,” Grace Hopper Conference CRA-W Senior Faculty Track, 2014.

“Publishing your Research,” UD College of Engineering, 2014.

“Extracting and Representing Knowledge from Source Code as Action Units,” Bellairs 2014 Workshop on Representing Programming Knowledge, 2014.

“Mentoring and Managing Students,” CRA Mentoring Workshop, 2014.

“Service Learning,” NSF PI Meeting Invited Flash Talk, 2013.

“Automatically Generating Descriptive Summary Comments for Java Methods,” University of Alabama, 2012

“ Women in Computing,” West Chester Awards Banquet, April 2011

Senior Technical Woman Profile, Anita Borg Institute, 2010

“Broadening Participation in Computing through Service Learning,” Invited Talk at UD Scholarship of Engagement Seminar, 2010.

“Skip the Lecture: Learning More Through Collaborative Activities”, Invited 90-minute Workshop in UD ITUE Seminar Series, 2010.

“Dealing with Paper Rejections,” UD WISE Presentation, 2009

“How to Write a PhD Proposal,” The CRA-W Graduate Cohort Workshop, February 2009

“Natural Language Program Analysis,” Italy International Summer School in Software Engineering, September 2009. (3 hour tutorial)

“Developing Natural Language-based Software Analyses and Tools to Expedite Software Maintenance,” Wayne State University, 2008.

“Applying Natural Language Processing Analysis of Programs to Aid in Software Maintenance and Evolution,” Swarthmore College, 2007.

“Applying Natural Language Processing Analysis of Programs to Aid in Software Maintenance and Evolution,” Penn State University, November 2006.

“An Integrated Approach to Improving Communication Performance in Clusters,” **Computational Science Day**, University of Delaware, February 2006.

“Getting Promoted from Associate to Full Professor, CRA-W Distinguished Professor, Workshop for the Cohort of Associate Professors Project (CAPP), June 2005.

“Academic Career Paths”, CRA-W Workshop for the Grad Cohort for Women Program, February 2005.

Keynote Speaker, University of Delaware Women of Promise Dinner, November 2004.

“Being a Good Mentor,” Women’s Lecture Series, University of Delaware, September 2004.

“Tamper Detection for Mobile Codes,” Collaborative Technology Alliance Televised Distinguished Lecture, December 2002.

“Girls in computer science: Why so Few?,” UD Research on Women Lecture Series, September 2002.



- "Gender and Technology: History, Status, and Strategies," Goldey Beacom College, November 2001.
- "Interprocedural Region Formation Analysis with Demand-driven Inlining for Region-based Optimization," Army Research Laboratory, January 2001.
- "Program-based Testing of Object-Oriented Systems," CRAW/Lucent Distinguished Lecture Series, Duke University, April 2000.
- "Inter-class Def-Use Analysis with Partial Class Representations," Rutgers University, July 1999.
- "Program-based Testing of Parallel Programs," Michigan Technological University, February 1999.
- "Parallel Programs: Maybe fast, but how do we test them?," Gettysburg College, November 1997; Haverford College, January 1998.
- "Bringing Parallelism to the Casual Programmer," Army Research Laboratory, Aberdeen, Maryland, May 1994.
- "Tutorial 1 - Parallel Architectures and Parallel Programming Paradigms," Pennsylvania Association of Computer and Information Science Educators, Fall Conference, October 1993.
- "Tutorial 2 - Languages, Compilers, and Environments for Parallel Processing," Pennsylvania Association of Computer and Information Science Educators, Fall Conference, October 1993.
- "Using FORGE to Generate Distributed Memory Node Programs for the CM-5," Supercomputer Research Center, September 1993.
- "A Scheduler-Sensitive Global Register Allocator," Supercomputing Research Center, Bowie, MD, April, 1993.
- "Building Incremental Transformation Systems for Producing Highly Optimized Code," University of Delaware, March 1992.
- "Parallelizing Data Flow Analysis," University of Delaware, Oct. 1991
- "Compilers," CISC 105, University of Delaware, Oct 1991.
- "Building Incremental Transformation Systems for Producing Highly Optimized Code," University of Delaware, March 1992.
- "Programming Environments for Highly Optimized Programs"
- University of Houston, Houston, TX, October 1988
  - Houston Chapter of the ACM, Houston, TX, February 1989
  - University of Alabama, Tuscaloosa, Alabama, February 1989
  - Virginia Polytechnic Institute and State University, Blacksburg, VA, April 1989
  - Texas Tech University, Lubbock, TX, March 1989
- "Attribute Grammars in Incremental and Parallel Environments"
- University of Alabama, Birmingham, Alabama, February 1989
  - Louisiana State University, Baton Rouge, LA, April 1989
  - University of Central Florida, Orlando, Florida, May 1989
  - Allegheny College, Meadville, PA, May 1989
- "Enabling Optimization in a Fine-grained Incremental Compiler," University of Virginia, Charlottesville, VA, April 1989
- "Building Incremental and Parallel Environments," Austin Alumni of Rice University, Austin, TX, September 1989

## Student Research Supervision

### *Ph.D. Dissertation Advisor (Students Completed):*

- Antonios Danalis, May 2013, A Vertically Integrated Approach to Improving Communication Performance in Clusters, (Co-advisor with Martin Swamy), (Univ of Tennessee).
- Giriprasad Sridhara, January 2012, Automatic Generation of Descriptive Summary Comments for Methods in Object-oriented Programs (IBM Research, India).

Emily Gibson Hill, August 2010, Integrating Natural Language and Program Structure Information to Improve Software Search and Exploration (Assistant Professor, Drew U.).

Ben Breech, August 2008, Testing Security Mechanisms for Program-based Attacks via Dynamic Compilers (Army Research Lab).

Mike Jochen, May 2008, Mobile Code Security through Static Program Analysis, Steganography, and Program Fingerprinting, (Assoc Professor, East Stroudsburg U.)

Sara Sprenkle, August 2007, Strategies for Automating Exposing Faults in Web Applications, (Associate Professor, Washington and Lee University).

David Shepherd, August 2007, Natural Language Program Analysis: Combining Natural Language Processing with Program Analysis to Improve Software Maintenance Tools, (Co-advisor with K. Vijay-Shanker), (ABB Corporate Research).

Sreedevi Sampath, May 2006, Cost-effective Techniques for User-session-based Testing of Web Applications, (Associate Professor, University of Maryland at Baltimore County).

Alban Douillet, May 2006, Loop Nest Software-Pipelined Multithreaded Cellular Architectures, (Co-advisor with Guang Gao, Nvidia).

Dixie Hisley, December 2003, Program Analysis and Optimization of Explicitly Parallel OpenMP Programs, (Army Research Laboratory).

Tom Way, May 2002, Scalable Procedure Restructuring for Ambitious Optimization, (Assoc Professor, Villanova University).

Amie Souter, May 2002, Context-driven Testing of Object-Oriented Software Systems. (Audible).

Cheer-Sun Yang, May 1999, "Program-based, Structural Testing of Shared Memory Parallel Programs," (Associate Professor, West Chester University).

James B. Fenwick, Jr., May 1998, "Compiler Analysis and Optimization of Linda Parallel Programs," (Associate Professor, Appalachian State University).

Mark Chu-Carroll, May 1997, "Programming Language and Compiler Support for General Purpose Parallelism," (Research Scientist at Twitter).

Cindy Norris, May 1995, "Cooperative Register Allocation and Instruction Scheduling," (Associate Professor, Appalachian State University, recipient of NSF CAREER award, 1996).

Alan Carle, April 1992, "A Class of Hierarchical Attribute Grammars: Incremental Evaluation and Applications," Dept. of Computer Science, Rice University.

*Ph.D. Dissertation Advisor (Students In Progress):*

Xiaoran Wang, started fall 2010, passed proposal June 2014, Co-advisor: Vijay Shanker.

Irene Manotas Gutierrez, passed proposal fall 2014, Co-advisor: James Clause.

Cagri Sahin, passed proposal Fall 2014, Co-advisor: James Clause.

Vallary Singh, passed prelims fall 2014.

Ningjing Tian, passed prelims summer 2015.

Shiyi Chen, started fall 2014.

Preetha Chatterjee, fall 2014.

*Ph.D. Committees (member):*

Paul Burney, Notre Dame, 2016.

Amir Reza Yazdanshenas, University of Oslo, 2015.

Ethan Pan, UD Dept of Edu, 2014.

Venera Amaoudova, Ecole Polytechnique Montreal, 2014.

Linda Grusenmeyer, UD Department of Edu, 2013.

Surafel Lemma Abebe, Fondazione Bruno Kessler, Trento, 2013.

Sonia Haiduc, Wayne State University, May 2013.

E.J. Parks, University of Delaware, in progress.

Elinar Host, University of Oslo, 2010-2011.

Artour Stouchinin, ECE, University of Delaware, "A Code Generation Scheme for Irregular Loops", proposal September 1999.

Andres Marquez, ECE, University of Delaware, "The Multistrand Architecture," January 2004.

Hongbo Yang, ECE, University of Delaware, "Power-Aware Compilation Strategies," December 2003.

Atif M. Memon, University of Pittsburgh, "A Framework for Testing Graphical User Interfaces using Planning," July 2001.

Jyh-Shiarn Yur, Rutgers University, "Incremental Analysis for Flow- and Context-sensitive Data-Flow Problems, July 1999.

Andrew Wack, University of Delaware, "Partitioning Dependency Graphs for Concurrent Execution: A Parallel Spreadsheet on a Realistically Modeled Message Passing Environment," Dept. of Computer and Information Sciences, University of Delaware, August 1995.

Mike Berman, "Lower and Upper Bounds for Incremental Algorithms," Dept. of Computer Science, Rutgers University, May 1992.

Carl Rosene, "Incremental Dependence Analysis," Dept. of Computer Science, Rice University, May 1990.

Vasanth Balasundaram, "Interactive Parallelization of Numerical Scientific Programs, Dept. of Computer Science, Rice University, May 1989.

Allan Porterfield, "Software Methods for Improvement of Cache Performance on Supercomputer Applications," Dept. of Computer Science, Rice University, May 1989.

Richard Marty, "Stratigraphy and Chemical Sedimentology of Cenozoic Biogenic Sediments from the Pisco and Sechura Basins," Dept. of Geology and Geophysics, Rice University, May 1989.

*Master's Research Advisement:*

Rithika Gogineni, 2014.

Aditi Garg, 2014.

Divya Muppaneni, 2013.

Samir Gupta, coadvised with Shanker, 2012-2013.

Amrutha Thotakura, 2012.

Harish Tungaturthi, coadvised with Shanker, 2012.

Suparna Gundagathi Manjunath, 2010-2011.

Poonam Chawla, 2010-2011.

Divya Muppaneni, 2009-1/2011.

Kishen Maloor, "Exploring Novel Natural Language Clues in Source Code," 2007-2008.

*Undergraduate Research Supervised:*

Michael Dillon, 2015-present.  
Rachel Kraft, 2015.  
Danielle Wegrzyn, 2014-2015.  
Rebecca Kowalski, 2014-2015.  
Ryan Serva, 2014-present.  
Zachary Senzer, 2013-present.  
Brittany Gradel, 2013-2014.  
Matthew Howard, 2012-2013.  
Casey Casalnuovo, 2011-12; Senior Thesis, 2013.  
Austin Cory Bart, Seniors Thesis, 2011-12.  
Michelle Allen, REU, 2010, 2011.  
Sana Malik, Science and Eng Scholar, 2009-10, Honors Thesis 2010-11.  
Camille Cobb, CRA-W DREU, 2009.  
Carrie Hopkins, CRA-W DREU, 2009.  
Katie Baldwin, CRA-W DREU, 2009.  
Jonathan Schall, Science and Eng Scholar, 2009-10.  
Eric Enslen, Science and Eng Scholar, REU 2009-10.  
Lucy Simko, Washington and Lee University, summer 2008.  
Haley Boyd, Science and Eng Scholar, REU 2008.  
Yana Novikova, "Integrating Information Retrieval with NLP for a Program Navigation Tool, 2007, Indpt study 07.  
Meilani Williams, CRA DMP summer 2007.  
Holly Esquivel, Visor, "A Visualization Tool for Web Application Testing," summer 2006, CRA Distributed Mentor Project.  
Barbara Hazelwood, "A Visualization Tool for Web Application Testing," summer 2006, CRA Distributed Mentor Project.  
Zachary Fry, "Investigating the Use of Verbs in Programs Using Dynamic Program Analysis," 2007-2008, Honor's Thesis.  
Magnus Johan Jonsson, "Extending Open64 for Optimizing Computation-Communication Overlap," 2006.  
Sue Lister, "Investigating Natural Language Patterns in Source Code," 2006.  
Stacey Ecott, "Fault-based Mutation Operators for Web Applications," summer 2005, CRA Distributed Mentor Project.  
Lewis Fishgold, "An Automated Approach to Improving Communication-Computation Overlap in Clusters," Senior Honors Thesis, 2005.  
Anteneh Addis Anteneh, "Adding Security Controls to Dynamically Optimized Mobile Programs," Senior Thesis, 2005.  
Ki-Yong Kim, "Exploring Applicability of a Vertically Integrated Approach to Optimizing Cluster Parallel Programs, Senior Thesis, 2005.  
Mike Tegtmeyer, "Novel Impact Analysis Algorithms," independent study, 2005.  
Frank Zappaterrini, "Logging Web Application Usage," independent study, 2005.

Lewis Fishgold, "Program Fingerprint Comparison Algorithms," Science and Engineering Scholar, summer 2003-spring 2004.

Anteneh Anteneh, "Constructing a Canonical Form of a Program Fingerprint," Science and Engineering Scholar, summer 2003-spring 2004.

Carol Reiley, "A Program Slicing Tool for Parallel Programs," summer 2003, CRA Distributed Mentor Project.

Michael Brennan, "Building a Program Representation for Mobile Code Fingerprinting," 1/2002-present.

Emily Gibson, "Building a Model of Frame Structure and Interaction for Web Sites, summer 2002, CRA Distributed Mentor Project.

Michael Tegtmeier, "Building an OpenMP Compiler," Independent Study, spring 2002, summer 2002-present.

Margarita Golod, "Characterization Study of Web Programs," Independent Study, winter 2002.

Matt Bridges, "Program Slicing of Parallel Programs," Honor's Thesis, 2001-2002.

Veselin Stoyanov, "Investigating Partial Redundancy Elimination for Explicitly Parallel Programs," Honor's Thesis, 2001-2002.

Jean Mohammadi-Aragh, "A Tool for Evaluating Testing Coverage", summer 2001, CRA Distributed Mentor Project.

Laura McGlade, "Testing of Web Applications," summer 2001, CRA Distributed Mentor Project and University Science and Engineering Scholar.

Nina Bawa, "A Preprocessor for a Software Testing Tool for Object-oriented Programs," spring 2001.

Tiffany Wong and Stacey Shindo, "Software Testing for Object-oriented Programs," CRA Distributed Mentor Project, summer 2000.

Matthew Bridges, "Graphical Tool for Region Graphs," 2000, University Science and Engineering Scholar.

Veselin Stoyanov, "From Region Profiling to Path Profiling," 2000, University Science and Engineering Scholar.

Will Lowe, "Profiling Irregular Applications on a Multithreaded Architecture," Honor's Thesis, University of Delaware, 1998-99.

Sara Sprenkle, "Static Analysis of MPI Parallel Programs," CRA Distributed Mentor Project, summer 1998.

Amie Souter, "Design and implementation of a graphical display tool for intermediate program representations," Honor's thesis, Bucknell University, and summer 1995 research project.

Amy McGovern, Design and implementation of an instruction scheduler with reverse IF conversion, mentee as part of CRA Distributed Mentor Project, summer 1994.

Amie Souter, Design and implementation of an intermediate code translator, mentee as part of CRA Distributed Mentor Project, summer 1994.

Greg Tietgen, senior at the University of Delaware, Implementation and experimental study of effective register allocation-sensitive software pipelining, NSF REU Supplement, Fall 1994 - January 1995.

#### *Undergraduate Research Participation:*

Second Reader for honor's thesis, Philip Soponaro, 2009-10.

Second Reader for honor's thesis, Andrew Gearhart, 2007-08.

Second Reader for honor's thesis, Mark Butala, 2001-02.

Second Reader for honor's thesis, Rishi Khan, 1999-2000.

## **Summary of Teaching Activities**

Recipient, University of Delaware Excellence in Teaching Award, May 2001

Lead Teacher, Partner4CS Professional Development Workshop CS Principles Module Track, (4 1/2 days), 2014.

Co-created and teach field experiences in teaching computer science course, 2013-present

Co-created teach the first service learning course in CISC at UD, 2009-present

Created and led study abroad program for CISC majors, London, summer 2008

Co-created and led the first study abroad program for CISC majors, Switzerland, summer 2007

Undergraduate Courses:

University of Delaware

CISC 105 General Computer Science (Spring '95, Fall '95)

UNIV 101 First Year Experience (Fall '09, Fall '10)

CISC 106 Introduction to Computer Science (Fall '11)

CISC 260 Microcomputers and Assembly Language (Fall '91)

CISC 366 Independent Study - Python for Robots and XO Laptops (Winter '09)

CISC 367/374 Learning Game Development (Fall '10,12, Spring 14, Spring 15)

CISC 367 Introduction to Parallel Programming (Spring '97, Spring '98)

CISC 367 Software Tools for the Software Life Cycle (study abroad)(Summer '07)

CISC 367 Service Learning with XO Laptops (Fall '09, Spring '10)

CISC 357/367 Field Studies in Teaching Computer Science

(Spring '13, Fall '13, Spring '14, Fall '14, Spring 15, Fall 15)

CISC 372 Parallel Programming (Spring '00, Fall '03, Fall '04, Fall '06, Fall '07)

CISC 470 Programming Languages (Fall '00)

CISC 471 Compiler Construction (Spring '08), Fall '13, Fall '14, Fall 15

EGGG 101 Introduction to Engineering (Fall 15)

Rice University

Introduction to Computer Science for non-majors (Spring '86).

Intermediate Programming (Spring '87, Fall '87, Fall'89)

Compiler Construction (Spring '88, Spring '89)

University of Pittsburgh (while a graduate student)

Intermediate Programming (3 semesters)

Introduction to Computer Science (2 semesters)

Introduction to Programming (1 semester)

Graduate Courses:

University of Delaware

CISC 615 Software Testing and Maintenance, Spring '12

CISC 670 Programming Languages (Fall '91, Fall '92, Fall '00)

CISC 672 Compiler Construction (Spring '92, Spring '93, Spring '94, Spring '95, Spring '96, Spring '97, Spring '98, Spring '00, Spring '01, Spring '02, Spring '03, Spring '04, Spring '05, Fall '06, Fall '10, Fall '13, Fall'14, Fall 15)

CISC 872 Advanced Program Analysis and Transformations (Fall '99, Fall '01, Spring '05)

CISC 872 Optimizing and Parallelizing Compilers (Spring '92, Fall '93, Fall '95)

CISC 873 Compiling for Advanced Architectures (Fall '02)

CISC 874 Introduction to Parallel Computing (Spring '93, Fall '94, Fall '96)

CISC 879 Issues in High Performance Computing (Spring '97)

CISC 879 Compilation Research Issues for Massive Parallelism (Fall '94)

CISC 879 Java: Compilers, Tools, and Applications (Spring '98)

CISC 879 Parallelization of Scientific Applications (Fall '00)

CISC 879 Software Testing and Maintenance (Fall '08, Spring '04, Fall '09)

CISC 879 Software Tools and Environments (Spring '07)

CISC 879 Text Analysis for Software Engineering (Fall '13)

Coordinator, CIS 890 Special Interest Group on Compiling for High Performance Computing,

CISC 890: SIGHPC: weekly seminar, fall/spring semesters, 6/92-6/00.

Coordinator, CIS 890 Special Interest Group on Program Analysis and Compilation Techniques,

CISC 890: SIGPACT: weekly seminar, fall/spring semesters, 9/00-present.

CISC 890: SIG-NEWGRAD: weekly seminar, Fall '04, Fall '06.

Rice University

Advanced Compiler Construction (Fall '86, Fall '88, Spring '90)

## Professional Activities

### *External Professional Research Leadership Activities:*

Associate Editor, ACM Transactions on Software Engineering and Methodology, 2008-2014.  
Acting Editor-in-Chief (for conflict papers), ACM Transactions on Software Engineering and Methodology, 2012-2014.  
Doctoral Symp Chair, International Conference on Software Maintenance, 2016.  
Program CoChair, International Conference on Software Maintenance and Evolution (ICSME), 2014.  
Doctoral Symp CoChair, International Conference on Software Testing, 2014.  
Doctoral Symp Chair, International Conference on Software Maintenance, 2013.  
CoOrganizer, NaturaLiSE Workshop at ICSE 2013.  
CoOrganizer, TAINSE Workshop at ICSM 2012.  
Program and General Cochair, Workshop on Program Analysis for Software Tools and Analysis (PASTE) 2011.  
Member, ISSTA Steering Committee, 2006-2010.  
Tutorials Chair, International Conference on Software Maintenance (ICSM) 2011.  
CoChair, Language and Compiler Techniques for Parallel Computing (LCPC), 2009.  
CoChair, Systems Research Mentoring Workshop, 2008.  
Organizer, FSE Student Research Symposium, 2008.  
Conference Chair, Intl Symp on Software Testing and Analysis, ISSTA, 2006.  
Member, Steering Committee for Midatlantic Student Workshop on Prog Lang and Systems, 2002-2010.  
Chair, Midatlantic Student Workshop on Prog Lang and Systems, 2005.  
CoChair, Workshop on Dynamic Analysis, WODA, 2005.  
Chair, Student Research Forum, ACM SIGSOFT Foundations of Software Engineering, FSE, November 2004, 2002.  
Co-Chair, Student Research Forum, ACM Conf on Programming Language Design and Implementation, PLDI, June 2001.  
Awards Committee Member, Most Influential PLDI Conference Paper Award, 2001.  
Chair, Midatlantic Student Workshop on Programming Languages and Systems, (MASPLAS'00), April 2000.  
Invited Distinguished Lecturer and Panel Member, CRAW/Lucent Distinguished Lecture Series, April 2000.  
Elected Vice Chair of the ACM SIGPLAN Executive Committee (June 1999-June 2001).  
Awards Committee Chair, Most Influential PLDI Conference Paper Award, 2000.  
Organizing Committee, International Symposium on Software Testing and Analysis, (ISSTA), 1998.  
Elected Secretary/Treasurer of the ACM SIGPLAN Executive Committee (June 1997-June 1999).  
Member of the ACM SIGPLAN Executive Committee (June 1997-June 1999).  
Elected Secretary of the ACM SIGPLAN Executive Committee (June 1995-June 1997).  
Member of the ACM SIGPLAN Executive Committee (June 1995-June 1997).  
Member of Workshop Committee for Supercomputing (1995).  
Publicity Chair, ACM Conference on Programming Language Design and Implementation, (June 1994).  
Research Mentor, CRA Distributed Mentor Project, (1994, 1995, 1998, 2000, 2001, 2002).  
Treasurer, 15th Annual ACM SIGACT-SIGPLAN POPL Symposium, (1988).  
ACM National Visiting Lecturer, (1988 - 1990).  
Reviewer for  
National Science Foundation  
Canadian Foundation for Innovation  
ACM Transactions on Programming Languages and Systems  
IEEE Transactions on Parallel and Distributed Systems  
IEEE Transactions on Software Engineering  
ACM Transactions on Software Engineering and Methodology  
Automated Software Engineering Journal  
Software Testing, Verification and Reliability Journal  
The Computer Journal  
International Journal of Parallel Programming  
Journal of Programming Languages  
IEEE Computers and Digital Techniques  
Parallel Computing  
HPCA

### *External Professional Teaching, Diversity, Mentoring, Outreach Activities:*

CRA Education Committee Member 2014-present.  
Member, Computer Science Teachers Association (CSTA) 2015-2016 Standards Revision Task Force.

CoChair, CRA-W Undergraduate Research Mentoring Workshop at ICSE 2016.  
 PI and CoChair, CRA-W Undergraduate Townhalls Project, 2014-present.  
 Member, CRA Undergraduate Research Awards Selection Committee, 2014.  
 Representative and Speaker, State of Delaware Contingent to New York City Roundtable on CS in Schools. 2014.  
 PI and Team Lead on NSF CE21 CS10K project Partner4CS in State of Delaware, 2012-present.  
 Coorganizer/presenter, SIGCSE Workshop on Making the Most of Undergraduate Research 2011, 2012, 2013.  
 Conference CoChair and Leadership Committee Member, Grace Hopper Celebration, 2011.  
 Program CoChair and Leadership Committee Member, Grace Hopper Celebration, 2010.  
 Advisory Board Member, ACM-W/ABI Regional Grace Hopper Conferences project.  
 Chair, Academic Advisory Board, Grace Hopper Celebration, 2009.  
 CoChair, CRA-W (Annual) Graduate Cohort, 2009-2014.  
 Steering Committee Member, CRA Committee on the Status of Women in Computing Research (CRA-W), 2005 - present.  
 Panel Member, Mentoring Difficult and Sensitive Issues, Grace Hopper Celebration, 2009.  
 CoChair, CRA Committee on the Status of Women in Computing Research, Sep 2005-2009.  
 Board Member, Committee on the Status of Women in Computing Research (CRA-W), May 2001 - present.  
 Advisory Board Member, Commonwealth Alliance for Information Technology Education (CAITE), UMass.  
 Review Panel Member, Mount Holyoke College CS Department Review, 2006.  
 Chair, Steering Committee, Intl Symp on Software Testing and Analysis, 06-07.  
 Panel Member, Grace Hopper Panel on Undergraduate Research Opportunities, 2007.  
 Member, Academic Advisory Board, Grace Hopper Conference, 2007.  
 Chair, CRA-W Career Mentoring Workshop, 2005.  
 CoChair, PhD Forum, Grace Hopper Conference, 2004, 2006.  
 CoChair, Graduate Cohort Program and Workshop, 2004, 2005.  
 Chair, CRA-W Career Mentoring Workshop, with FCRC, June 2003.  
 Panel Member, Grace Hopper Conference, Undergraduate Research, September 2002.  
 Member, Committee on Science and the Arts, The Franklin Institute, (Computer and Cog Sci Cluster), June 2001-Sept 2004.  
 Chair, ACM SIG Discretionary Fund Committee, June 1997 - June 1999.  
 Member of DANTE (Defense Activity for Non-traditional Education Support) Exam Writing Committee, March 1998.  
 Member of ACM SIG Discretionary Fund Committee, (August 1996 - May 1998).  
 Member, ACM National Committee on Student Membership and Chapters, (1980-1982).  
 Editor of the ACM national Student Newsletter, (1981-1982).

*Program Committees:*

ISSTA 2016, MSR 2016, ICSE 2016 Technical Briefings, ICPC 2015, ICST 2015. SANER 2015.  
 ICSE 2014. ASE 2014 ERC, ASE 2013. ICPC 2013. ICSE 2013 Formal Research Demos.  
 ICST 2013. ICSM 2013. ISSTA 2013 Doct Symposium. WCRE 2913,  
 ICSE 2012. ISSTA 2012. ASPLOS 2012. ETSE 2012. FSE 2012 Demos. Regression 2012.  
 WCRE Industry 2012. OOPSLA 2011. ASPLOS 2011.  
 MSR 2011.  
 International Symposium on Software Testing and Analysis (ISSTA) 2010.  
 International Conference on Software Maintenance (ICSM) 2010.  
 Workshop on Program Analysis for Software Tools and Engineering (PASTE) 2010.  
 Conference on Mining Software Repositories (MSR) 2010.  
 Workshop on Advances in Message Passing (AMP) 2010.  
 External Review Committee, Programming Language Design and Implementation (PLDI) 2010.  
 Compiler Construction (CC09).  
 International Conference on Software Maintenance (ICSM) 2009.  
 International Symposium on Software Reliability and Engineering (ISSRE) 2009.  
 International Conference on Software and Data Technologies (ICSOFD) 2009.  
 Architectural Support for Programming Languages and Operating Systems (ASPLOS09).  
 International Conference on Software Testing (ICST) 2009.  
 Conference on Mining Software Repositories (MSR) 2009.  
 First Workshop on Web Testing (WebTest09).  
 Language and Compiler Techniques for Parallel Computing (LCPC) 2008.  
 Workshop on Testing Analysis and Verification for Web Applications (TAV-WEB), 2008.  
 International Conference on Software Maintenance (ICSM) 2008.  
 Workshop on Linking Aspect Technology and Evolution (LATE) 2007, 2008.



International Conference on Software and Data Technologies, ICSOFT 2007, 2008.  
 Programming Language Design and Implementation (PLDI) 2007.  
 International Conf on Soft Engineering (ICSE) 2006.  
 10th European Conference on Software Maintenance and Reengineering (CSMR) 2006, 2007, 2008.  
 International Symp on Software Testing and Analysis (ISSTA) Big-New-Ideas papers 2006.  
 International Symp on Software Testing and Analysis (ISSTA) Industry papers 2006.  
 Workshop on Towards Evaluation of Aspect Mining, TEAM 2006.  
 International Conference on Software Engineering Advances, ICSEA 2006.  
 Third International Workshop on Software Quality Assurance, SOQUA 2006.  
 Workshop on Linking Aspect Technology and Evolution (LATE) 2006.  
 Workshop on Testing Analysis and Verification for Web Applications (TAV-WEB), 2006.  
 Workshop on Dynamic Analysis (WODA), 2005, 2006.  
 Workshop on Remote Analysis and Measurement of Software Systems (RAMSS '04).  
 eclipse Technology eXchange Workshop at ETAPS, March 2004.  
 Programming Languages Track of the Symposium for Applied Computing, 2004.  
 eclipse Technology eXchange Workshop at OOPSLA'03, October 2003.  
 Software Engineering Education Track of the Intl Conf on Software Engineering (ICSE'03), May 2003.  
 International Symposium on Software Testing and Analysis (ISSTA'02), July 2002.  
 International Conference on Parallel Architectures and Compilation Techniques (PACT'00), October 2000  
 5th International Workshop on Languages, Compilers, and Runtime Systems for Scalable Computers, (LCR) (May 2000)  
 10th International Conference on Parallel and Distributed Computing and Systems (PDCS'98) (October 1998)  
 ACM SIGPLAN Principles and Practice of Parallel Programming '97 (PPoPP, June 1997)  
 Supercomputing '96 (November 1996)  
 ACM Conference on Programming Language Design and Implementation (PLDI, June 1995)  
 Supercomputing '94 (November 1994)  
 Programming Languages Track of the Symposium for Applied Computing (March 1994)

*Proposal Review Panels (served within 1995-present):*

NSF ITR/CCF Small, Medium, Large Panels  
 NSF CSEMS Panel  
 NSF Experimental Software Systems Panel  
 NSF CAREER Panel Review  
 NSF Research Initiation Awards Program  
 Department of Energy Research Review Panel  
 NSF ILI Panel Review  
 NSF REU Site Panel Review

*Professional Memberships*

IEEE Computer Society  
 Association for Computing Machinery (ACM)  
 ACM Special Interest Group in Programming Languages (SIGPLAN)  
 ACM Special Interest Group in Software Engineering (SIGSOFT)  
 CSTA Member

## Department and University Service Activities

University of Delaware

Chair, Adhoc College of Engineering Committee on EGGG Revision, 2014-present.  
 Member, CIS Department Faculty Recruiting Committee 2015.  
 Member, CIS Department Undergraduate Committee 2014-present.  
 Chair, UD Masters in Software Engineering Program Committee, 2010-2012.  
 Member, UD ADVANCE team for Faculty Mentoring and Recruitment Workshop Development, 2009-2012.  
 Chair, CIS Department Publicity Committee, 2011-2012.  
 Co-Liaison, STARS at Univ of Delaware, 2012-2014.  
 Co-Liaison, NCWIT at Univ of Delaware, 2012-present.  
 Member, UD Middle States Review Committee (specializing in graduate education and research), 2009-2011.

Member, UD CIS/ECE Curriculum Development team for Masters in Software Engineering, 2008-2010.  
 Member, UD Curriculum Development team for Computational Science certificate program, 2008-2009.  
 Advisor, UD Master of Software Engineering program, 2009-present.  
 Member, Women in Science and Engineering (WISE) 2006-2010.  
 Round Table Moderator, Promotion and Tenure Panel, 2008.  
 Co-Organizer, UD CS Research Day, 2008.  
 Member, CIS Graduate Program Committee, 2007-2009.  
 Co-Curator, CIS Museum, 2006-present.  
 Member, CIS Faculty Recruiting Committee, 2005-07.  
 Member, CIS Executive Committee, 2004-2005.  
 Chair, CIS Space Committee, 2005.  
 Member, Math Department Faculty Recruiting Committee, 2004-2005.  
 Member, CIS Graduate Program Committee, 2003-2004.  
 Member, CIS Recruiting Committee for Assistant to the Chair, 2003.  
 Panelist, University New Faculty Orientation Panel, Fall 2004.  
 Panelist, College Blue and Golden Days Panel, 2004.  
 Member, CIS Chair Review Committee, 2003-2004.  
 Chair, CIS Graduate Program Committee, 2002-2003 (with major curriculum review).  
 Chair, CIS Undergraduate Committee, 1999-2002 (with development of new major in Info Systems).  
 Chair, Arts and Science College Awards Committee, 2001-2004.  
 Member, Arts and Science College Senate Steering Committee, 2001-2003.  
 Chair, New CIS MIS Major Curriculum Development Committee, 2001-2002.  
 Member of Colburn Prize Award Committee, spring 2001.  
 Arts and Science College Awards Nominations Committee Member, 1999.  
 Judge, Delaware Math, Science, and Engineering Competition, 1999.  
 Member of CIS Lecturer Recruiting committee, 1999.  
 Promotion and Tenure Panel Member, 1999.  
 Representative of CIS Dept on Engineering Accreditation Visit, 1999.  
 Member of Colburn Prize Award Committee, spring 1998.  
 Fellow, Institute for Transforming Undergraduate Education, June 1997.  
 Undergraduate Advisor for about 30 students, September 1994 - present.  
 Co-Instructor, University of Delaware Engineering Outreach Program, "Introduction to Objected-Oriented Programming and C++," January 1996, June 1997.  
 Member of CIS Department Infrastructure Proposal Committee, September 1995 - August 1996.  
 Member of CIS Department Computing Equipment Plan Committee, January 1995.  
 Member of CIS Department Recruiting Committee, September 1994 - present.  
 Member of CIS Department Chairperson Search Committee, 1993 - 1994, 1998 - 1999.  
 Member of CIS Department Undergraduate Committee, 1993 - 1994, 1997-98.  
 Advisor for Juniors, September 1993 - September 1994.  
 Member of CIS Department Graduate Committee, September 1992 - September 1993.

#### Rice University

Member, Graduate Admissions Committee, CS Dept., February 1990-May 1990.  
 Chairperson, Affiliates Committee, CS Dept., September 1988-January 1990.  
 Member, Undergraduate Committee, CS Dept., September 1987-May 1990.  
 Member, Faculty Recruiting Committee, CS Dept., September 1987-September 1988.  
 Chairperson, Colloquium Committee, CS Dept., June 1986-September 1987.  
 Faculty Associate, Hanszen College,, September 1989-May 1990