

Richard Erick Kurt Stirewalt

Associate Professor
Dept. of Computer Science and Engineering
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East Lansing, Michigan 48824
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EDUCATION

- Ph.D. Computer Science, College of Computing, Georgia Institute of Technology, Atlanta, Georgia, 1997.
Thesis Advisor: Dr. Spencer Rugaber
Dissertation: *Automatic Generation of Interactive Systems from Declarative Models*
- M.S. Information and Computer Science, College of Computing, Georgia Institute of Technology, Atlanta, Georgia, 1991.
- B.S. Information and Computer Science, Department of Information and Computer Science, Georgia Institute of Technology, Atlanta, Georgia, 1989.

PROFESSIONAL EXPERIENCE

- Associate Professor (with tenure), Department of Computer Science and Engineering, Michigan State University, East Lansing, Michigan (September 2004 to present).
- Assistant Professor, Department of Computer Science and Engineering, Michigan State University, East Lansing, Michigan (January 1998 to August 2004).
- Research Scientist I, Graphics Visualization, and Usability Center, Georgia Institute of Technology, Atlanta, Georgia (1995 to 1997).
- Graduate Research Assistant, College of Computing, Georgia Institute of Technology, Atlanta, Georgia (1994 to 1995).
- Member of the Technical Staff, The MITRE Corporation, McLean, Virginia (1991 to 1994).

RESEARCH GRANTS

External

- “Using contracts to support development, verification, and maintenance of multi-threaded systems,” PIs: R. E. K. Stirewalt and L. K. Dillon, NSF CCF 0702667, 7/1/2007 - 6/30/2010, \$400,000.
- “Trustworthy Computing: Integrating Threat Modeling and Privacy into an Undergraduate Computer Science Curriculum,” PIs: R. E. K. Stirewalt, R. Enbody, and L. Xiao, Microsoft Trustworthy Computing Program, 2005-2006, \$50,000.
- “A proxy-centric testbed for mobile internet research,” PI: P. K. McKinley; Co-PIs: R. E. K. Stirewalt, B. H. C. Cheng, L. K. Dillon, S. Kulkarni, and J. Lee. NSF EIA-0130724, 1/1/02-12/31/04, \$96,390.
- “RAPIDware: Component-based development of adaptive and dependable middleware,” PI: P. K. McKinley; Co-PIs: R. E. K. Stirewalt, B. H. C. Cheng, L. K. Dillon, and S. Kulkarni. ONR Critical Infrastructure Protection Program, 2001-2006, \$3.1M.
- “Meridian: An integrated toolkit for developing interactive distributed applications,” PI: B. H. C. Cheng; Co-PIs: L. K. Dillon, P. K. McKinley, and R. E. K. Stirewalt. NSF EIA-0000433, 1/1/01-12/30/05 \$1.9M.
- “DYNAMO: DYNAMIC Assembly from MOdels,” PI: R. E. K. Stirewalt. Sponsored by DARPA program: Dynamic Assembly for Systems Adaptability, Dependability and Assurance 7/28/00 - 7/27/02, \$153,000.
- “CAREER: The layering problem in graphical user-interface design,” PI: R. E. K. Stirewalt. NSF CCR-9984727, 5/1/00-4/30/04, \$220,000.
- “Object-oriented development and analysis of embedded systems,” PI: B. H. C. Cheng; Co-PI: R. E. K. Stirewalt. NSF CCR-9901017, 8/16/99-7/31/02, \$379,000. Additional \$14,000 through an REU supplement.

Internal

- “Integrating Protocol Constraints into a User-interface Toolkit”, PI: K. Stirewalt. MSU All University Research Initiation Grant (AURIG), 1998-1999, \$15,000.

BOOK CHAPTERS

- J. H. Sowell and R. E. K. Stirewalt, "A Feature-Oriented Alternative to Implementing Reliability Connector Wrappers," in R. de Lemos, C. Gacek, and A. Romanovsky, editors, *Architecting Dependable Systems III*, Springer Lecture Notes in Computer Science, Volume 3549, September 2005, pages 232–256.
- T. Browne, D. Davila, S. Rugaber, and K. Stirewalt, "The MASTERMIND user-interface generation project," *Applications of Formal Methods in Human Computer Interaction*, F. Paterno, G. Abowd, and P. Palanque (Editors), Springer-Verlag Publishers, June 1997.

JOURNAL PUBLICATIONS

- R. E. K. Stirewalt and V. Wiels, "Guest Editors Introduction," appears in *Automated Software Engineering*, 14(1), 2007.
- B. Sarna-Starosta, R. E. K. Stirewalt, and L. K. Dillon, "A Model-Based Design for Verification Approach to Checking for Deadlock in Multi-Threaded Applications," Appears in *International Journal of Software Engineering and Knowledge Engineering*, 17(2):207-230, 2007.
- M. Deng, R. E. K. Stirewalt, and B. H. C. Cheng, "Retrieval by Construction: A Traceability Technique to Support Verification and Validation of UML Formalizations," *International Journal of Software Engineering and Knowledge Engineering*, October 2005.
- S. Rugaber and R. E. K. Stirewalt, "Model-driven reverse engineering," *IEEE Software* 21(4), July/August, 2004, pages 45–53.
- L. K. Dillon and R. E. K. Stirewalt, "Inference graphs: A computational structure supporting generation of customizable and correct analysis components," *IEEE Transactions on Software Engineering* 29(2), February 2003.
- L. A. Campbell, B. H. C. Cheng, W. E. McUumber, and R. E. K. Stirewalt, "Automatically detecting and visualizing errors in UML diagrams," *Requirements Engineering Journal* 7(4), December, 2002, pages 264–287.
- P. K. McKinley, R. E. K. Stirewalt, B. H. C. Cheng, L. K. Dillon, and S. S. Kulkarni, "Interactive distributed applications and the computer science curriculum," *IEEE Distributed Systems Online*, 3(10). October 2002.
- R. E. K. Stirewalt and S. Rugaber, "The Model Composition Problem in user-interface generation," *Automated Software Engineering* 7(2), April 2000, pages 101–124.
- S. Rugaber, R. E. K. Stirewalt, and L. M. Wills, "Understanding interleaved code," *Automated Software Engineering* 3(1), June 1996, pages 47–76.
- D. H. Gill, T. J. Smith, T. E. Gerasch, J. V. Warren, C. L. McCreary, and R. E. K. Stirewalt, "Spatial-temporal analysis of program dependence graphs," *Journal of Parallel and Distributed Computing* 19, April 1993, pages 103–118.

INDUSTRIAL PUBLICATIONS

D. H. Gill, T. J. Smith, T. E. Gerasch, J. V. Warren, C. L. McCreary, and R. E. K. Stirewalt, "Spatial-temporal analysis of program dependence graphs," *MITRE Journal*, 1994, pages 87–109. (Reprint of JPDC paper; awarded best paper).

REFEREED CONFERENCE PUBLICATIONS

- S. Xie, E. T. Kraemer, R. E. K. Stirewalt, L. K. Dillon, and S. D. Fleming, "Assessing the Benefits of Synchronization-Adorned Sequence Diagrams: Two Controlled Experiments," to appear in *Proc. of the ACM Symposium on Software Visualization (SOFTVIS'2008)*, Herrsching, Germany, September 2008.
- Y. Huang, L. K. Dillon, and R. E. K. Stirewalt, "On mechanisms for deadlock avoidance in SIP servlet containers," to appear in *Proc. of Principles, Systems, and Applications of IP Telecommunications (IPTComm'08)*, Heidelberg, July 2008.
- S. D. Fleming, E. T. Kraemer, R. E. K. Stirewalt, L. K. Dillon, and S. Xie, "Refining existing theories of program comprehension during maintenance for concurrent software," to appear in *Proc. of the IEEE International Conference on Program Comprehension (ICPC'08)*, Amsterdam, June, 2008.
- L. K. Dillon, R. E. K. Stirewalt, E. T. Kraemer, S. Xie, and S. D. Fleming, "Using Formal Models to Objectively Judge Quality of Multi-Threaded Programs in Empirical Studies," appears in *Proc. of the ICSE Workshop on Modeling in Software Engineering (MISE'08)*, Leipzig, Germany, May, 2008.
- S. D. Fleming, E. T. Kraemer, R. E. K. Stirewalt, S. Xie, and L. K. Dillon, "A Study of Student Strategies for the Corrective Maintenance of Concurrent Software," appears in *Proc. of the IEEE International Conference on Software Engineering (ICSE'08)*, Leipzig, Germany, May, 2008.
- S. D. Fleming, R. E. K. Stirewalt, and E. T. Kraemer, "Toward a Task Model of Concurrent Software Maintenance," appears in *Proc. of the ASE Workshop on Empirical Assessment of Software Engineering Languages and Technologies (WEASELTech'07)*, Atlanta, Georgia, November 2007.
- S. Xie, E. T. Kraemer, and R. E. K. Stirewalt, "Empirical Evaluation of a UML Sequence Diagram with Adornments to Support Understanding of Thread Interactions," appears in *Proc. of the 15th IEEE International Conference on Program Comprehension*, Banff, Alberta, June 2007.
- B. Sarna-Starosta, R. E. K. Stirewalt, and L. K. Dillon, "Contracts and Middleware for Safe SOA Applications," appears in *Proc. of the International Workshop on Systems Development in SOA Environments*, Minneapolis, May 2007.
- S. D. Fleming and R. E. K. Stirewalt, "Program Families and the Economics of the Design, Execution, and Interpretation of Maintenance Experiments," appears in *Proc. of the First Workshop on Assessment of Contemporary Modularization Techniques (ACoM.07)*, Minneapolis, May 2007.
- S. Xie, E. T. Kraemer, and R. E. K. Stirewalt, "Design and Evaluation of a Diagrammatic Notation to Aid in the Understanding of Concurrency Concepts," appears in *Proc. of the ACM/IEEE International Conference on Software Engineering*, Minneapolis, 2007.
- L. K. Dillon, R. E. K. Stirewalt, B. Sarna-Starosta, and S. D. Fleming, "Developing an Alloy Framework akin to OO Frameworks," in *Proc. of the First Alloy Workshop*, Portland, 2006.

- B. Sarna-Starosta, R. E. K. Stirewalt, and L. K. Dillon, "A Model-Based Design-for-Verification Approach to Checking for Deadlock in Multi-Threaded Applications," in *Proc. of the International Conference of Software Engineering and Knowledge Engineering (SEKE'06)*, 2006.
- R. E. K. Stirewalt, L. K. Dillon, and R. Behrends, "Using Views to Specify a Synchronization Aspect for Object-Oriented Languages," in *Proc. of the 16th International Z User Meeting (ZUM'2006)*, Columbia, Maryland, April 2006, pages 272–281.
- R. E. K. Stirewalt, M. Deng, and B. H. C. Cheng, "UML Formalization is a Traceability Problem," in *Proc. of the Workshop on Traceability in Emerging Forms of Software Engineering (TEFSE'05)*, Long Beach, November 2005, pages 31–36.
- S. Rugaber and R. E. K. Stirewalt, "Automated Invariant Maintenance via OCL Compilation," in *Proc. of ACM/IEEE 8th International Conference on Model Driven Engineering Languages and Systems (MoDELS'05)*, Jamaica, 2005.
- R. Behrends, R. E. K. Stirewalt, and L. K. Dillon, "A Component-Oriented Model for the Design of Safe Multi-Threaded Applications," in *Proc. of the Eighth International ACM SIGSOFT Symposium on Component-Based Software Engineering (CBSE'2005)*, St Louis, May 2005, page 251.
- R. Behrends, R. E. K. Stirewalt, and L. K. Dillon, "Safe and Reliable use of Concurrency in Multi-Threaded Shared-Memory Systems," in *Proc. of the 29th Annual IEEE/NASA Software Engineering Workshop (SEW'29)*, Greenbelt, Maryland, April 2005, pages 201–210.
- S. D. Fleming, B. H. C. Cheng, R. E. K. Stirewalt, and P. K. McKinley, "An Approach to Implementing Dynamic Adaptation in C++," in *Proc. of the ICSE Workshop on Design and Evolution of Autonomic Application Software (DEAS'05)*, St Louis, May 2005, page 118.
- R. Behrends, R. E. K. Stirewalt, and L. K. Dillon, "Avoiding Serialization Vulnerabilities through the use of Synchronization Contracts," in *Proceedings of the ASE Workshop on Specification and Automated Processing of Security Requirements*, Linz Austria, September 2004.
- S. M. Sadjadi, P. K. McKinley, B. H. C. Cheng, and R. E. K. Stirewalt, "TRAP/J: Transparent Generation of Adaptable Java Programs," in *Proceedings of the International Symposium on Distributed Objects and Applications*, 2004
- R. E. K. Stirewalt, "Teaching software engineering bottom up," in *Proceedings of the ASEE Annual Symposium*, Salt Lake City, 2004.
- J. H. Sowell and R. E. K. Stirewalt, "Middleware Reliability Implementations and Connector Wrappers," in *Proceedings of the ICSE Workshop on Architecting Dependable Systems (WADS'04)*, Edinburgh, U.K., May 2004, pages 47–51.
- S. M. Sadjadi, P. K. McKinley, R. E. K. Stirewalt, and B. H. C. Cheng, "Generation of Self-Optimizing Wireless Network Applications," in *Proceedings of the International Conference on Autonomic Computing*, New York, May 2004, pages 310–311.
- Z. Yang, B. H. C. Cheng, R. E. K. Stirewalt, J. Sowell, M. Sadjadi, and P. K. McKinley, "An aspect-oriented approach to dynamic adaptation," pages 85–92 in *Proceedings of the ACM SIGSOFT Workshop on Self-Healing Systems (WOSS'02)*, Charleston, November 2002.
- E. P. Kasten, P. K. McKinley, S. M. Sadjadi, and R. E. K. Stirewalt, "Separating introspection and intercession in metamorphic distributed systems," pages 465–472 in *Proceedings of the IEEE Workshop on Aspect-Oriented Programming for Distributed Computing*, Vienna, Austria, July 2002.
- B. H. C. Cheng, L. K. Dillon, S. Kulkarni, J. Lee, P. K. McKinley, and R. E. K. Stirewalt, "Automated development and run-time adaptation of interactive distributed applications," Appears in *Proceedings of the Workshop on New Visions in Software Design and Productivity*,

- Nashville, December 2001. Available online only:
<http://www.isis.vanderbilt.edu/sdp/Papers/Papers.htm>
- S. Rugaber, T. Shikano, and R. E. K. Stirewalt, "Adequate reverse engineering," Appears in *Proceedings of the IEEE International Conference on Automated Software Engineering (ASE'01)*, San Diego, November 2001.
- R. E. K. Stirewalt and L. K. Dillon, "A component-based approach to building formal analysis tools," Appears in *Proceedings of the IEEE International Conference on Software Engineering (ICSE'01)*, Toronto, May 2001.
- L. K. Dillon and R. E. K. Stirewalt, "Lightweight analysis of operational specifications using inference graphs," Appears in *Proceedings of the IEEE International Conference on Software Engineering (ICSE'01)*, Toronto, May 2001.
- R. E. K. Stirewalt and L. K. Dillon, "Generation of visitor components that implement program transformations," Appears in *Proceedings of the ACM Symposium on Software Reusability (SSR'01)*, Toronto, May 2001.
- R. Behrends and R. E. K. Stirewalt, "The Universe Model: An approach for improving the modularity and reliability of concurrent programs," in *Proceedings of the ACM SIGSOFT Conference on the Foundations of Software Engineering*, San Diego, October 2000, pages 20–29.
- R. E. K. Stirewalt, "MDL: A language for binding user-interface models," in *Proceedings of the Third International Conference on Computer-Aided Design of User Interfaces (CADUI'99)*, Louvain-la-Neuve, Belgium, October 1999, pages 159–170.
- R. E. K. Stirewalt, "Separating concerns in direct manipulation user interfaces," in *Proceedings of the IEEE International Conference on Automated Software Engineering*, Cocoa Beach, Florida, October 1999, pages 199–206.
- K. Tucker and R. E. K. Stirewalt, "Model based user-interface reengineering," in *Proceedings of the Sixth Working Conference on Reverse Engineering (WCRE'99)*, Atlanta, Georgia, October 1999, pages 56–63.
- R. E. K. Stirewalt and S. Rugaber, "Automating UI generation by model composition," in *Proceedings of the IEEE International Conference on Automated Software Engineering*, Honolulu, October 1998, pages 177–186.
- R. E. K. Stirewalt and G. D. Abowd, "Practical dialogue refinement," in *Proceedings of the Fifth International Eurographics Workshop on Design, Specification, and Verification of Interactive Systems (DSV-IS'98)*, Abingdon, UK, June 1998, pages 191–205.
- S. Rugaber, K. Stirewalt, and L. Wills, "Detecting Interleaving." in *Proceedings of the International Conference on Software Maintenance*, Nice, France, October 1995 (awarded best paper).
- S. Rugaber, K. Stirewalt, and L. Wills, "The interleaving problem in program understanding," in *Proceedings of the Second Working Conference on Reverse Engineering*, Toronto, Ontario, July 1995.
- W. F. Appelbe, K. S. Smith, and R. E. K. Stirewalt, "PATCH—A New Algorithm for Rapid Incremental Dependence Analysis," in *Proceedings of the International Conference on Supercomputing*, Cologne, Germany, June 1991, pages 424–432.
- W. F. Appelbe, K. S. Smith, and R. E. K. Stirewalt, "Incremental Dependence Analysis for Interactive Parallelization," in *Proceedings of the International Conference on Supercomputing*, Amsterdam, The Netherlands, June 1990, pages 330–341.

INVITED CONFERENCE PUBLICATIONS

M. Di Penta, R. E. K. Stirewalt, and E. T. Kraemer, "Designing your next Empirical Study in Program Comprehension," in *Proceedings of the IEEE International Conference on Program Comprehension*, June 2007.

SOFTWARE PACKAGES DEVELOPED

SzumoSzep: A generative-programming tool that automates instantiation of SzumoFrame from a declarative specification of the synchronization concern. Partial support provided by NSF grant CCR-9984727 and the ONR-sponsored RAPIDware project.

SzumoFrame: A C++-based OO framework for developing safe multithreaded systems using design contracts. Partial support provided by NSF grant CCR-9984727 and the ONR-sponsored RAPIDware project.

Compiler and run-time system for an extension of the Eiffel language to support synchronization contracts. Partial support provided by NSF grant CCR-9984727 and the ONR-sponsored RAPIDware project.

Amalia analyzer generator. Partial support provided by NSF grants EIA-0000433 and CCR-9984727.

Technology demonstration for flexible software-component assembly. Developed under the DARPA-sponsored DYNAMO project.

OTHER SCHOLARSHIP

S. D. Fleming, R. E. K. Stirewalt, L. K. Dillon, and B. Sarna-Starosta, "Separating Synchronization Concerns with Frameworks and Generative Programming," MSU technical report number MSU-CSE-06-34, December 2006.

R. Behrends, L. K. Dillon, S. D. Fleming, and R. E. K. Stirewalt, "White paper: Programming according to the fences and gates model for developing assured, secure software systems," MSU technical report number MSU-CSE-06-2, January, 2006.

R. E. K. Stirewalt, "Automating Checks for Deadlock in Contract-Aware Programs," presented at the Second Workshop on the State of the Art in Automated Software Engineering. Abstract of the presentation appears in *Proc. of the ACM/IEEE International Conference on Automated Software Engineering*, 2005, pg. 465.

P. K. McKinley, R. E. K. Stirewalt, B. H. C. Cheng, L. K. Dillon, and S. Kulkarni, "RAPIDware: Component-Based Development of Adaptive and Dependable Middleware," ONR midterm project report, 2005.

R. E. K. Stirewalt, R. Behrends and L. K. Dillon, "A model-based semantics for synchronization contracts in object-oriented languages," MSU technical report number MSU-CSE-04-38, September 2004.

R. E. K. Stirewalt, R. Behrends, and L. K. Dillon, "Formal specification of the universe model," MSU technical report number MSU-CSE-03-7, March 2003.

- B. H. C. Cheng, L. Campbell, M. Deng, and R. E. K. Stirewalt, "Enabling validation of UML Formalizations," MSU technical report number MSU-CSE-02-25, September 2002.
- R. E. K. Stirewalt, B. H. C. Cheng, and W. E. McUumber, "An OO-framework approach to a generic UML formalization tool," MSU technical report number MSU-CSE-02-16, June 2002.
- C. McNeely, S. Rugaber, R. E. K. Stirewalt, and D. Zook, "DYNAMO design guidebook," College of Computing Technical Report number GIT-CC-02-37, Georgia Institute of Technology, 2002.
- S. Rugaber and R. E. K. Stirewalt, "Status and events in DASADA systems," January 2001. Available at:
<http://www.cc.gatech.edu/dynamo/papers/PostSantaFe.ps>
- S. Rugaber and R. E. K. Stirewalt, "Position paper: The tradeoff between reliability and efficiency in embedded systems," August 2001. Available at:
<http://www.cc.gatech.edu/dynamo/papers/cases.ps>
- L. K. Dillon and R. E. K. Stirewalt, "An example proof of correctness for a collaboration-based design," MSU Technical Report number MSU-CSE-01-6, January 2001.
- B. H. C. Cheng, L. K. Dillon, P. K. McKinley, and R. E. K. Stirewalt, "Meridian: Automating the development of interactive distributed applications," MSU Technical Report number MSU-CSE-01-1, January 2001.
- R. E. K. Stirewalt and L. K. Dillon, "Amalia: A generator framework for lightweight analysis components," MSU-CSE-00-12, June 2000.
- R. E. K. Stirewalt and L. K. Dillon, "Lightweight analysis components: An improvement over monolithic tools and environments," MSU Technical Report number MSU-CSE-00-7, April 2000.
- R. Behrends and R. E. K. Stirewalt, "A high-level approach to concurrency," MSU Technical Report number MSU-CSE-00-6, March 2000.
- R. E. K. Stirewalt, "Layering direct-manipulation user interfaces with see-through components," MSU Technical Report number MSU-CSE-99-27, March 1999.
- R. E. K. Stirewalt and G. D. Abowd, "Composition property analysis: a new strategy for model checking user-interface designs," MSU Technical Report number MSU-CSE-99-30. June 1999.
- R. E. K. Stirewalt, *Automatic Generation of Interactive Systems from Declarative Models*, Ph.D. dissertation, Georgia Institute of Technology, December 1997.
- R. E. K. Stirewalt, "Design and implementation of the MASTERMIND Toolkit," Technical Report GIT-GVU-97-23, Graphics, Visualization, and Usability Center, Georgia Institute of Technology, Atlanta, Georgia, 1997.
- S. Rugaber, R. E. K. Stirewalt, and L. M. Wills, "The detection and extraction of interleaved code segments," Technical Report GIT-CC-95-49, Georgia Institute of Technology, 1995.
- R. E. K. Stirewalt, D. H. Gill, and W. F. Appelbe, "On-the-fly generation of static single-assignment form from an incremental dependence framework," Technical Report GIT-CC-92/58, College of Computing, Georgia Institute of Technology, December, 1992.

INVITED PRESENTATIONS

Concurrent Software Design and Maintenance for the Rest of Us

- Department of Computer Science, Western Michigan University, February 2008

Szumo: A compositional contract model for safe multi-threaded applications

- Members of the technical staff, AT&T Labs, Florham Park, NJ, May 2007.
- LogicBlox, Inc, Atlanta, GA, April 2007.

Support for synchronization contracts in object-oriented languages

- Distinguished Lecturer, Programming Languages and Software Engineering Seminar Series, IBM T. J. Watson Research Center, July 2006.
- Department of Computer Science, University of Georgia, January 2006.
- Faculty of Computing, Imperial College London, UK, September 2005.
- Dept. of Computer Science, Wayne State University, March 2004.
- Software-Engineering Group, College of Computing, Georgia Institute of Technology, May 2003.
- Dept. of Computer Science, University of Maryland, June 2003.
- NASA Ames Research Center, July 2003.
- University of Notre Dame, September 2003.

Synchronization contracts for predictable assembly in multi-threaded component-based systems, Second Workshop on Predictable Component Assemblies, Manchester, UK, September 2005.

Making model-based software-development techniques ready for prime time

- Department of Computer Science, Kent State University, April 2003.
- Graduate student seminar, Dept. of CSE, Michigan State University, Fall 2003, 2004, and 2005.

Amalia: A framework for building custom analysis tools for integration into software-development environments

- Department of Computer Science and Software Engineering, Rose Hulman Institute of Technology, October 2002.

A component-based approach to building formal analysis tools

- Software Engineering and Network Systems Laboratory, January 2001.
- Software-Engineering Group, College of Computing, Georgia Institute of Technology, March 2001.
- Department of Computer Science, University of Georgia, April 2001.

Interactive Distributed Applications Engineering and Analysis (IDEA) Center

- Office of the Dean, MSU College of Engineering, January 2001.

Research in the Software Engineering and Network Systems Laboratory

- College of Engineering External Review Board, October 2000.

Meridian: An integrated framework for developing interactive distributed applications

- NSF CISE Directorate executive officer, during visit to CSE Department, 1999.
- CSE Visiting Board, October 2000.
- Software Engineering and Network Systems Laboratory (1999, 2000, 2001).

Using program-dependence webs to reengineer the user interface of legacy systems

- Poster workshop of Sixth Working Conference on Reverse Engineering, Atlanta, GA. October 1999.

Automated software engineering and interactive systems design

- Software Engineering and Network Systems Laboratory, October 1998.
- CSE Graduate Seminar (1998, 1999, 2000).

Composition properties of reusable controllers

- School of Computer Science, Carnegie Mellon University, February 1998.

STUDENT SUPERVISION

Ph.D. theses:

Reimer Behrends, Ph.D. October 2003.
Laura Campbell, Ph.D. May 2004 (co-advised with B. Cheng).
Scott Fleming, Ph.D. expected December 2008.
Yi Huang, Ph.D. expected May 2010 (co-advising with L. Dillon).

M.S. theses:

Eduardo Diaz-Sanchez, M.S. expected May 2008.
Heather Goldsby, M.S. May 2004.
Chad Meiners, M.S. May 2004 (co-advised with L. Dillon).

M.S. projects:

Min Deng, M.S. May 2007 (co-advised with B. Cheng).
Jesse Sowell, M.S. May 2005.
Grant Birchmeier, M.S. May 2003.
Simon Wang, M.S. May 2003.
Karmen Tucker, M.S. August 2000.
Katrina Brehob, M.S. May 1999.

Undergraduates:

Gina Chernoby, B.S. May 2009
Adam Todd, B.S. May 2004 (co-advised with L. Dillon).
Sherri Goings, B.S. May 2003 (co-advised with L. Dillon).
Mark Groulx, B.S. May 2002.
Grant Birchmeier, B.S. May 2001.
Ryan Dhuse, B.S. May 2001.
Kevin Brown, B.S. May 2001.
Bradley Jackson, B.S. May 2000.

TEACHING EXPERIENCE

- CSE 232: Introduction to Programming II (F01, S02)
- CSE 335: Object-Oriented Software Design (F04, S05, F05, F06, S07)
- CSE 370: Object-Oriented Software Engineering (F02, S03, F03)
- CSE 435: Advanced Software Engineering (S06)
- CSE 450: Translation of Programming Languages (S08)
- CSE 470: Software Engineering (S98, S99, S00, F00, S01)
- CSE 814: Formal Methods in Software Development (F98, S04, F05, F07)

- CSE 891: Special Topics:
 - Advanced Programming Languages and Software Engineering (F04)
 - Formal Models in Support of Concurrent and Distributed Programming (S04)
- CSE 914: Research Foci in Software Engineering (F99)

CURRICULUM DEVELOPMENT

- Development of CSE 435: Software Engineering (senior-level, elective course).
- Development of CSE 335: Object-Oriented Software Design (junior-level, required course).
- Development of CSE 370: Object-Oriented Software Engineering (junior-level, required course).
 - New objectives, content, and assessment methods for 10-week module on object-oriented programming (OOP) and advanced OO design.
 - New laboratory modules, projects, and in-class collaborative exercises.
- Specification of objectives and assessment methods for CSE 470, Software Engineering (senior-level, required course).
- Lecture module and in-class exercises for CSE 870: Advanced Software Engineering.
- New lecture modules for CSE 232.
- Specification of CSE curricular outcomes and measurable linkages between courses in preparation for ABET accreditation.

HONORS AND AWARDS

- Ranked 26th among leading software-engineering scholars worldwide in an article on research scholarship in a prominent computing journal (source: Ren and Taylor, “Automatic and Versatile Publications Ranking for Research Institutions and Scholars,” in *Communications of the Association for Computing Machinery*, June 2007).
- Withrow Teaching Award, College of Engineering, Michigan State University, 2006.
- NSF CAREER Award, 2000.
- Participant, NSF Science and Engineering Education Scholars Program (SEESP), 1999.
- Best paper nomination, IEEE International Conference on Automated Software Engineering, 1998.
- Best paper, IEEE International Conference on Software Maintenance, 1995.
- Best paper, *MITRE Journal*, 1994.
- MITRE fellowship (1991-93).

PROGRAM COMMITTEES

- IEEE International Conference on Automated Software Engineering (2000–present).
- Eighteenth International Conference on Software Engineering and Knowledge Engineering, 2006.
- Third Workshop on Traceability in Emerging Forms of Software Engineering, 2005.
- IEEE International Conference on Software Engineering (2003).
- ACM SIGSOFT Symposium on Software Reuse (2001).
- IEEE International Conference on Requirements Engineering (2000).
- IEEE TCSE Working Conference on Reverse Engineering (1999).

OTHER PROFESSIONAL ACTIVITY

- General chair, IEEE International Conference on Automated Software Engineering (2007).
- Member of the Steering Committee for the IEEE International Conference on Automated Software Engineering (2005–present).
- Program co-chair, IEEE International Conference on Automated Software Engineering (2004).
- Co-chair, Doctoral Symposium, IEEE International Conference on Automated Software Engineering (2003, 2008).
- Guest editor for a special issue of the journal *Automated Software Engineering*.
- Expert witness:
 - Retained as a consultant regarding the quality of software produced by an American software company that outsourced most of the work to India (2004).
 - Retained and testified in a large class action matter regarding a company’s ability to reconstitute data from their corporate databases (2007).
- Panelist, NSF CISE program, 2001, 2003, 2007.
- Reviewer:
 - *IEEE Transactions on Software Engineering*.
 - *Journal of Visual Languages and Computation*.
 - *Automated Software Engineering*, a Kluwer International Journal.
 - *Constraints*, a Kluwer International Journal.
 - *ACM Transactions on Human Computer Interaction*.
 - ACM SIGCHI Symposium on User Interface Software and Technology (UIST), 2003.

- IEEE International Conference on Distributed Computing Systems (ICDCS), 2000.
- Hawaii International Conference on System Sciences (HICSS), 1999.
- Symposium on Requirements Engineering for Information Security, 2001.

DEPARTMENTAL SERVICE

- Advisory Committee (elected, 2002-2003, 2007-present).
- Faculty Search Committee (elected, 2001-2003).
- Curriculum Committee (1997-1998, 1999-2006), chairing in 2004–2005.
- PhD Qualifier Exam Committee (1998-1999, 1999-2001).
- Computing Environment Committee (2001-2003).
- Graduate Studies Committee (1998-1999).
- Graduate-student recruiting:
 - CSE Research Open House (2001, 2003, 2005).
 - Georgia Institute of Technology (2001, 2005),
 - University of Georgia (2001, 2006),
 - Rose Hulman Institute of Technology (2002).

UNIVERSITY SERVICE

- Working Group to Improve Undergraduate Education (March 2005-present). This group is charged with recommending to the Provost concrete steps to improve the quality of undergraduate education at Michigan State University.
- University Committee on Academic Policy (2004-present, elected vice-chair in 2005).

PROFESSIONAL DEVELOPMENT

- Tutorials attended at Conferences and Symposia:
 - Component-Based Software Engineering for Embedded Systems (ASE'04)
 - Software traceability (ASE'04)
 - Component Technologies: JavaBeans, COM, CORBA, RMI, EJB and the CORBA Component Model (ICSE'02)
 - Enterprise Component Technologies (SSR'01)
- NSF Science and Engineering Education Scholars Program, University of Wisconsin, Madison, July 1999.

- Foundations of Cooperative Learning Workshop, sponsored by the Office of the Provost. MSU Kellogg Center, August 1999.
- Constructive Controversy Workshop, sponsored by the Office of the Provost. MSU Kellogg Center, August 2000.