



## Fall 2002 to Present

- Students Graduated (PhD)
  - Michael Gegick (2009)  
*Using Automated Static Analyzer Alerts to Predict Vulnerability- and Attack-prone Components*
  - Sarah Smith Heckman, (2009, North Carolina State University)  
*Adaptive Model for Prioritizing Code-based Static Analysis Alerts*
  - Chih-wei Ho, PhD (2008, EMC)  
*Performance Requirements Improvement with an Evolutionary Model*
  - Lucas Layman, PhD (2008, Fraunhofer)  
*Information Needs of Developers for Program Comprehension during Software Maintenance Tasks*
  - Mark Sherriff, PhD (2007, University of Virginia)  
*Analyzing Software Artifacts through Singular Value Decomposition to Guide Development Decisions*
  - Jiang Zheng, PhD (2007, ABB Corporate Research)  
*In Regression Testing Without Code*
  - Nachiappan Nagappan, (PhD 2005, Microsoft Research)  
*Software Testing and Reliability Early Warning (STREW) Metric Suite*
  - Hema Srikanth, PhD (2005, IBM)  
*Value-Driven System Level Test Case Prioritization*
  
- Students Graduated (MS)
  - Stephen Thomas, MS (2007, IBM)  
*Using Automated Fix Generation to Mitigate SQL Injection Vulnerabilities*
  - Neha Katira, (MS, 2004, eWeb Designs)  
*Pair Programming Compatibility*
  - Prashant Baheti, (MS, 2003, Google)  
*Evaluating a Software Engineering Knowledge Base*
  - Lauren Hayward (MS, 2009, IBM)  
*Students' Perception of Distributed Pair Programming in an Upper-Level Undergraduate Software Engineering Course*
  - Michael Gegick (MS, 2003, NCSU PhD student)  
*Analyzing Security Attacks to Generate Signatures from Vulnerable Architectural Patterns*
  - Dylan Wilson (MS, 2003, Becton Dickinson)  
*An Empirical Study of the Tacit Knowledge Management Potential of Pair Programming*
  - Boby George, MS (2002, Microsoft)  
*Analysis and Quantification of Test Driven Development Approach*
  - David Palmieri, MS (2002, IBM)  
*Knowledge Management Through Pair Programming*
  - Vinay Ramachandran, MS (2002, Sprint)  
*An Extreme Programming (XP) Process Analysis and Project Management Tool*
  - Anuja Shukla, MS (2002, Microsoft)  
*Pair Programming and the Factors Affecting Brooks' Law.*
  - Harmanpreet Singh, MS (2002, founder Sikhya Solutions)  
*Developing and eLearning Model for an Industrial Enterprise*
  - Kai Yang, MS (2002)  
*Pair Learning in Undergraduate Computer Science Education*
  
- Current Thesis/Dissertation Advising
  - Patrick Francis (PhD)
  - Andy Meneely (PhD)
  - David Moye (PhD)
  - Yonghee Shin, (PhD)
  - Ben Smith (PhD)

- Sponsored Research (\$3.6M, \* after title indicates lead PI (\$3.5M))
  - *On the Use of Software Metrics as a Predictor of Software Security Problems\**  
Army Research Office (\$117,413)  
July 2008 – December 2009
  - \*  
IBM (\$20,000)  
September 2008 – August 2009
  - *On Agility in Software Reliability and Software Security Engineering\**  
Center for Advanced Computing and Communications (\$40,000)  
July 2008 – July 2009
  - *Supporting Pair Programming and Virtualization of the Jazz Development Environment\**  
IBM (\$25,000)  
with Michael Devetsikiotis  
January 2008 – December 2008
  - *On the Use of Security Metrics to Predict vulnerability- and Attack-Prone Software Components\**  
Center for Advanced Computing and Communications (\$99,908)  
January 2008 – December 2008
  - *On the Use of Security Metrics to Identify and Rank the Risk of Vulnerability- and Exploit-Prone Components\**  
National Science Foundation (\$193,563)  
August 2007 – August 2009
  - *Hot Spot Identification and Test-Driven Development\**  
Nortel (\$45,982)  
August 2006 – December 2007 (
  - *Software Testing Curricular Materials Development*  
IBM  
July 2006 – June 2007 (\$27,000)
  - *On Expediting Software Engineering AWAREness of Anomalous Code\**  
with Tao Xie  
Center for Advanced Computing and Communications (\$40,000)  
July 2006 – June 2007
  - *The STARS Alliance: A Southeastern Partnership for Diverse Participation in Computing\**  
National Science Foundation (\$280,155)  
January 2006 – January 2009
  - *Academy for Software Engineering Educators and Trainers \**  
National Science Foundation (\$10,000)  
Sept. 2005 – Sept. 2006
  - *Using Validation and Verification Certificates to Estimate Software Defect Density\**  
National Science Foundation (\$150,000)  
May 2005 – August 2006
  - *Continuous Checking of Static Analysis and Automated Unit Tests for Java Programs\**  
with Jun Xu  
Center for Advanced Computing and Communications (\$40,000)  
July 2005 – June 2006
  - *Supporting Evidence-Based Software Engineering\**  
Center for Advanced Computing and Communications (\$40,000)  
July 2005 – June 2006
  - *In Regression Testing without Code\**  
ABB, Inc. (\$115,067)  
January 2005 – May 2007
  - *Test Case Prioritization\**  
with Annie Anton  
ABB, Inc. (\$14,500)  
September 2004 – December 2004
  - *Incorporating Automated Inspection into the Emerald Decision Support System\**  
with Mladen Vouk

- Nortel Networks (\$15,354)  
 May 15, 2004 – December 31, 2004
- *On the Identification of Agile and Plan-Driven Best Practices\**  
 with Carla Savage and Jason Osborne  
 Center for Advanced Computing and Communications (\$40,000)  
 July 2004 – June 2005
  - *CAREER: The Test-Driven Development of Secure and Reliable Software Applications\**  
 National Science Foundation (\$400,000)  
 Duration: April 2004 – February 2009
  - *Establishing an OpenSeminar for Eclipse-based Software Engineering Education*  
 with Michael Rappa  
 IBM Eclipse Innovation Award (\$21,000)  
 Duration: January 2004 – December 2004
  - *Distributed Extreme Programming with Eclipse*  
 with Ed Gehringer  
 IBM Eclipse Innovation Award (\$20,000)  
 Duration: January 2004 – December 2004
  - *On Assessing Transitions to Extreme Programming\**  
 Tekelec, Inc. (\$35,735)  
 January 2004 – August 2004
  - *Serviceability Enhancements: Comprehensive or Needs Based?\**  
 IBM University Partnership Award (\$40,000)  
 November 2003 – November 2004
  - *Agile Software Dependability\**  
 with Mladen Vouk  
 Nortel (\$21,265)  
 September 2003-May 2004
  - *Mapping CMMI to ISO Standard 12207-15504*  
 with Annie Antón  
 ABB, Inc. (\$25,000)  
 September 2003-May 2004
  - *Extending Extreme Programming\**  
 with Mladen Vouk  
 Center for Advanced Computing and Communication (\$47,893)  
 July 2003-May 2004
  - *Collaboration through Agile Software Development Practices: A Means for Improvement in Quality and Retention of the IT Workforce\**  
 with Mladen Vouk, Sarah Berenson, Winser Alexander, Virginia Knight, Barrett Koster, Sung Yoon, Jason Osborne  
 National Science Foundation (\$812,587)  
 August 2003-August, 2006
  - *Agile Quality Assurance: Agile Practices or Best Practices?\**  
 with Mladen Vouk  
 Center for Advanced Computing and Communication (\$42,894)  
 July 1, 2003-June 30, 2004
  - *Good Enough Reliability Tool\**  
 with Mladen Vouk  
 IBM Eclipse Innovation Award (\$28,000)  
 January 1, 2003-December 31, 2003
  - *A Metrics Suite for a Software Engineering Knowledge Management System\**  
 with Annie Antón  
 ABB, Inc. (\$25,000)  
 August 15, 2002 – May 15, 2003
  - *Assessing Agile Requirements Practices\**  
 with Annie Antón  
 Center for Advanced Computing and Communications(\$43,419)  
 July 2002 – June 2003
  - *An Investigation of Learning Content Objects in the Industrial Learning Context\**  
 with Annie Antón

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- ABB, Inc. (\$20,000)  
August 2001 – May 2002
  - *Analyzing Emerging Software Development Methodologies and Practices\**  
with Annie Antón  
Center for Advanced Computing and Communication Core Project (\$47,000)  
July 2001 – June 2002
  - *Pair-Learning in Undergraduate Computer Science Education\**  
National Science Foundation (\$227,110)  
January 2001 – December 2003
  - *Incorporating the Collaborative Software Process<sup>SM</sup>*  
Eyecast, Inc. (\$108,107)  
September 2000 – August 2001
  - *Integrating Collaborative Programming into a Disciplined Software Process\**  
Nortel, (\$65,000)  
November 2000 – November 2001
- Gifts
  - Student Lab for Agile Software Development  
\$20,000 from the Agile Alliance

**Graduate Student, University of Utah, Salt Lake City, UT  
Fall 1996 – Spring 2000**

- Development and validation of the Collaborative Software Process<sup>SM</sup> (CSP<sup>SM</sup>). CSP is a defined and disciplined process for two programmers to work collaboratively on one software artifact. Empirical research results have shown that pairs of programmers using the CSP produce higher quality products faster than individual programmers using a similar process, the Personal Software Process (PSP) developed by Watts Humphrey at the Software Engineering Institute (SEI).
- Sponsored Research
  - *Incorporating Software Engineering in the Undergraduate Computer Science Curriculum*  
University of Utah Teaching Assistantship Grant (\$10,850)  
August 1997 – May 1998

**TEACHING EXPERIENCE**

**Assistant Professor, North Carolina State University, Raleigh, NC  
Fall 2000 to Present**

- Analytics Practicum (Spring 2008)
- Software Testing and Reliability (Fall 2002, Fall 2004, Fall 2005, Fall 2006, Fall 2007)
- eCommerce Practicum (Spring 2003, Fall 2003)
- Software Engineering (Spring 2001, Fall 2001, Fall 2002, Fall 2003, Fall 2004, Fall 2005, Fall 2006, Fall 2007, Fall 2008)
- Software Process and Risk Management (Spring 2003)
- Launching the Digital Enterprise (Fall 2000, Fall 2001)

**Department and University Service**

- Member, Software Engineering Faculty Search (2004-7)
- Member, Computer Science Department Head Search (2004-5)
- Undergraduate Curriculum Committee (2001-4)  
Committee Chair (2002-3)  
College of Engineering Undergraduate Curriculum Committee (2002)

**Graduate Student, University of Utah, Salt Lake City, UT  
Fall 1996 – Spring 2000**

- Senior Software Engineering (Instructor, Fall 1999)
- The Collaborative Development of Active Server Pages (Instructor, Summer 1999)
- Software Engineering (Teaching Assistant, Fall 1998)
- Defect Prevention Software Engineering (Instructor, Fall 1997)
- CS/1 and CS/2 (Teaching Assistant and Special Lecturer, Fall 1996-Spring 1997)

## **PROFESSIONAL EXPERIENCE**

### **Independent Consultant, Cary, NC**

2007 to present, Consultant services include industrial training, seminars, and coaching in software reliability engineering and agile software development to Fortune 500 organizations; and expert witness services.

### **IBM Corporation, Research Triangle Park, NC**

1993, **Project Manager**. Responsible for managing the technical activities involved in producing two operating systems software products for the retail industry. Implemented a development process in compliance with ISO 9001 requirements.

1990-1992, **Software Test Manager**. Responsible for personnel and technical management for the testing of operating systems and applications software product for the retail industry. Initiated a focused effort on development unit test involving a widespread education program, which resulted in increased product quality.

1989, **Assistant to Lab Director**. Assistant to lab director of Store Systems hardware and software development lab. During this time, the lab director exceeded every business, financial, and employee morale objective.

1987-1988, **Production Control Manager**. Responsible for personnel and technical management for the ordering and delivery of production parts to a mid-range computer manufacturing line. Successfully delivered manufacturing parts, which resulted in a flawless, on-time customer shipment record.

1986, **Production Control Planner**. Responsible for managing the inventory level and parts turnover of production parts for communication controllers. Coordinated first successful just-in-time delivery at Research Triangle Park of major manufacturing component in a build-to-customer-order environment.

1984-1985, **Cost Engineer**. Responsible for management of manufacturing costs for approximately ten communication products. Coordinated the introduction of a new financial system into the cost management process.

## **PROFESSIONAL ACTIVITIES:**

- Editorial Board
  - Empirical Software Engineering
- Steering Committee Member
  - IEEE Conference on Software Engineering Education and Training (CSEET) (2005-2010)
  - IEEE Symposium on Empirical Software Engineering and Measurement (ESEM) (2008-2012)
- Guest Editor:
  - *Empirical Software Engineering Journal*, best papers from ISSRE 2008, TBD 2009
  - *IEEE Computer* Special Issue on Agile Software Development, June 2003 with Alistair Cockburn (Humans and Technology)
  - *IEEE Software* Special Issue on Extreme Programming, May/June 2003
  - *Computer Science Education Journal* Special Issue on Agile Software Development, September 2002 with James Tomayko (Carnegie Mellon)
- General Chair:

- IEEE Empirical Software Engineering and Measurement (ESEM) 2009, Lake Buena Vista, FL
  - IEEE Conference on Software Engineering Education and Training (2008), Charleston, SC
- Program Co-Chair and Co-Founder:
  - XP Universe/Agile Universe, Chicago, IL, August 2002
  - XP Universe: Conference on Flexible Software Processes, Raleigh, NC, July 2001
- Program Chair:
  - Agile 2010
  - IEEE International Symposium on Software Reliability Engineering (ISSRE) 2008, Redmond, WA
  - IBM Academy of Technology Agile Methods and Practices Conference, San Jose, CA 2007; Raleigh, NC 2008
  - IEEE Conference on Software Engineering Education and Training (CSEET) 2006, Hawaii
- Program Committee:
  - Agile 2005-9
  - Agile Alliance Academic Program, 2007-9
  - Agile Development Conference 2003, 2004
  - Asia Pacific Software Engineering Conference (APSEC) 2006
  - International Conference on Computer-based Systems 2008
  - International Conference on Empirical Software Engineering (ISESE) 2005, 2006
  - International Conference on Empirical Software Engineering and Measurement (ESEM) 2007, 2008
  - International Conference on Extreme Programming and Agile Processes in Software Engineering 2002-2009; tutorial committee 2008
  - International Conference on Software Engineering Workshop Human and Social Factors of Software Engineering (HSSE) 2005
  - International Conference on Software Engineering (ICSE) Experience Track 2007; Industry Track 2009
  - International Conference on Software Engineering (ICSE) Education Track 2008
  - International Conference on Software Engineering and Knowledge Engineering (SEKE) 2008
  - International Conference on Software Process (ICSP) 2007, 2008
  - International Conference on Software Testing, Verification and Validation (ICST 2008-9)
  - International Symposium on Software Reliability Engineering (ISSRE) 2005-2007, 2009
  - Foundations of Software Engineering Workshop Quantitative Techniques for Software Agile Process (QTE-SWAP) ACM 2004
  - International Conference on Software Science, Technology & Engineering 2003, 2006, 2007
  - International Workshop on Predictor Models in Software Engineering (PROMISE) 2006-8
  - International Workshop on Realizing Evidence-Based Software Engineering (REBSE) 2007, 2008
  - International Workshop on Security Testing 2008
  - Mutation 2009
  - Research-in-progress Workshop on Agile Software Engineering (RWASE '07)
  - Workshop on Knowledge Management for Distributed Agile Processes: Models, Techniques, and Infrastructure (WET ICE) 2003
  - XP/Agile Universe 2003, 2004
- Research Proposal Panel:
  - National Science Foundation (2004, 2005, 2007, 2009)
  - Engineering and Physical Sciences Research Council, UK (2004)
  - Science Foundation, Ireland (2005)
- Other:
  - Education Track Chair, International Conference on Software Engineering (ICSE) 2006, Shanghai, May 2006

- Local Arrangements Chair, International Symposium on Software Reliability Engineering (ISSRE) 2005, Raleigh, NC, November 2006
- Publicity Chair, International Symposium on Software Reliability Engineering (ISSRE) 2005, Chicago, November 2005
- Doctoral Symposium Chair, ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA) 2004, Vancouver, November 2004
- Poster Chair, ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA) 2002, Seattle, WA, November 2002
- Poster Committee, ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA) 2007, Montreal, Canada, October 2007
- Workshop Committee, ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA) 2002, Seattle, WA, November 2002
- ACM Student Research Committee, 2003
- Coordinator, Annual NSF Grant Principle Investigator Meeting (Information Technology Workforce), April 2006
- Scholarship Reviewer, Grace Hopper conference, 2007.
- Reviewer for:
  - ACM Transactions on Software Engineering and Methodology (2008), Communications of the ACM (2004, 2006, 2008), Computer Science Education (2003, 2004), Computers and Security (2005), Empirical Software Engineering (2004, 2005), Foundations in Software Engineering (2004), IEE Proc. Software (2005), IEEE Privacy and Security (2003), IEEE Software (2001-2006, 2008), IEEE Technology and Society (2004, 2007), IEEE Transactions on Software Engineering (2003-2008), IET Software (2008), Information and Software Technology (2003-2005, 2008), International Journal on Engineering Education (2007), Microprocessors and Microsystems (2006), Requirements Engineering Conference (2002), and International Journal of Human Computer Studies (2005), Software Quality Journal (2008), Software Process: Improvement and Practice Journal (2008), Software Testing, Verification, and Reliability (2007).
- North Carolina State Faculty Representative, AT&T Education Alliance, 2001.

## **PUBLICATIONS**

Note: Most of the papers below can be viewed from <http://collaboration.csc.ncsu.edu/laurie/publications.html>

## **REFEREED JOURNAL PUBLICATIONS**

- Smith, B. and Williams, L., *Should Software Testers Use Mutation Analysis to Augment a Test Suite*, invited to Journal of Software and Systems, accepted for publication, final version submitted March 1, 2008.
- Smith, B. and Williams, L., *An Empirical Study of the Relative Utility of Mutation Operators*, *Empirical Software Engineering*, in press.
- Thomas, S., Williams, L. and Xie, T., *On an Automated Solution to Mitigating SQL Injection Vulnerabilities*, *Information and Software Technology*, Volume 51, Issue 3, March 2009, Pages 589-598.
- Nagappan, N., E. M. Maximilien, Bhat, T., and Williams, L. *Realizing Quality Improvement Through Test Driven Development: Results and Experiences of Four Industrial Teams*, *Empirical Software Engineering*, Vol. 13, No. 3, pp. 289-302, June 2008.
- Layman, L., Williams, L., Slaten, K., Berenson, S., and Vouk, M., *Addressing Diverse Needs through a Balance of Agile and Plan-Driven Software Development Methodologies in the Core Software Engineering Course*, *International Journal on Engineering Education*, to appear.
- Johnson, M., Ho, C-w, Maximilien, M., and Williams, L., *Incorporating Performance Testing in Test-Driven Development*, *IEEE Software*, Vol. 24., No. 3, pp. 67-73, May/June 2007.
- Gegick, M. and Williams, L., *On the Design of Secure Software-Intensive Systems by Use of Attack Patterns*, *Information and Software Technology*, in press, available online 6 August 2006.
- Zheng, J., Williams, L., Snipes, W., Nagappan, N., Hudepohl, J., Vouk, M., *On the Value of Static Analysis Tools for Fault Detection*, *IEEE Transactions on Software Engineering*, Vol. 32, No 4, pp. 240-253, April 2006.

Updated May 2009

- Layman, L., Williams, L., Damian, D., Bures, H., *Essential Communication Practices for Extreme Programming in a Global Software Development Team*, Information and Software Technology, accepted June 20, 2005.
- George, B. and Williams, L., *A Structured Experiment of Test-Driven Development*, Information and Software Technology, Vol. 46, No. 5, pp. 337-342, April 2004.
- Berenson, S., Slaten, K., Williams, L., and Ho, Chih wei. *Voices of Women in a Software Engineering Course: Reflections on Collaboration*, ACM Journal of Educational Resources in Computing (JERIC), Vol. 4, No. 1, March 2004, Article 3.
- Erdogmus, H. and Williams, L., *A Value-Based Analysis of Pair Programming*, Engineering Economist, Vol. 48, No. 4, pp. 283-319, 2003.
- Williams, L. and Cockburn, A., *Agile Software Development: It's About Feedback and Change*, IEEE Computer, Vol. 36, No. 6, pp. 39-43, 2003.
- Williams, L. *The XP Programmer: The Few Minutes Programmer*, IEEE Software, Vol. 20, No. 3, pp. 16-20 May/June 2003.
- Williams, L., Wiebe, E., Yang, K., Ferzli, M., Miller, C., *In Support of Pair Programming in the Introductory Computer Science Course*, Computer Science Education, Vol. 12, No. 3, pp. 197-212, September 2002.
- Hislop, G., Lutz, M., Naveda, J. F., McCracken, M., Mead, N., Williams, L., *Integrating Agile Practices into Software Engineering Courses*, Computer Science Education, Vol. 12, No. 3, pp. 169-185, September 2002.
- Borstler, J. Carrington, D. Hislop, G.W. Lisack, S. Olson, K. Williams, L. *Teaching PSP: challenges and lessons learned*, IEEE Software, Vol. 19, No.5, pp. 42-48, Sept/Oct 2002.
- Williams, L., and Kessler, R., *Experimenting with Industry's "Pair-Programming" Model in the Computer Science Classroom*, Computer Science Education, Vol. 11, No. 1, pp. 7-20, March 2001.
- Williams, L., Kessler, R., Cunningham, W., and Jeffries, R., *Strengthening the Case for Pair-Programming*, IEEE Software, Vol. 17, No. 4, pp. 19-25, July/Aug 2000. **January 2009 update: IEEE Software 25<sup>th</sup> Anniversary Top Pick Paper; on the list of Most Cited IEEE Software Articles for a 25-year period.**
- Williams, L. and Kessler, R., *All I Really Need to Know about Pair Programming I Learned In Kindergarten*, Communications of the ACM, Vol. 43, No. 5, pp. 108-114, May 2000.

### **BOOKS/BOOK CHAPTERS**

- Murphy, B. and Williams, L., (eds.), *Proceedings of 19<sup>th</sup> International Symposium on Software Reliability Engineering*, IEEE Computer Society Press, 2008.
- Williams, L., "Pair Programming" in *Encyclopedia of Software Engineering*, Taylor & Francis Group, submitted June 4, 2008.
- Saiedian, H. and Williams, L., (eds.), *Proceedings of 21<sup>th</sup> Conference on Software Engineering Education and Training*, IEEE Computer Society Press, 2008.
- Berenson, S., Williams, L., and Slaten, K., "Using Pair Programming and Agile Development Methods in a University Software Course to Develop a Model of Social Interaction" in *Hacking the Firewall: A Cross-Cultural Context for Recruiting Women to IT*, Wellesley, MA: A K Peter, Ltd., to appear.
- Port, D. and Williams, L. (eds.), *Proceedings of 19<sup>th</sup> Conference on Software Engineering Education and Training*, IEEE Computer Society Press, 2006.
- Williams, L. and Vouk, M., "Agile Software Development" in *Wiley Encyclopedia of Computer Science and Engineering*, John Wiley & Sons, Inc., revision requested March 28, 2005, revision submitted June 27, 2005.
- Williams, L., *Software Engineering for Internet Applications*, in *Practical Handbook of Internet Computing*, Munindar Singh (ed), Chapman & Hall/CRC Press, invited, 2005, pp. 43-1 – 43-13.
- Williams, L. and Kessler, R., *Pair Programming Illuminated*, Addison Wesley, 2003.
- Marchesi, M., Succi, G., Wells, D. and Williams, L., eds. *Extreme Programming Perspectives*, Addison Wesley, 2003.
- Wells, D. and Williams, L. (eds). *Extreme Programming and Agile Methods - XP/Agile Universe 2002*, Springer Lecture Notes in Computer Science 2418, 2002.

- Cockburn, Al. and Williams, L., *The Costs and Benefits of Pair Programming in Extreme Programming Examined*, Addison Wesley, 2001.

## REFEREED CONFERENCE PUBLICATIONS

- Gegick, M., Rotella, P. and Williams, L., *Predicting Attack Probabilities to Prioritize Security Fortifications*, International Conference on Software Testing, Verification, and Validation (ICST) 2009, Denver, CO, pp. 181-190.
- Heckman, S. and Williams, L., *A Model Building Process for Identifying Actionable Static Analysis Alerts*, International Conference on Software Testing, Verification, and Validation (ICST) 2009, Denver, CO, pp. 161-170.
- Williams, L., Gegick, M., and Meneely, A., *Protection Poker: Structuring Software Security Risk Assessment and Knowledge Transfer*, International Symposium on Engineering Secure Software and Systems (ESSoS) 2009, Leuven, Belgium, pp. 122-134.
- Gegick, M., Rotella, P. and Williams, L., *Toward Non-Security Failures as a Predictor of Security Faults and Failures*, International Symposium on Engineering Secure Software and Systems (ESSoS) 2009, Leuven, Belgium, pp. 135-149.
- Meneely, A. and Williams, L., *On Preparing Students for Distributed Software Development with a Synchronous, Collaborative Development Platform*, ACM Technical Symposium on Computer Science Education (SIGCSE) 2009, Chattanooga, TN, pp. 529-533.
- Williams, L., McCrickard, S., Layman, L., Hussein, K., *Eleven Guidelines for Implementing Pair Programming in the Classroom*, Agile 2008 Education Track, Toronto, pp. 445-453.
- Meneely, A., Williams, L., Snipes, W., and Osbourne, J., *Predicting Failures with Developer Networks and Social Network Analysis*, ACM SIGSOFT Foundations of Software Engineering (FSE), Atlanta, GA, pp. 13-23.
- Heckman, S. and Williams, L., *On Establishing a Benchmark for Evaluating Static Analysis Alert Prioritization and Classification Techniques*, Empirical Software Engineering and Metrics 2008, pp. 41-50
- Ho, C-w, Williams, L., and Robinson, B., *Examining the Relationships between Performance Requirements and "Not a Problem" Defect Reports*, Requirements Engineering (RE) 2008, Barcelona, Spain, pp. 135-144.
- Meneely, A., Williams, L., Gehringer, E. ROSE: A Repository of Education-Friendly Open-Source Projects, ACM Innovation and Technology in Computer Science Education (ITiCSE) 2008, Madrid, Spain, pp. 7-11.
- Sherriff, M. and Williams, L., *Empirical Software Change Impact Analysis Using Singular Value Decomposition*, International Conference on Software Testing 2008, Lillehammer, Norway, pp. 268=277.
- Sherriff, M., Lake, M., and Williams, L., *Prioritization of Regression Tests Using Singular Value Decomposition with Empirical Change Records*, IEEE International Symposium on Software Reliability Engineering, Trollhättan, Sweden, pp. 81-90.
- Nagappan, N., Williams, L., Vouk, M., and Osborne, J., *Using In-Process Testing Metrics to Estimate Post-Release Field Quality of Java Programs*, IEEE International Symposium on Software Reliability Engineering, Trollhättan, Sweden, pp. 209-214.
- Ho, C-w, Williams, L., Antón, A., *Improving Performance Requirements Specification from Field Failure Reports*, IEEE International Requirements Engineering Conference 2007, New Delhi, India, pp. 79-88.
- Sanchez, J., Williams, L., and Maximilien, M., *A Longitudinal Study of the Test-driven Development Practice in Industry*, Agile 2007, Washington, DC, pp. 5-14.
- Layman, L., Williams, L., St. Amant, R. *Toward Reducing Fault Fix Time: Understanding Developer Behavior for the Design of Automated Fault Detection Tools*, Empirical Software Engineering and Measurement (ESEM) 2007, Madrid, Spain, pp. 176-185, **Best Paper Award**.
- Williams, L. and Layman, L., *Lab Partners: If They're Good Enough for the Natural Sciences, Why Aren't They Good Enough for Us?*, Conference of Software Engineering Education and Training (CSEET) 2007, Dublin, Ireland, pp. 72-82.
- Williams, L., Layman, L., Slaten, K., Berenson, S., and Seaman, C., *On the Impact of a Collaborative Pedagogy on African American Women in Software Engineering*, International Conference on Software Engineering Educator Track, Minneapolis, MN, pp. 677-687.
- Layman, L., Williams, L., and Slaten, K., *Note to Self: Make Assignments Meaningful*, ACM Technical Symposium on Computer Science Education (SIGCSE) 2007, Covington, KY, pp. 459-463.

Acceptance Rate 34%

Updated May 2009

- Sherriff, M. and Williams, L., DevCOP: A Software Certificate Management System for Eclipse, International Symposium for Software Reliability Engineering (ISSRE) 2006, Raleigh, NC, pp. 375-384.
- Williams, L., Layman, L., Osborne, J., Katira, N., *Examining the Compatibility of Student Pair Programmers*, Agile 2006, pp. 411-20.
- Ho, Chih-wei, Johnson, Michael, Williams, L., Maximilien, E. M., *On Agile Performance Requirements Specification and Testing*, Agile 2006, Minneapolis, to appear.
- Williams, L. and Shin, Y., WIP: Exploring Security and Privacy Concepts through the Development and Testing of the iTrust Medical Records System, Frontiers in Education (FIE) 2006, San Diego, pp. S1F30-31.
- Zheng, J., Robinson, B., Williams, L., and Smiley, K., *Applying Test Case Selection for COTS-based Applications*, International Conference on Software Engineering (ICSE) 2006, Shanghai, to appear.
- Layman, L., Cornwell, T., and Williams, L., *Personality Types, Learning Styles, and an Agile Approach to Software Engineering Education*, ACM Technical Symposium on Computer Science Education (SIGCSE) 2006, Houston, TX, pp. 428-432.
- Zheng, J., Robinson, B., Williams, L., Smiley, K., *A Lightweight Process for Change Identification and Regression Test Selection in Using COTS Components*, International Conference on COTS-Based Software Systems (ICCBSS), Orlando, FL, 137-143.
- Rappa, M., Smith, S., Yacoub, A., Williams, L., *OpenSeminar: A Web Based Collaboration Tool for Open Educational Resources*, IEEE Collaborate Com, San Jose, CA, (electronic proceedings, 9 pages).
- Srikanth, H., Williams, L., Osborne, J., *System Test Case Prioritization of New and Regression Test Cases*, International Symposium on Empirical Software Engineering (ISESE), Noosa Head, Australia, to appear.
- Zheng, J., Robinson, B., Williams, L., Smiley, K., *An Initial Study of a Lightweight Process for Change Identification and Regression Test Selection When Source Code is Not Available*, International Symposium on Software Reliability Engineering (ISSRE) 2005, Chicago, pp. 225-234.
- Nagappan, N., Williams, L., Osborne, J., Vouk, M., Abrahamsson, P., *Providing Test Quality Feedback Using Static Source Code and Automatic Test Suite Metrics*, International Symposium on Software Reliability Engineering (ISSRE) 2005, Chicago, pp. 85-94.
- Layman, L. Williams, L., Osborne, J., Berenson, S., Slaten, K., Vouk, M., *How and Why Collaborative Software Development Impacts the Software Engineering Course*, Frontiers in Education (FIE) 2005, Indianapolis, pp. T4C9-T4C14.
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- OOPSLA Workshop on Distributed Pair Programming (Refereed) with David Stotts (University of North Carolina – Chapel Hill), November 2002.
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- CSEET Workshop: Integrating Agile Practices into Software Engineering Courses (Refereed), with five other professors, February 2002.
- SIGCSE Tutorial: *Examining Extreme Programming (Refereed)* with Joseph Bergin (Pace University), February 2002.
- OOPSLA Workshop: *Agile Software Development Methodologies: Raising the Floor or Lowering the Ceiling* with Steven Fraser (Nortel Networks), October 2001.
- OOPSLA Tutorial: *Pair Programming: Experience the Difference* with Robert Kessler (University of Utah), October 2001.
- Conference on Software Engineering Education and Training, *Teaching PSP and TSPi in Universities* Workshop (Refereed), February 2001.
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## **INVITED TALKS**

- Agile RTP, *Let's Play Poker: Effort and Software Security Risk Estimation in Software Engineering*, June 2009.
- IBM, *Test Driven Development: Case Studies from the Industry*, Research Triangle Park, NC, June 2009
- Nortel, *Protection Poker*, Durham, NC, June 2009
- Nortel, *Pair Programming*, Durham, NC, May 2009
- Red Hat, *Test Driven Development*, Durham, NC, April 2009
- Nortel, *Test Driven Development*, Durham, NC, April 2009
- **Spring Seminar Series Speaker**, University of Kentucky Center for Computation Sciences, *Let's Play Poker: Effort and Software Security Risk Estimation in Software Engineering*, Lexington, KY, March 2009.

Updated May 2009

- Triangle Information Systems Quality Association, *Agile Testing for the Whole Team*, Raleigh, NC, March 2009.
- North Carolina Chapter of the Society for Information Management (SIM), *Agile Software Development*, March 2009.
- Fraser, S. Beck, K., Cunningham, W., Crocker, R., Fowler, M., Rising, L., Williams, L., *Privacy and Security: What are you Doing to Keep the Community Safe?*, ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA) Panel 2008, Nashville, TN, Companion pp 5-7.
- Microsoft, *Agile Testing for the Whole Team*, Redmond, WA, September 2008.
- IBM Agile Software Development Conference, *Combining the Best of Traditional and Test Driven Development*, Raleigh NC, June 2008.
- Mayo Clinic, *Agile Software Development*, via teleconference, April 2008.
- Nortel, *Agile Software Development*, Research Triangle Park, March 2008.
- Directors Meeting at SAS, *Agile Software Development Methods and Practices*, Cary, NC, February 2008.
- Channel Advisor, *Empirical Studies of Agile Practices*, Morrisville, NC, December 2007.
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- Agile RTP, *Empirical Studies of Test-driven Development*, Raleigh, NC, May 2007.
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- University of Wilmington, *Pair Programming: Why, Where, When, and How To*, Wilmington, NC, March 2007.
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- ACM Computer Science Teachers Association Computer Science and Information Technology Symposium, *Responding to Millennials' Learning Preferences with Pair Programming*, San Diego, July 2006.
- University of California, Irvine Institute of Software Research **Distinguished Speaker**, *Industrial Case Studies of Extreme Programming Teams*, Irvine, CA, March 2006.
- Harris, Corp., *Agile/Extreme Programming*, Research Triangle Park, February 2006.
- Microsoft, *Empirical Evaluation of Agile Software Development Processes: Industrial Case Studies*, Redmond, WA, September 2005.
- **Keynote**, *Crossing the Chasm in Agile Software Engineering Education*, Agile 2005 Educator's Symposium, Denver, CO, July 2005.
- Panelist, Microsoft Faculty Summit, *How to Accomplish Successful Software Engineering Research in Universities*, Redmond, WA, July 2005.
- Fraunhofer Center – Maryland (FC-MD), *Case Study Retrospectives: Kent Beck's Extreme Programming 1 and 2*, College Park, MD, June 2005.
- Panelist, IFIP 8.6, *Agile Methods: When and why do they work*, Atlanta, GA, May 2005.
- **Keynote**, *Debunking the Geek Stereotype with Software Engineering Education*, Conference on Software Engineering Education, Ottawa, CA, April 2005.
- University of Southern California Center for Software Engineering, *Extreme Programming 2*, Los Angeles, CA, March 2005.
- RTP SPIN, Triangle XP User Group, *Extreme Programming 2: Is That What Teams Were Doing Anyway?* Raleigh, NC, February 2005.
- Old Dominion, *Agile Software Development*, February 2005.
- IBM, *XP Practices: Top Candidates for Agile/Plan-Driven Hybridization*, Raleigh, NC, November 2004.
- IBM University Day, *Open Seminar and its Application to Software Engineering Education*, Raleigh, NC, October 2004.
- CASCON (14th Annual IBM Centers for Advanced Studies Conference), *Open Seminar*, Toronto, Canada, October 2004.
- Telcordia, *Agile Software Development*, Piscataway, NY, July 2004.

- University of Southern California Center for Software Engineering, *A Tale of Two XP Teams*, Los Angeles, CA, March 2004
- IBM University Day, *"Good Enough Reliability Tool" Plug-In for Eclipse*, Research Triangle Park, NC, February 2004.
- IBM, *Extreme Programming*, NCTEC/PSI Symposium, Research Triangle Park, NC, October 2003.
- PinPoint, *A Survey of Agile Software Development*, Research Triangle Park, NC, October 2003
- Intel Agile Software Development Research Group, *Pair Programming*, September 2003.
- Tekelec, *A Survey of Agile Software Development*, Research Triangle Park, NC, September 2003.
- Sabre, *Pair Programming*, Dallas, TX, July 2003
- University of Southern California Center for Software Engineering, *Agile Practices or Best Practices?*, March 2003.
- IEEE Women in Computing, *Pair Programming*, Cary, NC, January 2003.
- Microsoft, *Agile Software Development*, Redmond, WA, November 2002.
- IBM Technical Vitality, Research Triangle Park, NC, *Agile Software Development*, October 2003.
- **Keynote**, Agile Software Development Conference, Wellington, NZ, *An Empirical Analysis of Agile Methodologies*, September 2002.
- Motorola, *Agile Software Development Panel*, Chicago, IL, August 2002.
- Ericsson, Research Triangle Park, NC, *Agile Software Development*, May 2002.
- University of North Carolina – Chapel Hill, *Pair Programming: Why Have Two Do the Work of One?*, April 2002.
- **Keynote**, ACM SIGPLAN Mid-Atlantic Student Workshop on Programming Languages and Systems (MAPLAS '02), *Pair Programming: Why Have Two Do the Work of One?*, April 2002.
- NCR, Cary, NC, *Pair Programming and Test-First Programming*, April 2002.
- National Research Center of Canada, *Pair Programming*, March 2002.
- University of Southern California Center for Software Engineering, *Extreme Programming and Pair Programming*, March 2002.
- NASA Goddard, Software Assurance Technology Center, *Extreme Programming and other Agile Software Development Methodologies*, February 2002.
- University of Maryland, *A Survey of Agile Software Development Methodologies and Practices and Methodologies*, February 2002.
- IBM, Research Triangle Park, NC, *Agile Software Development*, September 2001
- **Keynote**, XP Universe, *Pair Programming: Why Have Two Do the Work of One?*, July 2001.
- XP Immersion VII, *Pair Programming*, June 2001.
- Rochester Institute of Technology, *Agile Software Development*, May 2001.
- NASA Langley, *Pair Programming*, May 2001.
- Research Triangle Park SPIN, *Pair Programming*, April 2001.
- North Carolina State University, Department of Electrical and Computer Engineering Seminar, *Pair Programming*, January 2001.
- SAS Institute, Cary, NC, *Pair Programming*, January 2001.
- Nortel Design Forum, RTP, NC, *Pair Programming*, December 2000.
- General Dynamics, Greensboro, NC, *Pair Programming*, November 2000.
- Allianz Insurance, Vienna, Austria, *Organizational Patterns Workshop*, November 2000.
- Blue Cross/Blue Shield, Chapel Hill, NC, *Pair Programming*, November 2000.
- Research Triangle Institute, RTP, NC, *Pair Programming and Extreme Programming*, October 2000.
- IBM Corp., Raleigh, NC, *Pair Programming*, October 2000 and November 2000.
- Advisor Technology Services, Charlotte, NC, *Pair Programming and Extreme Programming*, October 2000.
- IBM Corp., Raleigh, NC, *Pair Programming and Extreme Programming*, October 2000.

- Goto.com, Durham, NC, *Pair Programming and Extreme Programming*, September 2000.
- Duke University, Durham, NC, NSF First Year of Instruction Workshop, *Pair Programming*, July 2000.
- Salt Lake Object-Oriented Roundtable, Salt Lake City, *The Collaborative Software Process*, October 1999.
- Embry-Riddle University Computer Science Department, Daytona Beach, FL, *The Collaborative Software Process*, February 1999.