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**Research Interests**

Software Engineering, Empirical Software Engineering, Software Inspections, Software Reading/Analysis Techniques for Inspections (Requirements & Object Oriented Design), Qualitative Methods for Software Engineering, Software Engineering for Computational Science and Engineering, Software Architecture, Computer Security, Software Engineering Education

**Education**

5/03 Ph.D., Computer Science, University of Maryland, College Park  
Thesis Title: *Impact of Background and Experience on Software Inspections*  
Advisor: Dr. Victor Basili  
5/97 B.S. (*magna cum laude*), Computer Science, Louisiana State University; Minor in Mathematics; **Phi Beta Kappa**.

**Work Experience**

8/12 – **Associate Professor**, Department of Computer Science, University of Alabama  
8/08 – 8/12 **Assistant Professor**, Department of Computer Science, University of Alabama  
5/06 – 7/09 **Visiting Scientist**, Software Engineering Institute, Carnegie Mellon University  
8/04 – 8/08 **Assistant Professor**, Department of Computer Science and Engineering, Mississippi State University  
5/03 – 8/04 **Faculty Research Associate**, University of Maryland  
4/03 – 5/03 **Faculty Research Assistant**, University of Maryland  
9/98 – 4/03 **Graduate Research Assistant**, University of Maryland  
8/97 – 8/98 **Assistant Software Developer**, Lewis Computer Services, Baton Rouge, LA

**Publications**

**Refereed Journal Articles (reverse chronological order)**

1. Walia, G. and Carver, J. "Using Error Abstraction and Classification to Improve Requirement Quality: Conclusions from a Family of Four Empirical Studies." *Empirical Software Engineering*. To Appear.
2. Kosar, T., Mernik, M. and Carver, J. "Program Comprehension of Domain-Specific and General-Purpose Languages: Comparison Using Family of Experiments." *Empirical Software Engineering*, 17(3): 276-304. 2012.

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**Jeffrey Carver**  
University of Alabama

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3. Carver, J. "Development of a Mesh Generation Code with a Graphical Front-End: A Case Study." *Journal of Organizational and End-User Computing*, 23(4): 1-16. 2011.
  4. Jankun-Kelly, T., Wilson, D., Stamps, A., Franck, J., Carver, J., and Swan II, J. "Visual Analysis for Textual Relationships in Digital Forensics Evidence." *Information Visualization*. Sage Publications. 10(2):134-144. 2011.
  5. Bogen, C., Dampier, D., Vaughn, R., Carver, J., Bridges, S., Allen, E. and Reese, D. "Structured Forensics Examination Planning with Domain Modeling: A Report of Three Experiment Trials." *Journal of Digital Forensics Practice*. 3(1):23-32. Jan. 2010.
  6. Carver, J., Jaccheri, L., Morasca, S. and Shull, F. "A Checklist for Integrating Student Empirical Studies with Research and Teaching Goals." *Empirical Software Engineering: An International Journal*. 15(1):35-59. Feb. 2010.
  7. Williams, B. and Carver, J. "Characterizing Software Architecture Changes: A Systematic Review." *Information and Software Technology*, 52(1): 31-51. Jan. 2010.
  8. Walia, G. and Carver, J. "A Systematic Literature Review to Identify and Classify Software Requirements Errors." *Information and Software Technology*. 51(7):1087-1109. July 2009.
  9. Carver, J., Nagappan, N. and Page, A. "The Impact of Educational Background on the Effectiveness of Requirements Inspections: An Empirical Study." *IEEE Transactions on Software Engineering*. 34(6): 800-812.
  10. Kendall, R., Carver, J., Fisher, D., Henderson, D., Mark, A., Post, D., Rhoades, C. and Squires, S. "Development of a Weather Forecasting Code: A Case Study." *IEEE Software*. 25(4): 59-65. July/August 2008.
  11. Basili, V., Carver, J., Cruzes, D., Hochstein, L., Hollingsworth, J., Shull, F. and Zelkowitz, M. "Understanding the High Performance Computing Community: A Software Engineer's Perspective." *IEEE Software*. 25(4): 29-36. July/August 2008.
  12. Shull, F., Carver, J., Vegas, S., and Juristo, N. "The Role of Replications in Empirical Software Engineering." *Empirical Software Engineering: An International Journal*. 13(2): 211-218. April 2008.
  13. He, L., Carver, J., and Vaughn, R. "Using Inspections to Teach Requirements Validation." *CrossTalk: The Journal of Defense Software Engineering*. 21(1): 11-15. Jan. 2008.
  14. Carver, J., Shull, F., and Basili, V. "Observational Studies to Accelerate Process Experience in Classroom Studies: An Evaluation." *Empirical Software Engineering: An International Journal*. 11(4): 523-539. Dec. 2006.
  15. Carver, J., Shull, F. and Rus, I. "Finding and Fixing Problems Early: A Perspective-Based Approach to Requirements and Design Inspections." *CrossTalk: The Journal of Defense Software Engineering*. 19(12): 25-28. December 2006.
  16. Carver, J., Hochstein, L., Kendall, R., Nakamura, T., Zelkowitz, M., Basili, V., and Post, D. "Observations about Software Development for High End Computing." *CTWatch Quarterly*, 2(4A): 33-37. November 2006. **(Invited Paper)**
  17. Hochstein, L., Nakamura, T., Basili, V., Asgari, S., Zelkowitz, M., Hollingsworth, J., Shull, F., Carver, J., Voelp, M., Zazworka, N. and Johnson, P. "Experiments to Understand HPC Time to Development." *CTWatch Quarterly*, 2(4A): 24-32. November 2006. **(Invited Paper)**
  18. Maldonado, J., Carver, J., Shull, F., Fabbri, S., Doria, E., Martimiano, L., Mendonça, M., and Basili, V. "Perspective-Based Reading: A Replicated Experiment Focused on Individual Reviewer Effectiveness." *Empirical Software Engineering: An International Journal*. 11(1): 119-142. March 2006.
  19. Shull, F., Mendonca, M., Basili, V., Carver, J., Maldonado, J., Fabbri, S., Travassos, G., and Ferreira, M. "Knowledge Sharing Issues in Experimental Software Engineering." *Empirical Software Engineering: An International Journal*. 9(1): 111-137. March 2004.
  20. Carver, J. and Basili, V. "Identifying Implicit Process Variables To Support Future Empirical Work." *Journal of the Brazilian Computer Society*. 9(2): 77-86. November, 2003.

**Editorially Reviewed Journal and Magazine Articles (reverse chronological order):**

1. Carver, J. "Report from the Second International Workshop on Software Engineering for Computational Science and Engineering (SE-CSE 09)." *Computing in Science & Engineering*. 11(6):14-19.

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2. Carver, J. "First International Workshop on Software Engineering for Computational Science and Engineering." *Computing in Science & Engineering*. 11(2):8-11. March/April 2009.
  3. Carver, J. "Post-Workshop report for the Third International Workshop on Software Engineering for High Performance Computing Applications (SE-HPC07)." *ACM Software Engineering Notes*. 32(5): 38-48. Sept. 2007.
  4. Carver, J. "The Impact of Background and Experience on Software Inspections." *Empirical Software Engineering: An International Journal*. 9(3): 259-262. (Dissertation Abstract).

**Refereed Conferences and Workshops (reverse chronological order):**

1. Corley, J., Heaton, D., Gray, J., Carver, J., and Smith, R. "Brain-Computer Interface Virtual Keyboard for Accessibility." To appear in *Proceedings of the 7th IASTED International Conference on Human-Computer Interaction (HCI-12)*. Baltimore, MD. May 14-16, 2012.
2. Galloway, J., Smith, K., and Carver, J. "An Empirical Study of Power Aware Load Balancing in Local Cloud Architectures." To appear in *Proceedings of the 9th International Conference on Information Technology: New Generations*. Las Vegas. April 16-18, 2012.
3. Chatterji, D., Carver, J., Massengill, B., Oslin, J. and Kraft, N. "Measuring the Efficacy of Code Clone Information in a Bug Localization Task: An Empirical Study." *Proceedings of the 5th International Symposium on Empirical Software Engineering and Measurement (ESEM 2011)*. Banff, Canada. Sept. 22-23, 2011. p. 20-29.
4. Kosar, T., Mernik, M. and Carver, J. "The Impact of Tools Supported in Integrated-Development Environments on Program Comprehension." *Proceedings of the 33rd International Conference on Information Technology Interfaces*. June 27-30, 2011. Dubrovnik, Croatia.
5. Carver, J. and Kraft, N. "Evaluating the Testing Ability of Senior-level Computer Science Students." *Proceedings of the 24th IEEE-CS Conference on Software Engineering Education and Training*. May 22-24, 2011. Waikiki, Honolulu, Hawaii. p. 169-178.
6. Walia, G. and Carver, J. "Evaluating the Use of Requirement Error Abstraction and Classification Method for Preventing Errors during Artifact Creation: A Feasibility Study." *Proceedings of the 21st International Symposium on Software Reliability Engineering*. Nov. 1-4, 2010. San Jose, CA.
7. Carver, J. "Third International Workshop on Software Engineering for Computational Science and Engineering" *Proceedings of the 10th International Conference on Computational Science*. May 2010. Amsterdam, The Netherlands. p. 1479-1480.
8. Robbins, B. and Carver, J. "Cognitive Factors in Perspective-Based Reading: A Protocol Analysis Study." *Proceedings of the 2009 International Symposium on Empirical Software Engineering and Measurement (ESEM)*. October 15-16, 2009. Lake Buena Vista, Florida. p. 145-155.
9. He, L. and Carver, J. "Modifiability Measurement from a Task Complexity Perspective: A Feasibility Study." *Proceedings of the 2009 International Symposium on Empirical Software Engineering and Measurement (ESEM) - Short Papers Track*. October 15-16, 2009. Lake Buena Vista, Florida. p. 430-434.
10. Walia, G. and Carver, J. "Evaluating the Effect of the Number of Naturally Occurring Faults on the Estimates Produced by Capture-Recapture Models." *Proceedings of the 2nd International Conference on Software Testing, Verification and Validation*. April 1-4, 2009. Denver, CO. p. 210-219.
11. Walia, G. and Carver, J. "The Effect of the Number of Defects on Estimates Produced by Capture-Recapture Models." *Proceedings of the 19th International Symposium on Software Reliability Engineering (Student Track)*. Nov. 11-14, 2008. Seattle, WA. p. 305-306.
12. Walia, G. and Carver, J. "Evaluation of Capture-Recapture Models for Estimating the Abundance of Naturally-Occurring Defects." *Proceedings of the 2nd International Symposium on Empirical Software Engineering and Measurement*, October 9-10, 2008. Kaiserslautern, Germany. p. 158-167,
13. Walia, G., Carver, J. and Nagappan, N. "The Effect of the Number of Inspectors on the Defect Estimates Produced by Capture-Recapture Models." *Proceedings of the 30th International Conference on Software Engineering*. May 10-18. Leipzig, Germany. p. 331-340
14. Mendonca, M., Maldonado, J., Oliveira, M., Carver, J., Fabbri, S., Shull, F., Travassos, G., Hohn, E., and Basili, V. "A Framework for Software Engineering Experimental Replications." *Proceedings of the 13th International Conference on Engineering of Complex Computer Systems (ICECCS 2008)*. March 31-April 4. Belfast, Northern Ireland. p. 203-212.

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15. Walia, G., Carver, J. and Philip, T. "Requirement Error Abstraction and Classification: A Control Group Replicated Study." *Proceedings of the 18<sup>th</sup> IEEE International Symposium on Software Reliability Engineering*. November 5-9, 2008. Trollhättan, Sweden. p. 71-80
  16. Williams, B. and Carver, J. "Characterizing Software Architecture Changes: An Initial Study." *Proceedings of the First International Symposium on Empirical Software Engineering and Measurement*. September 20-21, 2007. Madrid, Spain. p. 410-419.
  17. Lemon, K., Allen, E., Carver, J., and Bradshaw, G. "An Empirical Study of the Effects of Gestalt Principles on Diagram Understandability" *Proceedings of the First International Symposium on Empirical Software Engineering and Measurement*. September 20-21, 2007. Madrid, Spain. p. 156-165.
  18. Carver, J., Henderson, L., He, L., Hodges, J., and Reese, D. "Increased Retention of Early Computer Science and Software Engineering Students using Pair Programming." *Proceedings of the 2007 Conference on Software Engineering Education and Training*. Dublin. July 3-5, 2007. p. 115-122.
  19. Carver, J., Kendall, R., Squires, S. and Post, D. "Software Development Environments for Scientific and Engineering Software: A Series of Case Studies." *Proceedings of the 29<sup>th</sup> International Conference on Software Engineering*. May, 2007. Minneapolis, USA. p. 550-559.
  20. Vaughn, R. and Carver, J. "Experiences in n-fold Structured Walkthroughs of Requirements Documents." *Canadian Air Force Software Engineering Symposium*, Royal Military College of Canada. May 24-25, 2007. (Referred Abstract Presentation)
  21. Bogen, A., Dampier, D. and Carver, J. "Support for Computer Forensics Examination Planning with Domain Modeling: A Report of One Experimental Trial." *Proceedings of the 40<sup>th</sup> Hawaii International Conference on Systems Science*. January 2007. p. 267b.
  22. Carver, J., Fisher II, M., and Rothermel, G. "An Empirical Evaluation of a Testing and Debugging Methodology for Excel." *Proceedings of the 2006 International Symposium on Empirical Software Engineering*. Sept. 21-22, 2006. Rio de Janeiro, Brazil. p. 278-287.
  23. He, L. and Carver, J. "PBR vs. Checklist: A Replication in the N-Fold Inspection Context." *Proceedings of the 2006 International Symposium on Empirical Software Engineering*. Sept. 21-22, 2006. Rio de Janeiro, Brazil. p. 95-104.
  24. Walia, G. and Carver, J. "Requirements Error Abstraction and Classification: An Empirical Study." *Proceedings of the 2006 International Symposium on Empirical Software Engineering*. Sept. 21-22, 2006. Rio de Janeiro, Brazil. p. 336-345.
  25. Maldonado, J., Fabbri, S., Mendonca, M., Doria, E., Martimiano, L., Carver, J., Shull, F. and Basili, V. "Comparing Code Reading and Testing Criteria: A Replication of Experimental Studies." *Proceedings of the 2006 International Symposium on Empirical Software Engineering (Short Papers Track)*. Sept. 21-22, 2006. Rio de Janeiro, Brazil. p. 42-44.
  26. Lemon, K., Allen, E., Carver, J., and Bradshaw, G.. "Gestalt Principles Applied to Software Engineering Diagrams: A Preliminary Study." *Proceedings of the 2006 International Symposium on Empirical Software Engineering (Short Papers Track)*. Sept. 21-22, 2006. Rio de Janeiro, Brazil. p. 48-50.
  27. Carver, J. and Henderson, L. "Viope as a Tool for Teaching Introductory Programming: An Empirical Investigation." *Proceedings of the 2006 Conference on Software Engineering Education and Training (CSEE&T)*, April 19-21, 2006. p. 9-16.
  28. Williams, B., Carver, J. and Vaughn, R. "Change Risk Assessment: Understanding Risks Involved in Changing Software Requirements." *2006 International Conference on Software Engineering Research & Practice*. June 26-29, 2006. Las Vegas, Nevada.
  29. Carver, J. and Lemon, K. "Architecture Reading Techniques: A Feasibility Study." *Proceedings of 2005 International Symposium on Empirical Software Engineering (Late Breaking Research Track)*. Nov. 17-18, 2005. Noosa Heads, Australia. p. 17-20.
  30. Shull, F., Carver, J., Hochstein, L., and Basili, V.. "Empirical Study Design in the Area of High Performance Computing (HPC)." *Proceedings of 2005 International Symposium on Empirical Software Engineering (ISESE)*. Nov. 17-18, 2005. Noosa Heads, Australia.
  31. Hochstein, L., Carver, J., Shull, F., Asgari, S., Basili, V., Hollingsworth, J., and Zelkowitz, M. "Parallel Programmer Productivity: A Case Study of Novice Parallel Programmers." *Proceedings of Supercomputing 2005. (Awarded Best Paper By A Student Led Author)*

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32. Hochstein, L., Basili, V., Zelkowitz, M., Hollingsworth, J., and Carver, J.. "Combining self-reported and automatic data to improve effort measurement." *Proceedings of Joint 10th European Software Engineering Conference and 13th ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2005)*. p. 356-365.
  33. Carver, J., VanVoorhis, J., and Basili, V. "Understanding the Impact of Assumptions on Experimental Validity." *Proceedings of 2004 ACM-IEEE International Symposium on Empirical Software Engineering*. August 2004. p. 251-260.
  34. Carver, J. and Basili, V. "Identifying Implicit Process Variables To Support Future Empirical Work." *Proceedings of 2003 Brazilian Symposium on Software Engineering*. October 2003. p. 5-18. **(Received the Best Paper Award)**
  35. Carver, J., Shull, F., and Basili, V. "Observational Studies to Accelerate Process Experience in Classroom Studies: An Evaluation." *Proceedings of 2003 ACM-IEEE International Symposium on Empirical Software Engineering (ISESE 2003)*. September 2003. p. 72-79.
  36. Carver, J., Jaccheri, L., Moraso, S., and Shull, F. "Issues Using Students in Empirical Studies in Software Engineering Education." *Proceedings of the 9<sup>th</sup> International Symposium on Software Metrics (METRICS 2003)*. September 3-5, 2003. p. 239-250.
  37. Shull, F., Basili, V., Carver, J., Maldonado, J., Travassos, G., Mendoca, M., and Fabbri, S. "Replicating Software Engineering Experiments: Addressing the Tacit Knowledge Problem." *Proceedings of the 2002 International Symposium on Empirical Software Engineering*. Nara, Japan, October 3-4, 2002. p. 7-16. **(Received the Best Paper Award)**
  38. Shull, F., Carver, J., and Travassos, G. "An Empirical Methodology for Introducing Software Processes." *Proceedings of the Joint Foundations on Software Engineering and European Software Engineering Conference*, Vienna, Austria, Sept. 10-14, 2001. p. 288-296.
  39. Travassos, G., Shull, F., and Carver, J. "Reading Techniques for OO Design Inspections." *Proceedings of the Twenty-fourth Annual Software Engineering Workshop*, Goddard Space Flight Center, Greenbelt, MD, December 1999.

**Other Publications (reverse chronological order):**

1. Carver, J., Bartlett, R., Gorton I., Hochstein, L., Kelly, D., and Segal, J. "Fourth International Workshop on Software Engineering for Computational Science and Engineering (SE-CSE2011). *Proceedings of the 33rd International Conference on Software Engineering*. May 28, 2011. p. 1226-1227.
2. Carver, J., Chatterji, D. and Kraft, N. "On the Need for Human-based Empirical Validation of Techniques and Tools for Code Clone Analysis." *Proceedings of the 5th International Workshop on Software Clones (held during ICSE'11)*. May 23, 2011, Waikiki, Honolulu, Hawaii.
3. D. Padua, U. Vishkin and J. Carver. "Joint UIUC/UMD parallel algorithms/programming course." *Proceedings of the 1<sup>st</sup> NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-11)*, in conjunction with IPDPS. May 16, 2011, Anchorage, Alaska,
4. Chatterji, D., Massengill, B., Oslin, J., Carver, J. and Kraft, N. "Measuring the Efficacy of Code Clone Information: An Empirical Study." *Proceedings of the Evaluation and Usability of Programming Languages and Tools (PLATEAU) Workshop 2010 [Held during SPLASH 2010]*. October 18, 2010. Reno, Nevada.
5. Carver, J. "Towards Reporting Guidelines for Experimental Replications: A Proposal." *Proceedings of the 1<sup>st</sup> International Workshop on Replication in Empirical Software Engineering Research (Held during ICSE 2010)*. May, 2010.
6. Jankun-Kelly, T. Wilson, D., Stamps, A., Franck, J., Carver, J. and Swan II, J. A Visual Analytic Framework for Exploring Relationships in Textual Contents of Digital Forensics Evidence. *In Proceedings of the Sixth International Workshop on Visualization for Computer Security*. Oct. 11, 2009. p. 39-44.
7. Carver, J. "SE-CSE 2009: The Second International Workshop on Software Engineering for Computational Science and Engineering." *Proceedings of the 31<sup>st</sup> International Conference on Software Engineering (Companion Volume)*. p. 484-485. Vancouver. May 2009.
8. Carver, J. "SE-CSE 2008: The First International Workshop on Software Engineering for Computational Science and Engineering." *Proceedings of the 30<sup>th</sup> International Conference on Software Engineering*. May 13, 2008. Leipzig, Germany. p. 1071.

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9. Jankun-Kelly, T., Franck, J., Wilson, D., Carver, J., Dampier, D. and Swan II, J. "Show Me How You See: Designing Studies to Learn How Computer Forensics Experts May Benefit from Visualization." *Proceedings of the 5<sup>th</sup> International Workshop on Visualization for Cyber Security (VizSEC08)*. Sept. 15, 2008. Cambridge, MA. p. 80-86.
  10. Carver, J. "Third International Workshop on Software Engineering for High Performance Computing (HPC) Applications." *Proceedings of the 29<sup>th</sup> International Conference on Software Engineering – Companion Version*. May 2007. Minneapolis, USA. p. 147.
  11. Vaughn, R., and Carver, J. "The Importance of Experience with Industry in Software Engineering Education." *Workshop on Best Practices in Software Engineering: The Role of Industry in Software Engineering Education and Training. Held at the 19<sup>th</sup> Conference on Software Engineering Education and Training*. April 2006. Turtle Bay, Hawaii.
  12. Garcia, R., Carver, J. Maldonado, J., Oliveira, M. "In-Virtuo Experimental Studies: An Approach Based on Genetic Algorithms." *Empirical Software Engineering Latin American Workshop (ESELAW 2005)*. (Held at the Brazilian Symposium on Empirical Software Engineering).
  13. Asgari, S., Hochstein, L., Basili, V., Carver, J., Hollingsworth, J., Shull, F., Zelkowitz, M. "Generating Testable Hypotheses from Tacit Knowledge for High Productivity Computing." 2<sup>nd</sup> Workshop on Software Engineering and High Performance Computing (held at ICSE 2005).
  14. Carver, J., Asgari, S., Basili, V., Hochstein, L., Hollingsworth, J., Shull, F., and Zelkowitz, M. "High Productivity Computing Systems (HPCS): Empirical Studies on Development Time." Poster. In *Proceedings: Volume II: Poster and Fast Abstract Sessions of the 2004 International Symposium on Empirical Software Engineering*. Redondo Beach, CA. August 2004.
  15. Carver, J., Asgari, S., Basili, V., Hochstein, L., Hollingsworth, J., Shull, F., and Zelkowitz, M. "Studying Code Development for High Performance Computing: The HPCS Program." In *Proceedings of the Workshop on Software Engineering and High Performance Computing Applications (held at ICSE 2004)*. Edinburgh, Scotland. May 2004.
  16. Asgari, S., Basili, V., Carver, J., Hochstein, L., Hollingsworth, J., Shull, F., and Zelkowitz, M. "Challenges in Measuring HPCS Learner Productivity in an Age of Ubiquitous Computing." In *Proceedings of the Workshop on Software Engineering and High Performance Computing Applications (held at ICSE 2004)*. Edinburgh, Scotland. May 2004.
  17. Travassos, G., Shull, F., and Carver, J. "A Family of Reading Techniques for OO Design Inspections." *Proceedings of WQS'2000 – Workshop Qualidade de Software*, at the XIV Brazilian Symposium on Software Engineering. Joao Pessoa: Brazilian Computer Society, 2000. v.1. p.225-237.
  18. Travassos, G., Shull, F., and Carver, J. "Evolving a Process for Inspecting OO Designs." *Proceedings of the Workshop on Software Quality, XIII Brazilian Symposium on Software Engineering*, Florianopolis, Curitiba, Brazil, October 1999.

#### **Book Chapters:**

1. Jankun-Kelly, T., Franck, J., Wilson, D., Carver, J., Dampier, D. and Swan II, J. "Show Me How You See: Lessons from Studying Computer Forensics Experts for Visualization." *Lecture Notes in Computer Science*. Eds. John R. Goodall, Gregory Conti and Kwan-Liu Ma. Springer Berlin/Heidelberg. Vol. 5210. 2008. p. 80-86.
2. Carver, J. "The Use of Grounded Theory in Empirical Software Engineering." *Lecture Notes in Computer Science*. Vol. 4336. 2007. p. 42.
3. Carver, J., Jaccheri, L., Morasca, S., and Shull, F.. "Using Empirical Studies during Software Courses." *Lecture Notes in Computer Science*, Eds. Reidar Conradi and Alf Inge Wang, Aug. 2003.
4. Shull, F., Carver, J., Travassos, G., Maldonado, J., Conradi, R., and Basili, V.. "Replicated Studies: Building a Body of Knowledge about Software Reading Techniques." *Lecture Notes on Empirical Software Engineering*, Eds. Natalia Juristo and Ana Moreno, March 2003.
5. Travassos, G., Shull, F., and Carver, J. "Working with UML: A Software Design Process Based on Inspections for the Unified Modeling Language." *Advances in Computers Book Series*, vol. 54, p. 35-97. Academic Press, 2001.

#### **Thesis**

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- Carver, J. *The Impact of Background and Experience on Software Inspections*. University of Maryland, Department of Computer Science. April 2003. (University of Maryland Technical Report CS-TR-4442.)

### Technical Reports:

1. Williams, B. and Carver, J. "Characterizing Software Architecture Changes: A Systematic Review." Technical Report MSU-081216, Department of Computer Science and Engineering, Mississippi State University. December 16, 2008.
2. Wallia, G. and Carver, J. "Development of a Requirement Error Taxonomy as a Quality Improvement Approach: A Systematic Literature Review." Technical Report MSU-070404, Department of Computer Science and Engineering, Mississippi State University, April 4, 2007.
3. Kendall, R., Post, D., Carver, J., Henderson, D. and Fisher, D. "A Proposed Taxonomy for Software Development Risks for High-Performance Computing (HPC) Scientific/Engineering Applications. Technical Note CMU/SEI-2006-TN-039. Software Engineering Institute, Carnegie Mellon University. January, 2007.
4. Williams, B. and Carver, J. "Characterizing Changes to Assess Architectural Impact." Technical Report MSU-070115, Department of Computer Science and Engineering. Mississippi State University. Jan. 15, 2007.
5. Kendall, R., Post, D., Carver, J., and Squires, S. "Case Study of the Eagle Code Project." Los Alamos Technical Report, LA-UR-06-1092. 2006. <http://library.lanl.gov/cgi-bin/getfile?LA-UR-05-1092.pdf>.
6. Carver, J., Jaccheri, L., Morasca, S., and Shull, F.. "Issues in Empirical Studies with Students." Technical Report MSU-060714, Department of Computer Science and Engineering, Mississippi State University, July 14, 2006.
7. Kendall, R., Carver, J., Mark, A., Post, D., Squires, S., and Shaffer, D. "Case Study of the Hawk Code Project." Los Alamos Technical Report, LA-UR-05-9011. 2005. <http://library.lanl.gov/cgi-bin/getfile?LA-UR-05-9011.pdf>.
8. Carver, J. "Architecture Reading Techniques." Technical Report MSU-050525, Department of Computer Science and Engineering, Mississippi State University, June 25, 2005.
9. Basili, V., Asgari, S., Carver, J., Hochstein, L., Hollingsworth, J., Shull, F., Zelikowitz, M. "A Pilot Study to Evaluate Development Effort for High Performance Computing." University of Maryland Technical Report CS-TR-4588. April 2004.
10. Fabbri, S., Maldonado, J.D., Hohn, E.N., Martimiano, L.A.F., Mendonca, M., Shull, F., Carver, J., and Basili, V.R. "Data Analysis of the First Two PBR Replications in Readers Project." Technical Report TR-225, ICMC-USP, University of Sao Paulo, Sao Carlos, SP, Brazil.
11. Carver, J., Van Voorhis, J., and Basili, V.. "Investigating the Interaction Between Process Specificity and Software Development Experience." University of Maryland Technical Report CS-TR-4532. October 2003.
12. Carver, J., Shull, F., and Basili, V. "Investigating the Effect of Process Experience on Inspection Effectiveness." University of Maryland Technical Report CS-TR-4442. March 2003.
13. Travassos, G., Shull, F., Carver, J., and Basili, V. "Reading Techniques for OO Design Inspections." University of Maryland Technical Report CS-TR-4353. April 2002.
14. Conradi, R., Basili, V., Carver, J., Shull, F., and Travassos, G. "A Pragmatic Documents Standard for an Experience Library: Roles, Documents, Contents and Structure." University of Maryland Technical Report CS-TR-4235. April 2001.
15. Shull, F., Travassos, G., Carver, J., and Basili, V. "Evolving a Set of Techniques for OO Inspections." University of Maryland Technical Report CS-TR-4070. October 1999.

### Grants and Contracts

1. Vrbsky, S. (PI), Kraft, N. (Co-PI), Carver, J. (Co-PI), Gray, J. (Co-PI), Lusth, J. (Co-PI), Cordes (Co-PI), "Doctoral Fellowships in Computer Science: Next-Generation Science and Practice of Software Engineering." US Department of Education, 08/16/10-08/15/13. \$525,060.
2. Parrish, A. (PI), Brown, D. (Co-PI), Dixon, B. (Co-PI), Smith, R. (Co-PI), Carver, J. (Co-PI), "ACJIC Task 26: A Comprehensive Approach toward CMV Data Quality Improvement (SADIP)." Alabama Criminal Justice Information Center, 10/01/10-9/30/11. \$350,000.

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3. Kraft, N. (PI, Lusth (Co-PI), Carver (Co-PI), "Text-to-Art." National Science Foundation. 05/01/10-04/30/12. \$100,000.
  4. Parrish, A. (PI), Smith, R. (Co-PI), Dixon, B. (Co-PI), Carver, J. (Co-PI), "ACJIC Task 21: SADIP FY10: Improving CMV Data Quality Through Improved Crash Reporting and Data Availability." Alabama Criminal Justice Information Center, 1/01/09-12/31/10. \$475,000.
  5. Kraft, N. (PI), Carver, J. (Co-PI), "SHF: Small: Collaborative Research: Improved Code Clone Categorization." National Science Foundation, 09/01/09-08/31/12. \$360,812.
  6. Kraft, N. (PI), Parrish, A. (Co-PI), Carver, J. (Senior Personnel), "REU Site: Software Language Engineering." National Science Foundation, 08/01/09-07/31/12. \$306,111.
  7. Vaughn, R (PI), Carver, J. (Co-PI), and Allen, E. (Co-PI), "Network Attack Characterization, Modeling, and Simulation Test (NACMAST) Center." Army Research Labs, sub-contract to EWA, Inc, 9/07-9/08. \$233,202.
  8. Carver, J. (PI), Henderson, L. (Co-PI), Hodges, J. (Co-PI), Reese, D (Co-PI), and Watkins, A. (Co-PI). "Improvement of Introductory Programming Courses Using Pair Programming." Mississippi State University Schillig Special Teaching Project Award, 04/01/07 – 04/30/08. \$3,000.
  9. Carver, J. (PI). Gift from Microsoft Research. \$10,000.
  10. Jankun-Kelly, T. (PI), Carver, J. (Co-PI), Swan, J. (Co-PI), and Dampier, D. (Co-PI). "CT-ISG: Empirically-based Visualization for Computer Security and Forensics." National Science Foundation, 10/06-9/09. \$300,000.
  11. Carver, J., (PI), "Collaborative Research: Flexible High Quality Design for Software Intensive Systems", National Science Foundation, 02/05 – 01/09. \$215,000.
  12. Carver, J., (PI), "The Use of Empirical Studies in the Development of High End Computing Applications", United States Air Force (through University of Maryland), 01/05-12/07. \$62,000.
  13. Carver, J., (PI), "Software Engineering Process and Methodologies for the DoD CHSSI Institute for Maneuverability and Terrain Physics Simulation", Army Corps of Engineers, Engineering Research and Development Center (through Michael Baker). 04/05-09/05. \$54,504

## Students (graduation date)

### PhD Students

- Gursimran Walia (5/09)
- Byron Williams (5/09)
- Lulu He (12/10)
- Debarshi Chatterji (~5/14)
- Aziz Nanthaamornphong (~5/14)
- Dustin Heaton (~5/15)
- Amiangshu Bosu (~5/15)

### Master's Students

- Jason Oslin (5/11)
- Brian Robbins (5/09)
- Xiaolu Liu (12/08)
- Antwan Foster (12/07)
- Lulu He (8/07)
- Gursimran Walia (8/06)
- Byron Williams (5/06)

## Courses

### The University of Alabama

- Software Engineering (Undergraduate) – Spring 2011, Fall 2011, Spring 2012
- Empirical Software Engineering (Full Graduate) – Spring 2009, Spring 2010, Spring 2011
- Software Testing and Quality Assurance (Split Level) – Fall 2008
- Advanced Empirical Software Engineering (Full Graduate) – Spring 2012

### Mississippi State University

- Software Architecture (Split Level) – Fall 2004, Fall 2005, Fall 2006, Fall 2007
- Software Testing and Quality Assurance (Split Level) – Spring 2006, Spring 2007
- Empirical Software Engineering (Full Graduate) – Spring 2005, Fall 2006, Spring 2008

## Honors and Awards

- 2008 Bagley College of Engineering Outstanding Instructional Paper
- Phi Beta Kappa
- Top 25 Downloaded Papers from *Information and Software Technology*

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- Best Paper Award, Brazilian Symposium on Software Engineering, 2003
  - Best Paper Award, International Symposium on Empirical Software Engineering, 2002
  - Travel Stipend, NSF sponsored Cyber Infrastructure Workshop, 2006
  - Travel Stipend, 1<sup>st</sup> Academy for Software Engineering Educators and Trainers, 2006
  - Phi Kappa Phi
  - Golden Key National Honors Society

### **Professional Activities**

- Senior Member, IEEE Computer Society
- Senior Member, ACM (SIGSOFT, SIGCSE)
- *Software Quality Journal*, Editorial Board Member (2007 – present)
- *Co-Program Chair*, 2012 and 2013 International Software Engineering Research Network (ISERN)
- *Tutorials Chair*, 2012 *International Conference on Software Engineering Education & Training (CSEE&T)*
- *Workshop Committee Member*, 2011 *International Conference on Software Engineering (ICSE)*
- *Panels Chair*, 2011 *International Conference on Software Engineering Education & Training (CSEE&T)*
- *Organizer of the 3<sup>rd</sup> International Workshop on Software Engineering for Computational Science and Engineering (held at ICCS 2010)*
- *Proceedings Chair*, 2009 *International Symposium on Empirical Software Engineering and Measurement (ESEM)*
- *Organizer of the 2<sup>nd</sup> International Workshop on Software Engineering for Computational Science and Engineering (held at ICSE 2009)*
- *Organizer of the 1<sup>st</sup> International Workshop on Software Engineering for Computational Science and Engineering (held at ICSE 2008)*
- *Organizer of the 3<sup>rd</sup> International Workshop on Software Engineering for High Performance Computing Applications (held at ICSE 2007)*
- *Workshops Chair*, 2007 *International Conference on Software Engineering Education and Training (CSEE&T '07)*
- Member, International Software Engineering Research Network, ISERN
- *Coordinator*, *International Advanced School of Empirical Software Engineering 2004*, Redondo Beach, CA.
- *Invited Lectures:*
  - “Applying Software Engineering Principles to the Development of Scientific and Engineering Software: Lessons Learned from a Series of Case Studies and Workshops” – Presented at McMaster University, April 7, 2011.
  - “Applying Software Engineering Principles to the Development of Scientific and Engineering Software: Lessons Learned from a Series of Case Studies and Workshops” – Presented at Oak Ridge National Laboratory, Feb. 25, 2011.
  - “Applying Software Engineering Principles to the Development of Scientific and Engineering Software: Lessons Learned from a Series of Case Studies and Workshops” – Presented at the 2010 Workshop on Verification, Validation and Uncertainty Analysis in High-Performance Computing, Nov. 14, 2010.
  - “Applying Software Engineering Principles to the Development of Scientific and Engineering Software: Lessons Learned from a Series of Case Studies and Workshops” – Presented at the SIAM Conference on Parallel Processing and Scientific Computing (PP10), Feb. 24, 2010.
  - “Software Development Environments for Scientific and Engineering Software: A Series of Case Studies” – Presented at the Biomedical Informatics Department at the Ohio State University Medical Center, July 28, 2009.
  - “Software Development Environments for Scientific and Engineering Software: A Series of Case Studies” – Presented at the Mechanical Engineering Department at the University of Alabama-Birmingham, February 5, 2009.

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- “Software Development Environments for Scientific and Engineering Software: A Series of Case Studies” – Presented at the Los Alamos Computer Science Symposium, October 15, 2008.
  - “Software Development Environments for Scientific and Engineering Software: A Series of Case Studies” – Presented at the Norwegian University of Science and Technology, November 2, 2007.
  - “Software Development Environments for Scientific and Engineering Software: A Series of Case Studies” – Presented at Simula Research Laboratory (Oslo, Norway), November 5, 2007.
  - “Empirical Software Engineering” – Presented at the University of Alabama, January 26, 2007.
  - “Empirical Software Engineering” – Presented at ESEDay, Federal University of Rio de Janeiro/COPPE, September 25, 2006
  - “Empirical Software Engineering” – Presented at Microsoft Research, Redmond, WA. July, 2006.
  - “Empirical Software Engineering” – Presented at the IEEE Computer Society Meeting, University of Alabama - Birmingham. April 2006.
  - “Architecture Change Taxonomy: An Initial Study” – Presented at The Empirical Software Engineering Group Meeting, University of Maryland, Department of Computer Science, December, 2005.
  - “Methods and Tools for Supporting Generalizations” – Presented at the International Software Engineering Research Network’s annual meeting, November, 2005.
  - “Using Qualitative Methods in Software Engineering” at the 2<sup>nd</sup> *International Advanced School of Empirical Software Engineering*. Redondo Beach, CA. August 2004.
  - “Using Qualitative Analysis in Software Engineering” at the *International Advanced School of Empirical Software Engineering*. Frascati, Italy. September, 2003.
  - Program Committees
    - *International Conference on Software Engineering Education and Training (CSEE&T)* – 2005-2008, 2011-2012
    - *International Conference on Software Testing, Verification and Validation (ICST)* – 2009-2011
    - *Testing: Academic & Industrial Conference Practice and Research Techniques (TAIC PART)* – 2011
    - *International Symposium on Software Reliability Engineering (ISSRE)* – 2010
    - *ACM Southeast Conference (ACMSE)* – 2010
    - *International Symposium on Empirical Software Engineering and Metrics (ESEM)* – 2007-2011
    - *ACM Technical Symposium on Computer Science Education* - 2010
    - *International Conference on Product Focused Software Process Improvement (PROFES)* – 2008-2011
    - *International Conference on Software Engineering and Knowledge Engineering (SEKE)* – 2008-2010
    - *First International Workshop on Software Test Output Validation (STOV)* – 2010
    - *Workshop on Information Systems in a Distributed Environment (ISDE)* – 2009
    - *Experimental Software Engineering Latin American Workshop (ESELAW)* – 2004-2006, 2008-2009
    - *International Symposium on Empirical Software Engineering (ISESE)* – 2004-2006
    - *International Conference on Software Engineering – Educator’s Track (ICSE)* – 2006
    - *1<sup>st</sup> Workshop on End-User Software Engineering (WEUSE I) (Held at ICSE’05)* – 2005
  - Session moderator:
    - *International Conference on Software Testing, Verification and Validation (ICST)* – 2009
    - *International Symposium on Empirical Software Engineering and Measurement (ESEM)* – 2007-2008
    - *Conference on Software Engineering Education and Training (CSEE&T)* – 2006, 2008, 2011
    - *International Symposium on Empirical Software Engineering (ISESE)* – 2004-2005
  - Reviewer:
    - Empirical Software Engineering (2006-2012)
    - IEEE Transactions on Software Engineering (2002-2007, 2010, 2011)
    - IEEE Software (2002-03, 2005-06, 2008, 2010-12)
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- Information and Software Technology (2007, 2009, 2010, 2011)
  - Journal of Systems and Software (2003, 2008, 2010, 2011)
  - Software Testing, Verification and Reliability (2009)
  - Computer (2004, 2008)
  - ACM TOESM (2004,2010)
  - IEEE Transactions on Education (2008, 2010)
  - Journal of the Brazilian Computer Society (2006, 2009)
  - Software Practice and Experience (2008)
  - Education and Information Systems, Technologies and Applications: EISTA (2008)
  - The DATA BASE for Advances in Information Systems (2007)
  - International Journal of High Performance Computing Applications (2004)
  - IEEE IT Professional (2003)
  - Software Quality Journal (2003, 2006, 2008)
  - WISE'01
  - Handbook of Empirical Software Engineering (2002)
  - NSF Panelist (2006, 2008, 2009, 2010, 2011)