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**Research Interests**

Software Engineering, Empirical Software Engineering, Software Inspections, Software Engineering for Science, Human Factors in Software Engineering, Human Error in Software Engineering, Software Engineering for FLOSS, Qualitative Methods for Software Engineering, Software 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**

- 8/17 --        **Full Professor**, Department of Computer Science, University of Alabama
- 8/12 – 8/17    **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

**Consulting**

**Software Process** - McLeod Software (2013)

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## Publications

### Refereed Journal Articles (reverse chronological order)

1. Al-Zubidy, A., Carver, J., Hale, D., and Hassler, E. "Vision for SLR tooling infrastructure: Prioritizing value-added requirements." *Information and Software Technology*. Online First. July, 2017. DOI:10.1016/j.infsof.2017.06.007.
2. Bosu, A., Carver, J., Bird, C., Orbeck, J., and Chockley, C. "Process Aspects and Social Dynamics of Contemporary Code Review: Insights from Open Source Development and Industrial Practice at Microsoft." *IEEE Transactions on Software Engineering*. 43(1): 56-75, January, 2017.
3. Krein, J., Prechelt, L., Juristo, N., Nanthaamornphong, A., Carver, J., Vegas, S., Knutson, C., Seppi, K., and Eggett, D. "A Multi-Site Joint Replication of a Design Patterns Experiment using Moderator Variables to Generalize across Contexts." *IEEE Transactions on Software Engineering*, 42(4):302-321, April 2016.
4. Hassler, E., Carver, J., Hale, D., Al-Zubidy, A. "Identification of SLR tool needs – results of a community workshop." *Information and Software Technology*, Vol. 70, pp. 122-129. Feb. 2016.
5. Nanthaamornphong, A. and Carver, J. "Test-Driven Development in Scientific Software: A Survey." *Software Quality Journal*, 25(2): 343-372. July 2017.
6. Heaton, D. and Carver, J. "Claims About the Use of Software Engineering Practices in Science: A Systematic Literature Review." *Information and Software Technology*. Volume 67. p. 207-219. 2015
7. Chatterji, D., Carver, J., and Kraft, N. "Code clones and developer behavior: results of two surveys of the clone research community". *Empirical Software Engineering*. Online First. 2015.
8. Nanthaamornphong, A., Carver, J., Morris, K., Filippone, S. "Extracting UML class diagrams from object-oriented Fortran: ForUML." *Scientific Programming*. Volume 2015. Article ID 421816.
9. Bosu, A., Carver, J., Guadagno, R., Bassett, B., McCallum, D. and Hochstein, L. "Peer Impressions in Open Source Organizations: A Survey." *Journal of Systems and Software*. Vol. 94, p. 4-15. August, 2014.
10. Williams, B. and Carver, J. "Examination of the Software Architecture Change Characterization Scheme using Three Empirical Studies." *Empirical Software Engineering*. 19(3):419-464. June 2014.
11. Nanthaamornphong, A., Carver, J., Morris, K., Michelsen, H., Rouson, D. "Building CLiIME via Test-Driven Development: A Case Study." *Computing in Science and Engineering*, 16(3):36-46. May/June 2014.
12. Albayrak, O. and Carver, J. "Investigation of Individual Factors Impacting the Effectiveness of Requirements Inspections: A Replicated Experiment." *Empirical Software Engineering*. 19(1):241-266. Feb. 2014
13. 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*. 18(4):625-658. Aug. 2013.
14. Jacob, F., Gray, J., Carver, J., Mernik, M., and Bangalor, P. "PPModel: A Modeling Tool for Source Code Maintenance and Optimization of Parallel Programs." *Journal of Super Computing*, 62(3): 1560-1582. 2012.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.

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20. Williams, B. and Carver, J. "Characterizing Software Architecture Changes: A Systematic Review." *Information and Software Technology*, 52(1): 31-51. Jan. 2010.
  21. 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.
  22. 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.
  23. 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.
  24. 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.
  25. 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.
  26. 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.
  27. 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.
  28. 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.
  29. 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)**
  30. 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)**
  31. 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.
  32. 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.
  33. 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., Muccini, H., and Yamashita, Y. "Practitioners' Digest: Distributed Teams, Developer Participation, and More." *IEEE Software*. 34(3):114-116. May/June 2017.
  2. Carver, J., Cabot, J., Capilla, R., and Muccini, H. "Practitioners' Digest: GitHub, Technical Debt, Code Formatting, and More." *IEEE Software*. 34(2):105-107. March/April 2017.
  3. Carver, J., Chue Hong, N. and Ciraci, S. "The 4th International Workshop on Software Engineering for HPC in Computational Science and Engineering." *Computing in Science & Engineering*. 19(2):91-95. March 2017.
  4. Carver, J., Minku, L., and Penzenstadler, B. "Practitioners' Digest: Requirements, Human Values, and the Development Technology Landscape." *IEEE Software*. 34(1):13-15. Jan/Feb 2017.
  5. Prikladnicki, R. Lassenius, C., Tian, E., Carver, J. "Practitioners' Digest: Trends in Agile: Perspectives from the Practitioners." *IEEE Software*. 33(6):20-22. Nov/Dec 2016.
  6. Carver, J., Paasivaara, M, Penzenstadler, B. "Practitioners' Digest: Probing Questions, Participatory Democracy, Quality Assurance, and Customer Data." *IEEE Software*. 33(5):12-14. Sept/Oct 2016.
- Carver, J., de Almeida, E., Capilla, R., Minku, L., Muccini, H. and Penzenstadler, B. "Practitioners'

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- Digest: Product Lines, Energy Conservation, Use Cases, Agile Development, and Infotainment." *IEEE Software*. 33(3): 29-31. May/June 2016.
7. Carver, J. "Software Engineering for Science." *Computing in Science & Engineering*. 18(2):4-5. March/April 2016.
  8. Carver, J., Cabot, J., Minku, L., and Torchiano, M. "Practitioners' Digest: Regression Testing, Spoken Language, Crash-Inducing Commits, UML, and Legal Policy." *IEEE Software*. 33(2):26-28. March/April 2016.
  9. Carver, J., Yamashita, A., Minku, L., Habayeb, M., and Akinli, S. "Software Quality, Energy Awareness, and More." *IEEE Software*. 32(6):98-100. Nov./Dec. 2015.
  10. Carver, J., Caglayan, B., Habayeb, M., Penzenstadler, B., and Yamashita, A. "Practitioners' Digest: Collaborations and Code Reviews." *IEEE Software*. 32(5): 27-29. Sept./Oct. 2015
  11. Carver, J., Chue Hong, N., and Ciraci, S. "Software Engineering for CSE." *Scientific Programming*. Volume 2015. Article ID 591562.
  12. Carver, J., Epperly, T. "Software Engineering for Computational Science & Engineering [Guest Editor's Introduction]." *Computing in Science & Engineering*, 16(3):6-9. May/June 2014.
  13. Carver, J., Juristo, N., Baldassarre, M.T., and Vegas, S. "Replications of Software Engineering Experiments." *Empirical Software Engineering*. 19(2):267-276. April 2014.
  14. Carver, J., Heaton, D., Hochstein, L., Bartlett, R. "Self-Perceptions about Software Engineering: A Survey of Scientists and Engineers." *Computing in Science and Engineering*. 15(1): 7-11. Jan/Feb 2013.
  15. Carver, J. "Software Engineering for Computational Science and Engineering." *Computing in Science and Engineering*. 14(2):8-11. 2012.
  16. Segal, J., Kelly, D., and Carver, J. "Guest Editor Preface Special Issue on Scientific End User Computing." *Journal of Organizational and End User Behavior*. 23(4). 2011.
  17. 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.
  18. Carver, J. "Report from the Second International Workshop on Software Engineering for Computational Science and Engineering (SE-CSE 09)." *SIGSOFT Software Engineering Notes*. 34(5): 48-51, Sept. 2009.
  19. Carver, J. "First International Workshop on Software Engineering for Computational Science and Engineering." *Computing in Science & Engineering*. 11(2):8-11. March/April 2009.
  20. 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.
  21. 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. Franch, X., Fernández, D., Hilari, M., Vogelsang, A., Heldal, R., Knauss, E., Travassos, G., Carver, J., Dieste, O., and Zimmermann, T. "How do Practitioners Perceive the Relevance of Requirements Engineering Research? An Ongoing Study." *25th International Requirements Engineering Conference - RE@Next! Track*. Sept. 4-8. Accepted. **[Acceptance Rate 11/37 (30%)]**
2. Lee, A., Carver, J., and Bosu, A. "Understanding One Time Contributors to FLOSS Projects." *39th International Conference on Software Engineering*. Buenos Aires. May 20-28. Accepted. **[Acceptance Rate 68/415 (16%)]**
3. Hu, W., Carver, J., Anu, V., Walia, G., and Bradshaw, G. "Defect Prevention in Requirements using Human Error Information: An Empirical Study." *23rd International Working Conference on Requirements Engineering: Foundation for Software Quality*. Essen, Germany. Feb. 27 - March 2. Accepted. **[Acceptance Rate 24/74 (32%)]**
4. Al-Zyoud, M., Atkison, T., and Carver, J. "An Overview of Emerging Privacy Issues in the Internet of Things." *The 2016 International Conference on Computational Science and Computational Intelligence: Internet of Things & Internet of Everything Track*. Dec. 15-17, 2016. Las Vegas, USA. **[Acceptance Rate 17%]**

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5. Anu, V., Walia, G., Hu, W., Carver, J., and Bradshaw, G. "Using A Cognitive Psychology Perspective on Errors to Improve Requirements Quality: An Empirical Investigation." *The 27<sup>th</sup> International Symposium on Software Reliability Engineering*. Oct. 23-27, 2016. Ottawa, Canada.
  6. Carver, J., Dieste, O., Kraft, N., Lo, D., Zimmerman, T. "How Practitioners Perceive the Relevance of ESEM Research" *The 10th International Symposium on Empirical Software Engineering and Measurement*. Sept. 8-9, 2016. Ciudad Real, Spain. **[Acceptance Rate 27/122 (22%)]**
  7. Hu, W., Carver, J., Anu, V., Walia, G., and Bradshaw, G. "Detection of Requirement Errors and Faults via a Human Error Taxonomy: A Feasibility Study." *The 10th International Symposium on Empirical Software Engineering and Measurement*. Sept. 8-9, 2016. Ciudad Real, Spain. **[Acceptance Rate 27/122 (22%)]**
  8. Anu, V., Walia, G., Hu, W., Carver, J., Bradshaw, G. "Effectiveness of Human Error Taxonomy during Requirements Inspection: An Empirical Investigation." *The 28th International Conference on Software Engineering & Knowledge Engineering*. July 1-3, 2016. San Francisco, CA. **[Acceptance Rate 68/225 (30%)]**
  9. Carver, J., Burcham, M., Kocak, S., Bener, A., Felderer, M., Gander, M., King, J., Markkula, J., Oivo, M., Sauerwein, C., and Williams, L. "Establishing a Baseline for Measuring Advancement in the Science of Security – an Analysis of the 2015 IEEE Security & Privacy Proceedings." *Proceedings of the 2016 Symposium and Bootcamp on the Science of Security (HotSoS)*, Pittsburgh, PA. April 19-21, 2016. **[Approximately 50%]**
  10. Al-Zubidy, A., Carver, J., Heckman, S., and Sherriff, M. "A (Updated) Review of Empiricism at the SIGCSE Technical Symposium." *Proceedings of the 47<sup>th</sup> Technical Symposium on Computer Science Education (SIGCSE)*. March 2-5, 2016. Memphis, TN. **[Acceptance Rate 105/297 (35%)]**
  11. Bosu, A., Carver, J., Hafiz, M., Hilley, P. and Janni, D. "Identifying the Characteristics of Vulnerable Code Changes: An Empirical Study." *Proceedings of the 22nd ACM SIGSOFT Foundations of Software Engineering*. Nov. 16-21, 2014. Hong Kong. **[Acceptance Rate 61/273 (22%)]**
  12. Bosu, A. and Carver, J. "Impact of Developer Reputation on Code Review Outcomes in OSS Projects: An Empirical Investigation." *Proceedings of the 8th International Symposium on Empirical Software Engineering and Measurement*. Sept. 18-19. Turin, Italy. **[Acceptance Rate 23/123 (19%)]**
  13. Hassler, E., Carver, J., Kraft, N., and Hale, D. "Outcomes of a Community Workshop to Identify and Rank Barriers to the Systematic Literature Review Process." *Proceedings of the 18th International Conference on Evaluation and Assessment in Software Engineering*. May 13-14, 2014. London, UK. **[Acceptance Rate 42/100 (42%)]**
  14. Bosu, A. and Carver, J. "How Do Social Interaction Networks Influence Peer Impression Formation? A Case Study." *Proceedings of the 10th International Conference on Open Source Systems*. May 6-9, 2014. Costa Rica. **[Acceptance Rate 25%]**
  15. Carver, J.C., Hassler, E., Hernandez, E. and Kraft, N.A. "Identifying Barriers to the Systematic Literature Review Process." *Proceedings of the 2013 International Symposium on Empirical Software Engineering and Measurement*. Oct. 10-11, Baltimore, MD. **[Acceptance Rate 24/86 (28%)]**
  16. Bosu, A. and Carver, J.C. "Impact of Peer Code Review on Peer Impression Formation: A Survey." *Proceedings of the 2013 International Symposium on Empirical Software Engineering and Measurement*. Oct. 10-11, Baltimore, MD. **[Acceptance Rate 24/86 (28%)]**
  17. Chatterji, D., Carver, J.C., Kraft, N.A., and Harder, J. "Effects of Cloned Code on Debugging: A Replicated Developer Study." *Proceedings of the 2013 Working Conference on Reverse Engineering*. Koblenz, Germany. Oct. 14-17, 2013. p. 112-121. **[Acceptance Rate 38/97 (39%)]**
  18. Eddy, B., Robinson, J., Kraft, N., and Carver, J. "Evaluating Source Code Summarization Techniques: Replication and Expansion." *Proceedings of the 2013 International Conference on Program Comprehension*. San Francisco, CA. May 20-21, 2013. p. 13-22. **[Acceptance Rate 19/63 (30%)]**
  19. Bosu, A., Corley, C., Heaton, D., Chatterji, D. Carver, J., Kraft, N. "Building Reputation in StackOverflow: An Empirical Investigation." *Accepted to the 2013 Conference on Mining Software Repositories*. **[Acceptance Rate 12/30 (40%)]**
  20. Cook, C., Drachova-Strang, S., Sun, Y., Sitaraman, M., Carver, J., Hollingsworth, J. "Specification and Reasoning in SE Projects Using a Web IDE." *Accepted to the 2013 International Conference on Software Engineering Education & Training*.

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21. Mandala, N., Walia, G., Carver, J., Nagappan, N. "Application of Kusumoto Cost-Metric to Evaluate the Cost Effectiveness of Software Inspections." *Proceedings of the 2012 International Symposium on Empirical Software Engineering and Measurement*. Lund, Sweden. Sep. 19-20, 2012. **[Acceptance Rate 24/95 (24%)]**
  22. Corley, J., Heaton, D. Gray, J., Carver, J., Smith, R. "Brain-Computer Interface Virtual Keyboard for Accessibility." *Proceedings of the 7th IASTED International Conference on Human-Computer Interaction (HCI-12)*. Baltimore, MD. May 14-16, 2012.
  23. 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 9<sup>th</sup> International Conference on Information Technology: New Generations*. Las Vegas. April 16-18, 2012. **[Acceptance Rate 28%]**
  24. 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 5<sup>th</sup> International Symposium on Empirical Software Engineering and Measurement (ESEM 2011)*. Banff, Canada. Sept. 22-23, 2011. p. 20-29. **[Acceptance Rate 33/105 (31%)]**
  25. 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. **[Acceptance Rate 100/129 (78%)]**
  26. 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. **[Acceptance Rate 20/50 (40%)]**
  27. 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 21<sup>st</sup> International Symposium on Software Reliability Engineering*. Nov. 1-4, 2010. San Jose, CA. **[Acceptance Rate 42/130 (32%)]**
  28. 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. **[Acceptance Rate (not reported)]**
  29. 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. **[Acceptance Rate 36/95 (38%)]**
  30. 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. **[Acceptance Rate 27/73 (37%)]**
  31. 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 2<sup>nd</sup> International Conference on Software Testing, Verification and Validation*. April 1-4, 2009. Denver, CO. p. 210-219. **[Acceptance Rate (33%)]**
  32. Walia, G. and Carver, J. "The Effect of the Number of Defects on Estimates Produced by Capture-Recapture Models." *Proceedings of the 19<sup>th</sup> International Symposium on Software Reliability Engineering (Student Track)*. Nov. 11-14, 2008. Seattle, WA. p. 305-306. **[Acceptance Rate 11/30 (37%)]**
  33. Walia, G. and Carver, J. "Evaluation of Capture-Recapture Models for Estimating the Abundance of Naturally-Occurring Defects." *Proceedings of the 2<sup>nd</sup> International Symposium on Empirical Software Engineering and Measurement*, October 9-10, 2008. Kaiserslautern, Germany. p. 158-167. **[Acceptance Rate 28/100 (28%)]**
  34. 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 30<sup>th</sup> International Conference on Software Engineering*. May 10-18. Leipzig, Germany. p. 331-340. **[Acceptance Rate 56/370 (15%)]**
  35. 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*

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- 13<sup>th</sup> International Conference on Engineering of Complex Computer Systems (ICECCS 2008). March 31-April 4. Belfast, Northern Ireland. p. 203-212. **[Acceptance Rate (not reported)]**
36. 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, Trollhättan, Sweden. p. 71-80. **[Acceptance Rate 26/78 (33%)]**
37. 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. **[Acceptance Rate 44/107 (41%)]**
38. 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. **[Acceptance Rate 44/107 (41%)]**
39. 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. **[Acceptance Rate: (Abstracts) 55/135 (40%); (Full Papers) 40/49]**
40. 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. **[Acceptance Rate – Experience Reports Track 15/52 (29%)]**
41. 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) **[Acceptance Rate (not reported)]**
42. Bogen, A., Dampier, D. and Carver, J. "Support for Computer Forensics Examination Planning with Doman Modeling: A Report of One Experimental Trial." *Proceedings of the 40<sup>th</sup> Hawaii International Conference on Systems Science*. January 2007. p. 267b. **[Acceptance Rate (not reported)]**
43. 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. **[Acceptance Rate 40/87 (46%)]**
44. 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. **[Acceptance Rate 40/87 (46%)]**
45. 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. **[Acceptance Rate 40/87 (46%)]**
46. 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. **[Acceptance Rate 17/36 (47%)]**
47. 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. **[Acceptance Rate 17/36 (47%)]**
48. 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. **[Acceptance Rate 26/70 (37%)]**
49. 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. **[Acceptance Rate 34%]**
50. 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. **[Acceptance Rate 8/15 (53%)]**
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51. 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. **[Acceptance Rate 8/15 (53%)]**
  52. 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) [Acceptance Rate 63/260 (24%)]**
  53. 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. **[Acceptance Rate 32/201 (16%)]**
  54. 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. **[Acceptance Rate 26/66 (39%)]**
  55. 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) [Acceptance Rate 20/129 (16%)]**
  56. 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. **[Acceptance Rate 32/70 (46%)]**
  57. 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. **[Acceptance Rate 31/63 (49%)]**
  58. 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) [Acceptance Rate 20/33 (60%)]**
  59. Shull, F., Carver, J., and Travassos, G. "An Empirical Methodology for Introducing Software Processes." *Proceedings of The Joint European Software Engineering Conference and Foundations of Software Engineering Conference*, Vienna, Austria, Sept. 10-14,2001. p. 288-296. **[Acceptance Rate 29/137 (21%)]**
  60. 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. and Chue Hong, N. (Eds.). *Proceedings of the International Workshop on Software Engineering for Science*. Austin. May 16, 2016.
2. Carver, J., Chue Hong, N., and Ciraci, S. (Eds.). *Proceedings of the 1<sup>st</sup> International Workshop on Software Engineering for High Performance Computing in Computational Science and Engineering*. Austin. November 20, 2015.
3. Carver, J., Chue Hong, N., and Ciancarini, P. "SE4HPCS'15: the 2015 international workshop on software engineering for high performance computing in science." In *Proceedings of the 37th International Conference on Software Engineering - Volume 2 (ICSE '15)*. p. 1003-1004. Florence, Italy. 2015
4. Walia, G., Carver, J. and Bradshaw, G. "Workshop on applications of human error research to improve software engineering (WAHESE 2015)." In *Proceedings of the 37th International Conference on Software Engineering - Volume 2 (ICSE '15)*. p.1019-1020. Florence, Italy. 2015.
5. Carver, J., Chue Hong, N., and Ciraci, S. (Eds.). *Proceedings of the 2<sup>nd</sup> International Workshop on Software Engineering for High Performance Computing in Computational Science and Engineering*. New Orleans. November 21, 2014.



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6. Carver, J., Chue Hong, N., and Ciraci, S. (Eds.). *Proceedings of the 1<sup>st</sup> International Workshop on Software Engineering for High Performance Computing in Computational Science and Engineering*. Denver. November 22, 2013.
  7. Carver, J., Epperly, T., Hochstein, L., Maxville, V., Pfahl, D., Sillito, J. "5th International Workshop on Software Engineering for Computational Science and Engineering (SE-CSE 2013)." *Proceedings of the 35th International Conference on Software Engineering*. May 18, 2013. San Francisco.
  8. Bosu, A. and Carver, J. "Peer Code Review to Prevent Security Vulnerabilities: An Empirical Evaluation." *Proceedings of the 7th International Conference on Software Security and Reliability*. June 18-20, 2013. Washington, DC. p. 229-230.
  9. Chatterji, D., Carver, J., Kraft, N. "Cloning: The Need to Understand Developer Intent." *Proceedings of the 7th International Workshop on Software Clones*. May 19, 2013. San Francisco, CA.
  10. Bosu, A., Carver, J. "Peer code review in open source communities using reviewboard." *Proceedings of the 4th Workshop on Evaluation and Usability of Programming Languages and Tools (PLATEAU)*. Tuscon, AZ. October 21, 2012. p.17-24.
  11. Kakar, A. and Carver, J. "Best Practices for Managing the Fuzzy Front-End of Software Development (SD): Insights From a Systematic Literature Review of New Product Development (NPD) Literature." *Proceedings of the 7th Pre-ICIS International Research Workshop on Information Technology Project Management (IRWITPM 2012)*. Dec. 15, 2012, Orlando, FL. p. 49-58.
  12. Chatterji, D., Carver, J. and Kraft, N. "Claims and Beliefs about Code Clones: Do We Agree as a Community? A Survey." *Proceedings of the 6th International Workshop on Software Clones - IWSC (held during ICSE'12)*. June 4, 2012, Zurich, Switzerland. p. 15-21.
  13. 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.
  14. 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.
  15. 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,
  16. 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.
  17. 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.
  18. 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.
  19. 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.
  20. 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.
  21. 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.

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22. 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.
  23. 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.
  24. 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).
  25. 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).
  26. 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.
  27. 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.
  28. 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.
  29. 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.
  30. 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.

#### Dissertation

- 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.)

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### 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. Walia, 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., Zelkowitz, 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. Carver, J. (PI). "Counter UAS Functional Simulation Framework." U.S. Department of Defense (sub to Torch Technologies). \$38,000. 8/17/15-6/30/16.
2. Carver, J. (PI). "Collaborative Research: Transforming Computer Science Education Research Through Use of Appropriate Empirical Research Methods: Mentoring and Tutorials." National Science Foundation. \$780,263. 9/1/15-8/31/20.
3. Carver, J. (PI) "Integrating Software Engineering and Human Error Models to Improve Software Quality." National Science Foundation. \$269,758. 8/1/14-7/31/17.

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4. Carver, J. (PI). "EAGER: Collaborative Research: Making Software Engineering Work for Computational Science and Engineering: An Integrated Approach." National Science Foundation. \$190,411. 8/1/14-7/31/17.
  5. Carver, J. (PI). "Growing the Science of Security Through Analytics." NSA (sub to North Carolina State University). \$296,415. 2/6/14-3/27/17.
  6. Carver, J. (PI) Kraft, N. (Co-PI) and Hale, D. (Co-PI). "CI-P: Advanced Systematic Literature Review Infrastructure for Software Engineering." National Science Foundation. \$100,000. 10/1/13-9/30/14.
  7. Carver, J. (PI). "Empirically Evaluating & Quantifying the Effects of Inspections & Testing on Security Vulnerabilities." Army Research Office (sub to North Carolina State University). \$82,951. 8/16/13-5/15/14.
  8. Carver, J. (PI). "Evaluating the Impact of Peer Impression on Project Outcomes in Free/Libre, Open Source Software (FLOSS) Projects." National Science Foundation. \$299,998. 8/1/13-7/31/17.
  9. Carver, J. (PI). "Travel Grant to Support Participation in the 2013 International Workshop on Software Engineering for Computational Science and Engineering." National Science Foundation. \$15,000. 2/1/13-1/31/14.
  10. Carver, J. (PI). "Empirically Evaluating and Quantifying the Effects of Inspections on Security Vulnerabilities (Iteration 1)." Army Research Office(sub to North Carolina State University), 1/1/13-5/15/14. \$56,798.
  11. Elliott, B. (PI), Parrish, A. (Co-PI, Carver, J. (Co-PI), Engelke, B. (Co-PI), and Myers, L. (Co-PI). "Mississippi Safety Data Improvement Project: Phase 1 (MS SaDIP)." Mississippi State University / US Department of Transportation, 10/1/2013-8/31/2014. \$225,000.
  12. Elliott, B. (PI), Dixon, B. (Co-PI), and Carver, J. (Co-PI). "Task 51: Critical Upgrades to improve the Quality of Alabama CMV Data (SaDIP)." Alabama Criminal Justice Information Center / US Department of Transportation, 9/01/2013-8/31/2015. \$375,687.
  13. Carver, J. (PI). "Development of a Software Engineering Curriculum for Computational Science & Engineering." National Science Foundation, 10/01/12-12/10/16. \$99,999.
  14. Parrish, A. (PI), Dixon, B. (Co-PI), Carver, J. (Co-PI), Brown, D. (Co-PI), Smith, R. (Co-PI). "ACJIC Task 41: Enhancement of Data Quality from Alabama Electronic Entry Systems (SADIP)." Alabama Criminal Justice Information Center / US Department of Transportation, 08/01/12-08/31/14. \$443,001.
  15. Parrish, A. (PI), Dixon, B. (Co-PI), Carver, J. (Co-PI), "ACJIC Task 40: MCSAP Advanced Tablet Technology Prototypes to Expedite CMV Inspection Data Collection." Alabama Criminal Justice Information Center / US Department of Transportation, 08/01/12-09/20/13. \$483,001.
  16. Kraft, N. (PI) and Carver, J. (Co-PI), "REU Site: Empirical Software Engineering." National Science Foundation, 03/01/12-12/31/16. \$333,000.
  17. Parrish, A. (PI) and Carver, J. (Co-PI), "ACJIC Task 32: Training and Support for Alabama's CMV Data Quality Improvement Initiative." Alabama Criminal Justice Information Center / US Department of Transportation, 10/1/2011-9/30/2012. \$250,000.
  18. 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.
  19. 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 / US Department of Transportation, 10/01/10-9/30/11. \$350,000.
  20. Kraft, N. (PI, Lusth (Co-PI), Carver (Co-PI), "Text-to-Art." National Science Foundation. 05/01/10-04/30/12. \$100,000.
  21. 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 / US Department of Transportation, 1/01/09-12/31/10. \$475,000.
  22. 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.
  23. 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.

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24. 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.
  25. 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.
  26. Carver, J. (PI). Gift from Microsoft Research. \$10,000.
  27. 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.
  28. Carver, J., (PI), "Collaborative Research: Flexible High Quality Design for Software Intensive Systems", National Science Foundation, 02/05 – 01/09. \$215,000.
  29. 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.
  30. 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

- Eduardo Caballero (~12/20)
- Nasir Eisty (~5/20)
- Amanda Lee (~5/19)
- Mahran Al-Zyoud (~5/18)
- Ahmed Al-Zubidy (~5/17)
- Wenhua Hu (~5/17)
- Chris Corley (~12/16)
- Dustin Heaton (8/15)
- Amiangshu Bosu (8/15)
- Debarshi Chatterji (8/14)
- Aziz Nanthaamornphong (5/14)
- Lulu He (12/10)
- Byron Williams (5/09)
- Gursimran Walia (5/09)

### Master's Students

- Morgan Burcham (~12/16)
- 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

- Human Computer Interaction (Split Level) – Fall 2013, Fall 2016
- Human Computer Interaction (Full Graduate) – Fall 2012
- Software Engineering (Undergraduate) – Spring 2011, Fall 2011, Spring 2012, Fall 2012
- Empirical Software Engineering (Full Graduate) – Spring 2009, Spring 2010, Spring 2011, Spring 2013, Fall 2015
- Software Testing and Quality Assurance (Split Level) – Fall 2008, Spring 2014, Spring 2015, Fall 2017
- 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

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## Honors and Awards

- 2016 President's Faculty Research Award
- 2008 Bagley College of Engineering Outstanding Instructional Paper
- Phi Beta Kappa
- Top 25 Downloaded Papers from *Information and Software Technology*
- 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 and Service

- Senior Member, IEEE Computer Society
- Senior Member, ACM (SIGSOFT, SIGCSE)
- Member, International Software Engineering Research Network, ISERN

### Editorial Responsibilities

- *IEEE Software*, Column Editor-Editorial Board Member (2015-present)
- *Computing in Science & Engineering*, Editorial Board Member (2014-present), Associate Editor-in-Chief (2015-present)
- *Empirical Software Engineering*, Editorial Board Member (2012 – present)
- *Information & Software Technology*, Editorial Board member (2013 – present)
- *Software Quality Journal*, Editorial Board Member (2007 – present)

### Conference Chairing

- *Program Co-Chair, 2015 International Symposium on Empirical Software Engineering and Measurement (ESEM)*
- *Co-Program Chair, 2012 and 2013 International Software Engineering Research Network (ISERN) Meeting*

### Workshop Chairing

- *Software Engineering for Science Workshop series*, Primary Organizer (2007-present) – held at the *International Conference on Software Engineering*, *SuperComputing*, and *The International Conference on Computational Science & Engineering*
- *First Workshop on Application of Human Error Research to Improve Software Engineering*, Co-organizer, 2015
- *International Research Network on the Science of Security*, Organizer, 2015
- *Community Workshop to Prioritize SLR Community Needs*, Co-organizer, 2014
- *Department of Energy Workshop on Extreme Scale Application Software Productivity*, Co-organizer, 2014
- *Community Workshop to Gather Requirements for SLR Tool Support*, Co-organizer, 2013
- Coordinator, *International Advanced School of Empirical Software Engineering 2004*, Redondo Beach, CA.

### Conference/Workshop Organizational Committee

- *4th Workshop on Sustainable Software for Science: Practice and Experiences (WSSSPE4)* - 2016
- *Short Papers Co-Chair, 2014 International Symposium on Empirical Software Engineering and Measurement (ESEM)*

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- *Co-Short Papers Chair, 2013 International Conference on Evaluation and Assessment in Software Engineering (EASE)*
  - *Tutorials Chair, 2012 International Conference on Software Engineering Education & Training (CSEE&T)*
  - *Panels Chair, 2011 International Conference on Software Engineering Education & Training (CSEE&T)*
  - *Proceedings Chair, 2009 International Symposium on Empirical Software Engineering and Measurement (ESEM)*
  - *Workshops Chair, 2007 International Conference on Software Engineering Education and Training (CSEE&T '07)*

Journal/Magazine Reviewer:

- IEEE Transactions on Software Engineering
- Empirical Software Engineering
- IEEE Software
- IEEE Transactions on Education
- Information and Software Technology
- Journal of Systems and Software
- Software Testing, Verification and Reliability
- Computer
- ACM TOESM
- Journal of the Brazilian Computer Society
- Software Practice and Experience
- Education and Information Systems, Technologies and Applications: EISTA
- The DATA BASE for Advances in Information Systems
- International Journal of High Performance Computing Applications
- IEEE IT Professional
- Software Quality Journal
- WISE'01
- Handbook of Empirical Software Engineering

Conference Program Committees

- *International Conference on Software Engineering (ICSE) – Program Committee Member – 2016-2017*
- *International Conference on Software Engineering – Software Engineering Education Track (ICSE-SEET) – 2014, 2017*
- *International Conference on Software Engineering – Educator's Track (ICSE) – 2006*
- *International Conference on Software Engineering (ICSE) – Workshop committee member - 2011*
- *International Symposium on Empirical Software Engineering and Metrics (ESEM) – 2007-2014, 2016-2017*
- *International Conference on Software Testing, Verification and Validation (ICST) – 2009-2015*
- *International Symposium on Software Reliability Engineering (ISSRE) – 2010, 2012-2013, 2015*
- *International Symposium on Empirical Software Engineering (ISESE) – 2004-2006*
- *International Conference on Evaluation and Assessment in Software Engineering (EASE) – 2012-2017*
- *International Conference on Software Engineering Education and Training (CSEE&T) – 2005-2008, 2011-2016*
- *SuperComputing – Educator's Track - 2012*
- *ACM Technical Symposium on Computer Science Education (SIGCSE) - 2010, 2012, 2013*
- *Testing: Academic & Industrial Conference Practice and Research Techniques (TAIC PART) – 2011*
- *ACM Southeast Conference (ACMSE) – 2010, 2012*

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- *International Conference on Product Focused Software Process Improvement (PROFES)* – 2008-2011, 2015
  - *International Conference on Software Engineering and Knowledge Engineering (SEKE)* – 2008-2010
  - *Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE)* - 2010

#### Workshop Program Committees:

- *Workshop on Evaluation and Usability of Programming Languages and Tools (PLATEAU)* – 2011, 2014-2016
- *NITRD Workshop on Computational Science & Engineering Software Sustainability and Productivity Challenges (CSEEP Challenges)* - 2015
- *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
- *1<sup>st</sup> Workshop on End-User Software Engineering (WEUSE I) (Held at ICSE'05)* – 2005

#### Session moderator:

- *International Conference on Evaluation and Assessment in Software Engineering (EASE)* - 2014
- *International Conference on Software Testing, Verification and Validation (ICST)* – 2009
- *International Symposium on Empirical Software Engineering and Measurement (ESEM)* – 2007-2008, 2011, 2014
- *Conference on Software Engineering Education and Training (CSEE&T)* – 2006, 2008, 2011
- *International Symposium on Empirical Software Engineering (ISESE)* – 2004-2005

#### Proposal Reviewing

- NSF Panelist (2006, 2008, 2009, 2010, 2011, 2012, 2014)

#### Invited Lectures:

- “What We Have Learned about Using Software Engineering Practices in Scientific Software” – Presented at Notre Dame, April 20, 2017.
- “What We Have Learned about Using Software Engineering Practices in Scientific Software” – Presented at NCSA, Dec. 9, 2016.
- “Software Testing” – Tutorial Presented at the 2016 Software Engineering Assembly Conference, NCAR, Boulder, CO, April 7, 2016.
- “Applying Software Engineering Principles to Computational Science” – Presented at the National Institute of Standards and Technology, Feb. 19, 2015.
- “Software Engineering for Computational Science: Observations from Experience” – Presented at the American Meteorological Society Annual Meeting, Jan. 8, 2015.
- “What We Have Learned about Using Software Engineering Practices in Computational Science and Engineering” – Presented at SIAM PP'14, Feb. 20, 2014.
- “Applying Appropriate Software Engineering to Extreme-Scale Software Development” – Presented at the DOE ASCR Software Productivity for Extreme Scale Workshop, Jan. 13, 2014.
- “Mythbusting aka Empirical Methods for Software Engineering” – Presented at Auburn University, Sept. 18, 2013.
- “Applying Software Engineering Principles to Computational Science & Engineering” – Presented at Oak Ridge National Laboratories, June 14, 2013.
- “Applying Software Engineering Principles to the Development of Scientific and Engineering Software: Lessons Learned from a Series of Case Studies and Workshops” – Presented at Sandia National Laboratories, January 30, 2013.
- “Applying Software Engineering Principles to the Development of Scientific and Engineering Software: Lessons Learned from a Series of Case Studies and Workshops” – Presented at Lawrence Livermore National Laboratory, March 28, 2012.



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- “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.
  - “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.