

CURRICULUM VITAE

Scott D. McMaster

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1 PERSONAL INFORMATION

- Scott D. McMaster
Ph.D., University of Maryland
Software Design Engineer, Amazon.com, Seattle, Washington

1.1 EDUCATION

- Ph.D., Computer Science, University of Maryland, 2008.
Dissertation: *A Context-Sensitive Coverage Criterion for Test Suite Reduction*
Advisor: *Atif M.Memon*
- M.S., Computer Science, University of Maryland, 2005.
Scholarly Paper: *Call-stack Coverage for Test-Suite Reduction*
Advisor: *Atif M.Memon*
- M.S., Software Engineering, Seattle University, 2001.
- B.S., Mathematics, University of Nebraska, 1994.

1.2 EMPLOYMENT

- Software Design Engineer, Amazon.com.
July 2007-*present*.
- Software Engineer, Lockheed Martin.
June 2005-July 2007.
- Chief Software Architect, Consultant, BDMetrics Inc.
May 2004-May 2005 / August 2005-July 2007.
- Software Engineering Consultant, OPTIMIS Corp.
December 2003-May 2004.
- Research Assistant, Computer Science Department, University of Maryland.
January 2003-May 2004.
- Teaching Assistant, Computer Science Department, University of Maryland.
August 2002-December 2002.
- Software Design Engineer, Lead Test Engineer, Microsoft.
November 1995-August 2002.
- Software Engineer, Consultant, Healthcare Communications.
January 1994- November 1995.
- Programmer/Analyst, Viatel.
November 1994-April 1995.

2 RESEARCH, SCHOLARLY, AND CREATIVE ACTIVITIES

2.1 ARTICLES IN REFEREED JOURNALS

1. "Call Stack Coverage for GUI Test-Suite Reduction," Scott McMaster and Atif M. Memon, *IEEE Transactions on Software Engineering, IEEE Computer Society Press, January, 2008, Vol. 34 No. 1.*

2.2 ARTICLES IN REFEREED CONFERENCES AND WORKSHOPS

1. "Enhancing Software Project Management Courses With Industry Participation", Dave Tahmoush, James Purtilo, Scott McMaster, and Sandro Fouche, International Conference on Frontiers in Education: Computer Science and Computer Engineering (FECS 2009), Las Vegas, NV, July 13-16, 2009 (*to appear*).
2. "An Extensible Heuristic-Based Framework for GUI Test Case Maintenance," Scott McMaster and Atif Memon, First International Workshop on Testing Techniques & Experimentation Benchmarks for Event-Driven Software (TESTBEDS 2009), Denver, CO, April 4, 2009.
3. "Fault Detection Probability Analysis for Coverage-Based Test Suite Reduction," Scott McMaster and Atif M. Memon, *Proceedings of the 21st IEEE International Conference on Software Maintenance (ICSM'07)*, (Paris, France), 2007.
4. "Call Stack Coverage for GUI Test-Suite Reduction," Scott McMaster and Atif M. Memon, *Proceedings of the 17th IEEE International Symposium on Software Reliability Engineering (ISSRE 2006)*, Raleigh, NC, USA, pp. 33-44, Nov. 6-10 2006.
5. "Call Stack Coverage for Test Suite Reduction," Scott McMaster and Atif M. Memon, *Proceedings of the 21st IEEE International Conference on Software Maintenance (ICSM 2005)*, Budapest, Hungary, pp. 473-482, Sep. 25-30, 2005.
6. "Towards Dependability in Everyday Software Using Software Telemetry," Kenny C. Gross, Scott McMaster, Adam Porter, Aleksey Urmanov Lawrence G. Votta, *Proceedings of the 3rd IEEE Workshop on Engineering of Autonomic Systems*, Potsdam, Germany, March 2006.
7. "Proactive System Maintenance Using Software Telemetry," Kenny C. Gross, Scott McMaster, Adam Porter, Aleksey Urmanov, and Lawrence G. Votta, *ICSE Workshop on Remote Analysis and Measurement of Software Systems (RAMSS)*, Portland, Oregon, USA, May 9, 2003.

2.4 TALKS, ABSTRACTS, TUTORIALS, AND OTHER PROFESSIONAL PAPERS PRESENTED

2.4.1 POSTERS

- Applying Dynamic Execution Trace Data to Test Suite Minimization, ICSE 2003, Portland, Oregon, May 2003.

2.4.2 ARTICLES IN MAGAZINES

- “Solving Nonlinear Boundary-Value Problems with *Mathematica*,” Scott McMaster, *Mathematica in Education*, vol. 3 no. 2, pages 33-38, 1994.

2.5 FELLOWSHIPS, PRIZES, AND AWARDS

- Goldwater Scholar (1992-1994).

2.6 RESEARCH SOFTWARE

- **JavaCCTAgent:** The calling context tree (CCT) has proven to be a useful data structure for dynamic program analysis. The JavaCCTAgent is a library written in C++ and targeting the Java Virtual Machine Tool Interface (JVMTI) maintains a CCT data structure for a running Java program and outputs the CCT in a compact format at program exit. Data from the JavaCCTAgent has been used in research into the call stack coverage criterion and test suite reduction. The source code is available on SourceForge (<http://sourceforge.net/projects/javacctagent/>).

2.7 SCHOLARLY ACTIVITIES

- Program Committee, First International Workshop on Testing Techniques & Experimentation Benchmarks for Event-Driven Software (TESTBEDS 2009).
- Program Committee, Testing: Academic and Industrial Conference -- Practice and Research Techniques (TAIC PART 2009).
- Program Committee, Seventh International Workshop on Dynamic Analysis (WODA 2009).

3 TEACHING

3.1 COURSES

- Teaching Assistant, CMSC 435 (Software Engineering), University of Maryland, Fall 2002.
- Proctor/Assistant, Introductory Java Training, Lockheed Martin (Papillion, Nebraska), 2006.

4 INDUSTRY BACKGROUND

- At Amazon.com, I am the senior software design engineer working on a project to apply model-driven development, code generation, domain-driven design, and metadata management to build a platform for human-involved and highly-transactional corporate financial and accounting systems. Additionally, I am focused on introducing my team to more comprehensive unit testing and continuous integration approaches.
- At Lockheed Martin, I worked as a senior developer and technical implementation lead on a service-oriented enterprise distributed application with a portal-based front-end. This was also my first experience in a CMMI Level 5 organization.
- At BDMetrics, a venture-funded Internet startup, I served as Chief Architect. I led a ground-up reimplementation of the company's core systems on the .NET platform, putting in place architecture and processes that have supported the company's continued growth into the millions of registered users.
- At Microsoft, I spent time as a Test Lead on the Access and Visual Studio teams, and as a Software Design Engineer on the Access and SharePoint Team Services teams. I implemented and tested sophisticated desktop and Internet features on large teams working with multi-million-line new and legacy codebases. While working in testing, I excelled at designing and building automated GUI test frameworks. As a developer, I built and integrated reusable libraries and components suitable for industry-wide consumption.