

GEOFFREY A. MAZEROFF, M.S.

1702 Sutters Mill Lane
Knoxville, TN 37909-2793

(865) 414-8540
geoff.mazeroff@gmail.com

EDUCATION

- *Candidate for Ph.D. in Computer Science* (December 2008), University of Tennessee – Knoxville
- *M.S. in Computer Science* (December 2004), University of Tennessee – Knoxville
- *B.S. in Computer Science and B.A. in Music* (May 2001), Furman University – Greenville, SC

WORK EXPERIENCE

Software Engineer (contractor); Daxor Corporation (Oak Ridge Operations)

Employment Dates: September 2008 to present

Duties:

- Designed a custom, multi-tier .NET application to provide daily financial information (in Open XML format) pertaining to the financial instruments within the company's investment portfolio.
- Maintained press releases, clinical evidence, financial statements, and publication information on the Daxor website to keep potential customers and investors informed of the company's product and financial position.
- Evaluated the usability of several Microsoft Visio UML stencils sets for use in software design documentation to standardize the tools used for capturing system design information.
- Placed all Daxor-affiliated websites under version control, thus providing a backup of all current website files and a method of tracking changes to those files.
- Collaborated with Daxor personnel to gather requirements, and other software engineers to design, implement, and maintain a Web application to track the state of and information about blood volume analyzer units in the field.
- Trained several individuals on the use of Microsoft Visual SourceSafe 2005 for version control of design documents.
- Performed data mining on blood volume tests based on databases retrieved from installed units; data mining was performed using Microsoft Excel 2007 PivotTables, and the results were formatted and tailored for top-level management to provide information about the patient population.
- Analyzed the current system settings for installed blood volume units to help the mechanical engineering staff determine if units in the field were configured or calibrated incorrectly, thereby increasing device accuracy and providing a proactive solution to device maintenance.
- Worked in conjunction with the COO and the lead clinician at Idant Laboratories (a subsidiary of Daxor) to maintain the "Fertility Services" portion of the Idant website, thereby keeping potential clients informed of donors; given the state of the website, presented a business case for specific improvements to the website.
- Remained current with medical journal publications related to blood volume; attended the Society of Critical Care Medicine conference in Nashville, TN (February 2009).
- Contributed to discussions pertaining to software engineering standard operating procedures, gamma detector calibration, outside vendor evaluation for software processes, and the design phases of the WinBVA application.
- Improved the data mining procedures for blood volume tests, thus reducing the introduction of erroneous values and data redundancy.
- Championed several feasibility studies for the next major release of the blood volume analysis software application (WinBVA 6.0): the use of hardware for automatic data backups, the export of data in DICOM format, details pertaining to injectate identification, component ID and system state tracking, and system security.
- Created several instructional documents for processes or tasks that were previously undocumented.
- Investigated several communication tools to manage information within the software engineering team; ultimately chose a Wiki-based approach (DokuWiki), thus providing a simple and easily accessible way of sharing information.

Relevant skills: .NET 3.5 (C# and ASP.NET using C#), UML, Open XML, Microsoft Access 2003/2007, Microsoft Visual Studio 2008, Team Foundation Server (TFS), Microsoft Visio, Microsoft SQL Server 2008 Express, Cisco VPN client, Microsoft Internet Information Services (IIS), Microsoft Excel 2007 PivotTables, Apache httpd 2.2, Dokuwiki, Firebug, YSlow.

Graduate Teaching Assistant; University of Tennessee – Knoxville, Department of Computer Science

Employment Dates: August 2004 to December 2008

Duties:

- *Courses:* Data Structures (undergraduate-level), Computer Organization (undergraduate-level), Scripting Languages (graduate-level)
- Designed and maintained the course Website to provide access to handouts, assignments, course calendar, due dates, and announcements.
- Suggested modifications to existing homework assignments, laboratory exercises, and exams to increase student engagement and understanding of course content.
- Hosted review sessions to help students prepare for exams.
- Created lab assignment lesson plans (i.e., lecture slides) and rubrics to help students reinforce concepts covered in lecture, understand how to complete the lab assignments, and allow for consistent instruction when a course has multiple lab sections (i.e., multiple teaching assistants).
- Analyzed student performance via statistical methods (e.g., correlations, distributions, histograms) to make the professor aware of areas/topics with which students are having difficulty.

Relevant skills: ARM assembler, C, CSS, DigLOG, JavaScript, LaTeX, Mailman, Perl, PHP, XHTML

Note: Recipient of the Department of Computer Science Graduate Teaching Assistant of the Year award, April 2007

Student Research Fellow; Oak Ridge National Laboratory (Nuclear Science Technology Division); Oak Ridge, TN

Employment Dates: June 2008 to August 2008

Duties:

- Developed a system security plan for a network of computers that process classified information. Activities included aligning the security plan with DOE Manual 205.1-4 (National Security Systems Manual) and several DOE- and ORNL site-specific standards. This plan also included operating system security checklists, methods for documenting system changes, and a diagram of the network perimeter. Led collaboration with the cyber security analyst responsible for national security systems at ORNL.
- Investigated the capability of making multiple Windows XP machines capable of handling SSH connections via OpenSSH through Cygwin. The goal of this investigation was to determine how to make this group of machines more accessible to users performing scientific simulations across multiple nodes when executing non-MPI-related applications. The results were two technical documents: administrator-specific instructions for configuring Cygwin/OpenSSH/MPICH2, and user-specific instructions for connecting to and using machines on this network.

Relevant skills: Cygwin, MPICH2, technical writing

Software Engineer (contractor); Jewelry Television (Americas Collectible Network); Knoxville, TN

Employment Dates: May 2007 to May 2008

Duties:

- Upgraded ARC (Action Request Center), a customized installation of Bugzilla, from version 2.18 to version 3.1. ARC is the primary tool used for tracking software issues within the Software Engineering (SE) and E-commerce departments.
- Created documentation to assist the IT staff with the installation and configuration of a Web server (Apache httpd), database engine (MySQL), and other support tools required by Bugzilla within a Redhat Linux framework.
- Investigated the new features available in Bugzilla 3.1 – e.g., dependency graphs, charting, custom fields – so that they could be used effectively. The result of this investigation was an improved version of the Bugzilla documentation, which is used by the SE and E-commerce departments.
- Added new customizations and migrated existing customizations – e.g., adapted an interface with a Subversion code repository, and designed an ETL procedure for MySQL database migration.
- Performed user-interface enhancements to make ARC easier to use and more convenient for the end-users.
- Led meetings with members of the Product Management Group, system architects, and other software engineers to develop a consistent specification of required and desired components.

Relevant skills: Apache Web server, CSS, JavaScript, MediaWiki, MySQL, Perl (specifically CGI and templates), Red Hat Linux, Subversion, XHTML

Relevant company practices: Agile software development (i.e., Scrum), Payment Card Industry (PCI) compliance

Student Research Fellow; Oak Ridge National Laboratory (Nuclear Science Technology Division); Oak Ridge, TN

Employment Dates: May 2006 to March 2007

Duties:

- Developed an approved and implemented information systems security plan for a network of computers that process classified information. Activities included aligning the security plan with DOE Manual 471.2-2, adapting an information systems security report, as well as developing an operating systems security checklist, network security report, and software approval report. Led collaboration with the Information System Security Officer for the system and the ORNL Classified Computing Coordinator.
- Studied an existing software application, IDAS, developed for processing measurements of neutron attenuation with applicability to homeland security. Investigated open-source libraries, specifically Visualization Toolkit (VTK) by Kitware Inc., to enhance scientific visualization capabilities within IDAS. Such capabilities included 2D and 3D plots as well as the integration of filter back-projection modules to handle tomography. Integrated VTK-based enhancements into existing software modules. Assisted in making updates to and improving the consistency of IDAS software documentation.

Relevant skills: Doxygen, technical writing, Visual C++, Visual Studio .NET, Visualization Toolkit (VTK)

Graduate Research Assistant; University of Tennessee – Knoxville, Department of Computer Science

Employment Dates: August 2001 to May 2005

Duties:

- Worked within the framework of probabilistic (Markov) models as applied to host-based intrusion detection on Windows systems to develop applications for behavior model inference and application.
- Rewrote proof-of-concept MATLAB scripts into fully-functional C applications.
- Led collaboration remotely with the Center for Information Assurance at the Florida Institute of Technology to integrate the probability models into Gatekeeper, a real-time monitoring application for malicious mobile code (MMC) fingerprinting.
- Engaged in research activities, which were a balance of theoretical/mathematical investigations and practical applicability to the problem domain of detecting known and potentially new MMC threats while maintaining low false-alarm rates.
- Authored and co-authored two refereed publications. Wrote and defended a masters thesis.

Relevant skills: C, LaTeX, MATLAB, Perl, Visual Studio .NET

Note: This work was sponsored by a grant from the Office of Naval Research.

Intern; PrO Unlimited / Symantec Corporation (Security Response); Santa Monica, CA

Employment Dates: May 2005 to August 2005

Duties:

- Performed a user-interface analysis of several versions of Norton Antivirus and Norton Internet Security. The resulting analysis was used as evidence for pending litigation regarding adware and spyware.
- Collaborated with another intern to set up host environments for testing network intrusion signatures. This work added increased the efficiency of testing and quality assurance (QA) for Symantec's Intrusion Detection group.
- Constructed a collection of security threats that contain key-logging functionality. Collaborated with another intern to analyze this collection to find common code characteristics. The results of this analysis were incorporated into Symantec's antivirus scanner technology.
- Assisted two other interns with QA work pertaining to threat verification. Wrote several log-file comparison scripts that improved the readability, accuracy, and processing time of the QA procedure.

Relevant skills: C, Ethereal, IDA, MoinMoin Wiki, PE Dump (and other static analysis tools), Perl, Red Hat Linux, VMWare

PUBLICATIONS

- G. Mazeroff. "Markov Models for Application Behavior Analysis," *extended abstract submitted to* Cyber Security and Information Intelligence Research Workshop, Oak Ridge National Labs, Oak Ridge, TN, 2008.
- G. Mazeroff, J. Gregor, M. Thomason, and R. Ford. "Probabilistic suffix models for API sequence analysis of Windows XP applications," *Pattern Recognition*, 41: 90-101, 2007.
- M. Berry and M. Browne, eds. "Lecture Notes in Data Mining." World Scientific Publishing, 2006. (Author of two chapters: "Genetic Algorithms" and "Introduction to Association Rules.")
- G. Mazeroff. "Probabilistic suffix models for Windows application behavior profiling: Framework and initial results," Masters thesis, University of Tennessee, Knoxville, 2004.
- G. Mazeroff, V. De Cerqueira, J. Gregor, and M. Thomason. "Probabilistic trees and automata for application behavior modeling," *Proceedings of the 41st Annual ACM Southeast Conference*, 435-440, Savannah, GA, 2003.
- V. De Cerqueira, G. Mazeroff, J. Gregor, and M. Thomason. "Visualization techniques for probability-weighted tree and automata-based models," *Proceedings of the 41st Annual ACM Southeast Conference*, 100-105, Savannah, GA, 2003.

TECHNICAL/PROFESSIONAL SKILLS

- Internet-oriented languages: ASP.NET 3.5 (C#), CSS, Firebug, JavaScript, Open XML, Perl (CGI), PHP, XHTML, XML, YSlow
- Database architectures: Microsoft SQL Server 2008 Express, MySQL
- Programming languages and environments: ARM assembler, C, C++, Dokuwiki, Java, MATLAB, .NET (C#), Perl, Python, TeX/LaTeX, UML
- Operating Systems: Microsoft Windows 9x/2000/XP, Linux, Solaris
- Relevant developmental tools: Adobe Photoshop, Apache httpd, Bugzilla, Cygwin, gcc/gdb, Doxygen, JBuilder, JMP, MATLAB, Microsoft Internet Information Services (IIS), Microsoft Office, Microsoft Visual Studio 2008, SPSS, Team Foundation Server (TFS), VisIt, Visualization Toolkit (VTK)
- Agile software development (Scrum)
- Technical/professional writing: Microsoft Manual of Style for Technical Publications, APA, Wikipedia Manual of Style

MEMBERSHIPS

- Association for Computing Machinery (ACM)
- Institute of Electrical and Electronics Engineers (IEEE)
- Upsilon Pi Epsilon
- Knoxville Swing Dance Association (and Performance Exhibition Team)
- Phi Mu Alpha Sinfonia

ACTIVITIES

- On-site computer support and training for members of the Knoxville community on an as-needed basis
- Volunteer for Knoxville's public radio station, WUOT 91.9 FM
- Active contributor to the English Wikipedia