

Jennifer B Sartor

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University of Texas at Austin
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Research Managed runtime environments, memory management, garbage collection, dynamic optimization

Education **THE UNIVERSITY OF TEXAS AT AUSTIN** Austin, TX
Ph.D. in Computer Sciences in progress
Advisor: Kathryn McKinley

M.S. in Computer Sciences completed December 2004
Computer Science Education study August 2002 - December 2003

THE UNIVERSITY OF ARIZONA Tucson, AZ
B.S. in honors Computer Science and Mathematics, minor in Spanish completed December 2001

Publications (in submission) J.B. Sartor, S.M. Blackburn, D. Frampton, M. Hirzel, and K.S. McKinley. **Z-Rays: Divide Arrays and Conquer Speed and Flexibility** *Fifteenth International Conference on Architectural Support for Programming Languages and Operating Systems*, Pittsburgh, PA, March 2010.

J.B. Sartor, M. Hirzel, and K.S. McKinley. **No Bit Left Behind: The Limits of Heap Data Compression.** In *The 2008 International Symposium on Memory Management*, pp. 111–120, Tucson, AZ, June 2008. Received conference's **Best Presentation Award**.

J.B. Sartor, S. Venkiteswaran, K.S. McKinley, and Z. Wang. **Cooperative Caching with Keep-Me and Evict-Me.** In *Ninth Annual Workshop on Interaction between Compilers and Computer Architectures*, pp. 46–57, San Francisco, CA, February 2005.

Experience **UT CS - Programming Languages/Compilers Research Group** Austin, TX
Graduate Research Assistant January 2004 - Present

Researching how to improve performance with dynamic optimizations in a Java virtual machine, focusing on memory management. Previously built a generational garbage collector with multiple, independently collectable mature spaces to hold distinct connected data structures. Currently investigating changing the heap to have a discontinuous array layout with indirection to fixed-sized *arraylets*, and dynamically compressing arraylets to save space and improve memory efficiency.

IBM TJ Watson - Dynamic Optimization Group Hawthorne, NY
Research Intern June 2007 - December 2007

Optimizing page faults in memory-constrained environments through cooperation of the garbage collector and operating system by changing how the collector traverses and organizes objects.

Intel - Managed Runtime Division Hillsboro, OR
Research Intern June 2005 - December 2005

Made a Java virtual machine cache-coherent non-uniform memory access (cc-NUMA) aware with dynamic profile-guided object migration. Used hardware performance monitors to inform migration of objects between threads with the garbage collector.

Sun Microsystems - Directory Server Group Austin, TX
Intern Summer 2003

Developed system management prototype web application using Jato and Lockhart framework that is able to install and manage server software.

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| <i>Experience Continued</i> | <p>Honeywell - Software Validation and Verification <i>Intern</i></p> <p>Performed software testing for the Control Abstraction Layer (CAL) of new Gulfstream airplane on an 8086 architecture.</p> | <p><i>Phoenix, AZ</i> <i>Summer 2002</i></p> |
| | <p>IBM - Software Testing <i>Intern</i></p> <p>Performed software testing on application server WebSphere 4.0. Interacted with both Oracle and DB2 databases on numerous platforms (Windows 2k, NT, AIX, Sun, Linux) while performing tests: installation, stress tests, and servlet tests.</p> | <p><i>Durham, NC</i> <i>Summer 2001</i></p> |
| <i>Teaching</i> | <p>UT CS - Introduction to Computer Programming: C++ <i>Assistant Instructor</i></p> <p>Designed a course to introduce the C++ language to students who had prior programming experience in other languages. Taught the 1 credit class focusing on the details of C++, including weekly programming assignments and quizzes.</p> | <p><i>Austin, TX</i> <i>Fall 2009</i></p> |
| | <p>UT CS - Honors Computer Organization <i>Graduate Teaching Assistant - Steve Keckler</i></p> <p>Taught basic building blocks of computer systems, including high-level understanding of the compiler, operating system, assembler, instruction set, and hardware.</p> | <p><i>Austin, TX</i> <i>Spring 2004</i></p> |
| | <p>UT CS - Honors Computer Architecture <i>Graduate Teaching Assistant - Steve Keckler</i></p> <p>Received annual TA Excellence Award from department of CS for this work. Taught computer architecture fundamentals: assembly language programming, hardware performance analysis, instruction set design, datapaths, pipelining, and memory systems including caches and virtual memory.</p> | <p><i>Austin, TX</i> <i>Fall 2003</i></p> |
| | <p>UT CS - Computer Fluency <i>Graduate Teaching Assistant - Roger Priebe</i></p> <p>Taught high-level “what are computers” class for non-majors. This included computer organization, number representation and storage, algorithms, programming languages, and networking.</p> | <p><i>Austin, TX</i> <i>Spring 2003</i></p> |
| | <p>UT CS - Elements of Computing and Programming <i>Graduate Teaching Assistant - Rober Priebe</i></p> <p>Taught introductory programming to Java, including object-orientation, variables and data types, classes, control structures, loops, methods, and arrays.</p> | <p><i>Austin, TX</i> <i>Fall 2002</i></p> |
| | <p>UA CS - Various Java programming and math classes <i>Section Leader or Undergraduate Teaching Assistant</i></p> <p>Taught courses in introductory Java programming and data structures; object-oriented programming and design including event-driven programming and graphical user interfaces in a large scale software system; and discrete math with focus on algorithm analysis and complexity, data structure analysis, and introductory combinatorics and probability. Taught students in weekly sections, monitored computer science labs, graded, and worked closely with course instructors.</p> | <p><i>Tucson, AZ</i> <i>Spring 1999 - Fall 2001</i></p> |
| <i>Honors</i> | <p>First place in poster and presentation rounds in the graduate student category of ACM Student Research Competition at PLDI conference.</p> | <p><i>June 2009</i></p> |
| | <p>Best student presentation at The International Symposium on Memory Management for “No Bit Left Behind” paper.</p> | <p><i>June 2008</i></p> |
| | <p>NSF graduate student award for East Asia and Pacific Summer Institute in Australia. While visiting, gave research talks at Australian National U, U Melbourne, and U New South Whales.</p> | <p><i>Summer 2008</i></p> |
| | <p>UT Computer Science Teaching Assistant Excellence Award.</p> | <p><i>Fall 2003</i></p> |

*Service and
Development*

Invited to join Upsilon Pi Epsilon, International Honor Society for Computing Sciences *Fall 2005*
Sponsored by CRA-W to attend Grad Cohort Workshop for women *Spring 2005*
Member of UT's Women and Minorities in Computer Sciences committee *Fall 2004 - Spring 2005*
Invited to present session at UT's Graduate Student Instructor Seminar on "Leading Effective Discussions in Science Classes" *Fall 2004*
Member of UT CS Gradfest committee, organizing prospective PhD student weekend *Spring 2004*
Member of UT's Graduate Representative Association of Computer Sciences *Fall 2003 - Spring 2004*
Member of Kappa Delta Pi International Honor Society in Education *Spring 2003*
Invited to join Phi Beta Kappa Honor Society *Fall 2001*
Member of UA CS Undergraduate Curriculum Committee *Fall 2001*
Co-founder, treasurer, and committee head of UA's ACM student chapter *Spring 2001 - Fall 2001*
Member of The National Dean's List *Spring 2000 - Fall 2001*
Member of Golden Key National Honors Society *Fall 1999 - Fall 2001*

Personal

Completed Austin half-marathon run *February 2009*
Completed first sprint triathlon, Capital of Texas Tri *May 2008*
Received black belt in Kung Fu *December 2006*
Achieved goal of visiting every continent *January 2002*
Studied abroad in Spain at Estudio Internacional Sampere *Summer 1999*