

Wei Jin

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Research Interests Intelligent Tutoring Systems, Computer Science Education

Education

- **Ph.D. in Computer Science**, Duke University, Durham, NC, 2000
- **M.S. in Computer Science**, Institute of Software, Chinese Academy of Sciences, Beijing
- **B.E. in Comp. Sci. & Engineering**, Huazhong University of Science & Technology, Wuhan, China

Professional Experience

August 2012 – Present: Associate Professor, Dept. of Computer Science, University of West Georgia, Carrollton, GA
2003 – 2012: Assistant/Associate Professor, Dept. of CIS, Shaw University, Raleigh, NC
2008 – 2009: Computer Science Program Coordinator, Shaw University, Raleigh, NC
2002 – 2003: Visiting Assistant Professor, Dept. of Computer Science, Duke University, Durham, NC
2000 – 2001: Senior Software Engineer & Team Leader, EMC Corporation, RTP, NC
1996 – 2000: Research Assistant, Department of Computer Science, Duke University, Durham, NC

Teaching Experience

University of West Georgia: Intro. to Web Development, Intro. to Computer Security, Computer Science II, System Architecture, Intelligent Systems, Parallel and Distributed Systems, Java Web Development

EPA-Funded Research Apprenticeship Program for High School Students: Intro. to Programming, Intro. to Game Development using Unity3d

Shaw University: Intro. to Programming (C++ and Java), Data Structures and Algorithms, Operating Systems, Information Systems Security, Programming Languages and Compilers, Computer Organization and Assembly Language, Computer Architecture, Intro. to Web Programming, Concepts of Computers

Duke University Talent Identification Program: Computer Science Fundamentals

Research & Technical Experience

- Enhanced the dynamic hint generation algorithm and incorporated into a programming tutor that can provide task relevant dynamic hinting (2013)
- Developed a dynamic hint generation algorithm for novice programs (2011-2012)
- Developing 3D Unity CSI games (Spring 2011 – Summer 2012)
 - Formed a game development group consisting of high-school students in the Shaw EPA Research Apprenticeship Program and is currently directing the group in game development.
- Developed and evaluated online problem solving tutors that guide students in writing complete programs on several programming constructs (2009 - 2012). Investigated the effectiveness of using preprogramming tutors to help students learn fundamental programming concepts (2006-2007)
- 2nd Annual Pittsburgh Science of Learning Center LearnLab Summer School, Carnegie Mellon University (7/31/06-8/4/06)
 - Tutor Track: Design and Development of Intelligent Tutor Systems.
- Investigated the effectiveness of cooperative learning and other methods in the introductory programming courses (2004-2006)
- Direct Access File System (DAFS) utilizes memory-to-memory interconnection technologies to enable remote DMA (RDMA), Duke University
- Share based resource provisioning for storage service utility, Duke University
 - Researched approaches used in networking community, and proposed a new scheduling algorithm that can be applied to storage systems

- Prototyped the scheduling algorithm in an NFS module, which acts as a server for the users and as the client to the storage server.
- Performance Modeling of SAN and NAS storage products (FC4700/IP4700), EMC Corporation
 - Proposed a memory allocation scheme to save copy-on-first-write data to solve a memory budget problem in FC4700.
- Prefetch Integration Framework, Duke University
 - Proposed a trace reduction algorithm FastSlim that can guarantee simulation accuracy for prefetching systems and is also compatible with a wide range of page replacement policies. FastSlim can also be used for efficient prefetching hint management. FastSlim reduces trace size substantially, which effectively speeded up our study.
 - Proposed a dynamic hinting framework for integrated prefetching. The speedup of this scheme against an existing compiler-directed prefetching is up to 270% for a set of scientific applications.
 - Implemented the simulation software to evaluate the above schemes.

Publications

- Wei Jin, Albert Corbett, Will Lloyd, Lewis Bamstark, Christine Rolka. "Evaluation of Guided-Planning and Assisted-Coding with Task Relevant Dynamic Hinting." *Accepted to ITS2014: The 12th International Conference on Intelligent Tutoring Systems, June 5-9, Honolulu, Hawaii, USA.* (17.5% acceptance rate).
- Wei Jin, Lorrie Lehmann, and Albert Corbett. "Necessity of Tutor Adaptability." *Poster at 2013 CCLI/TUES Principle Investigators (PI) Conference (2013), January 26-28, Washington, DC, USA.*
- Wei Jin, Tiffany Barnes, John Stamper, Michael Eagle, Matthew Johnson, and Lorrie Lehmann. "Program Representation for Automatic Hint Generation for a Data-Driven Novice Programming Tutor." *In Proceedings of ITS2012: The 11th International Conference on Intelligent Tutoring Systems, June 14-18, Chania, Greece.*
- Wei Jin, Lorrie Lehmann, Matthew Johnson, Michael Eagle, Behrooz Mostafavi, Tiffany Barnes, and John Stamper. "Towards Automatic Hint Generation for a Data-Driven Novice Programming Tutor." *KDD 2011 Workshop on Knowledge Discovery in Educational Data, 17th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, August 21-24, San Diego, California, USA.*
- Wei Jin and Albert Corbett. "Effectiveness of Cognitive Apprenticeship Learning (CAL) and Cognitive Tutors (CT) for Problem Solving Using Fundamental Programming Concepts." *Proceedings of the 42nd ACM SIGCSE Technical Symposium on Computer Science Education (2011), 305-310, March 9-12, Dallas, Texas, USA.*
- Wei Jin. "Pre-programming Analysis Tutors Help Students Learn Basic Programming Concepts." *In Proceedings of the 39th ACM SIGCSE Technical Symposium on Computer Science Education (2008), 276-280, March 12-16, Portland, Oregon, USA.*
- Wei Jin. "A Cognitive-Apprenticeship Learning Curriculum Augmented by Cognitive Tutors (CAL-CT) for Fundamental Programming." *Poster at 2011 CCLI/TUES Principle Investigators (PI) Conference (2011), January 26-28, Washington, DC, USA.*
- Wei Jin, Jeff Chase, and Jasleen Kaur. "Interposed Proportional Sharing for a Storage Service Utility." *In Proceedings of the 2004 ACM Sigmetrics Conference on Measurement and Modeling of Computer System (SIGMETRICS'2004).*
- Ron Doyle, Jeff Chase, Omer Asad, Wei Jin, and Amin Vahdat. "Model-based Resource Provisioning in a Web Service Utility". *In Proceedings of the Fourth Symposium on Internet Technologies and Systems (USITS'2003).*
- Wei Jin, Xiaobai Sun, and Jeff Chase. "Fastslim: Prefetch-safe trace reduction for I/O cache simulations". *In ACM Transactions on Modeling and Computer Simulation, Vol. 11, No. 2, April 2001.*
- Wei Jin, Rakesh Barve, and Kishor Trivedi. "A Simple Characterization of Provably Efficient Prefetching Algorithms". *In Proceedings of International Performance and Dependability Symposium (IPDS'2002).*
- Wei Jin, "Two-tier Chunking for Longbow SnapView". *EMC technical report, Sept. 2001.*
- Wei Jin, "K10 Longbow, SnapView, and MirrorView Performance Model and Their Validation". *EMC technical report, Sept. 2001.*
- Wei Jin. "Towards Practical I/O Prefetching". Ph.D. Dissertation. *Duke University, Department of Computer Science, Research Report DUKE- CS-2000-10.*
- Wei Jin and Erol Gelenbe. "Call admission control in ATM networks using the Random Neural Networks". *Duke University, Department of Computer Science, Research Report DUKE- CS-1996-16.*

Grants and Funding

- NSF HBCU-UP Grant (9/2010-9/2013), Co-PI, \$297,773
“Targeted Infusion Grant to Develop a 3D Immersive Online Environment”
- NSF CCLI Grant (1/1/2009-8/31/2011, extended to 8/31/2014), Principle Investigator, \$149,708
“A Cognitive-Apprenticeship Learning Curriculum Augmented by Cognitive Tutors (CAL-CT) for Fundamental Programming Concepts”
- UNCFSP/NLM eHealth Access Project (2005-2006), Principle Investigator, \$20,000
“Shaw Univ Training Networks for National Library of Medicine Online Resources”
- Mini-grant (2004-2005), Shaw University Faculty Research Development Program
“Lecture-Driven Collaborative Learning for Introductory Programming Courses”

Honors and Awards

- Excellence in Academic Research, Shaw University (2008)
- Included in the *Who's Who among America's Teachers* (2005)
- James B. Duke Fellowship, Duke University (1993-1996)

Professional Memberships

- Association of Computing Machinery (ACM)
- ACM Special Interest Group in Computer Science Education (SIGSCE)

Professional Services

- **Paper Reviews:** IEEE Transaction of Computers, HPCA-9 (International Symposium on High Performance Computer Architecture), FAST'2003 (USENIX conference on File and Storage Technologies), HotOS'2003, International Journal of Modeling and Simulation, Performance Evaluation (2005), Workshop on AI-supported Education for Computer Science (AIEDCS'2013).
- **Grant Reviews:** Review Panel Member for NSF Grants.

University/College/Department Services

University of West Georgia

- Computer Science Department Curriculum Committee (Fall 2012 – present)

Shaw University

- Computer Science Program Coordinator (2008 – 2009)
- Quality Enhancement Plan (QEP) Advisory Committee, Shaw University (2009 – 2012)
- Shaw University Faculty Senate (2008 – 2012)
- General Education Committee, Shaw University (2008 – 2012)
- Institutional Review Board (IRB) (2009 - 2012)
- External Advisory Committee, NSF HBCU-UP project, Optimum, at Fayetteville State University (<http://www.uncfsu.edu/optimum/advisory-committee>) (2007 – present)
- Faculty Development Advisory Committee for Shaw University (2003 – 2007)
- Over a period of 1 ½ years, we trained ~400 students at Shaw and ~60 people at the Walnut Terrace Public Housing Community Center and Garner Road YMCA on how to access National Library of Medicine online databases (2005 – 2006).

Other Activities

- Chinese Dance, Sunny Dance Performing Arts Group (<http://www.sunnydance.org>) (2008 – 2012). Served as a board member (11/2010-11/2012).