Ryan W. Moore

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Career Goals

Research and development position in computer architecture and systems. Particular interest in performance optimization. Research experience in computer architecture, systems, dynamic binary translation, and runtime heterogeneity. Secondary interests include visualization and tools automation.

Partial Skill List

Systems-oriented programming (C, C++), scripting (bash, Python), processor simulation (Sniper), applied machine learning, web-development (PHP, MVC), functional programming

Education

Ph.D. Computer Science, University of Pittsburgh. *Predicting Application Performance for Chip Multiprocessors.* Adviser: Dr. Bruce R. Childers. 2007–*Dec 2013.* GPA: 3.85. Defense: November 21, 2013.

M.S. Computer Science, University of Pittsburgh.

B.S. Computer Science, Westminster College. Graduated cum laude. 2007.

Honors

Andrew Mellon Predoctoral Fellowship, for "students of exceptional promise and ability." 2012.

Taulbee Award, for Excellence in both Research and Teaching. 2010.

Taulbee Award, Runner-up for Excellence in both Research and Teaching. 2009.

Teaching Assistant Mentor for Computer Science Department. 2009, 2010.

Sigma XI Undergraduate Student Research Conference, Second Place in Computer Science Category. 2006.

Publications

1. "Program Affinity Performance Models for Performance and Utilization", Ryan W. Moore, Bruce R. Childers, interactive presentation at *Design, Automation, & Test in Europe (DATE'14)*, Dresden, Germany, March 2014.

2. "Building and Using Application Utility Models to Dynamically Choose Thread Counts", Ryan W. Moore, Bruce R. Childers, *Journal of Supercomputing*

3. "Automatic Generation of Program Affinity Policies Using Machine Learning", Ryan W. Moore, Bruce R. Childers, *International Conference on Compiler Construction (CC'13)*, Rome, Italy, March 2013.

4. "Using Utility Prediction Models to Dynamically Choose Program Thread Counts", Ryan W. Moore, Bruce R. Childers, *IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS'12)*, New Brunswick, USA, April 2012.

5. "REEact: A Customizable Virtual Execution Manager for Multicore Platforms", Wei Wang, Tanima Dey, Ryan W. Moore, Mahmut Aktasoglu, Bruce Childers, Jack Davidson, Mary Jane Irwin, Mahmut Kandemir, Mary Lou Soffa, *ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments (VEE'12)*, London, UK, March 2012.
6. "Inflation and Deflation of Self-Adaptive Applications", Ryan W. Moore, Bruce R. Childers, *ACM SIGSOFT and IEEE TCSE International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS'11)*, Honolulu, USA, May 2011.
7. "Addressing the Challenges of DBT for the ARM architecture", Ryan W. Moore, Jose A. Baiocchi, Bruce R. Childers, Jack W. Davidson, Jason D. Hiser, *ACM SIGPLAN/SIGBED Conference on Languages, Compilers and Tools for Embedded Systems (LCTES'09)*, Dublin, Ireland, June 2009.

Research Projects

AUTO: Dynamic selection of application thread count, core count, and core type to predict and maximize system performance. Performance prediction models are built using machine learning and statistical techniques. AUTO's performance predictions enable fast, flexible resource allocation policies for one or more programs on modern multiprocessor systems. Ph.D. thesis topic.

Strata-ARM: Dynamic binary translation on embedded ARM devices with a focus on novel techniques to improve the performance of dynamic binary translation.

Service to Department and University

Lead organizer of ArchSys, a student-led architecture and systems reading group on the latest computer architecture and systems research papers. 2013–*Dec 2013*.

Communication Committee Co-Chair for Dietrich School of Arts and Sciences Graduate Student Organization. 2010–*Dec 2013*.

Committee Member of the Elizabeth Baranger Excellence in Teaching Award Selection Committee. 2011, 2012.

Computer Science Graduate Student Organization Officer. Vice President, Secretary. 2009–2011.

Employment

IBM: Software Engineer working on Watson Explorer. February 2014–*present*.

Intel Corporation: Graduate Student Intern. Used and extended in-house processor simulators to assess a potential power-savings technique. Worked with electronics engineers to ensure that proposed processor modifications were viable, inexpensive, and effective. June 2010 – September 2010.

University of Pittsburgh: Graduate Student Researcher. Researched multithreaded program performance and interactions on chip multiprocessor systems. Developed performance models to assess the effects of thread count, core count, core type on program performance. Examined dynamic program thread creation, the advantages of dynamic thread creation, and per-application methods for doing so. 2008–*Dec 2013*.

University of Pittsburgh: Teaching Fellow, Teaching Assistant. Teaching fellow (course instructor) for four semesters; Developed and delivered all course material and lectures. As a teaching assistant, led and designed weekly recitations to reinforce weekly class topics, provide one-on-one learning, and address knowledge gaps. Created fun, original assignments and weekly labs. Scripting for automated grading. 2007–*Dec 2013*.