

Christopher J. Rossbach

CONTACT INFORMATION	Microsoft Research, Silicon Valley 1288 Pear Ave Mountain View, CA 94025, USA	Voice: (650) 693-2044 E-mail: crossbac@microsoft.com WWW: research.microsoft.com
RESEARCH INTERESTS	Operating Systems, Synchronization, Transactional Memory, Parallel Architectures, Parallel Algorithms, Virtualization, Cache Coherence, Consistency Models, Programming Models	
EDUCATION	The University of Texas at Austin , Austin TX, USA Ph.D., Computer Science August 2009 <ul style="list-style-type: none">• Research Focus: Transactional Memory and Operating Systems• Advisor: Professor Emmett Witchel• Area of Study: Operating Systems and Architecture Stanford University , Stanford CA, USA B.S., Computer Systems Engineering, June 1992	
PUBLICATIONS	Christopher J. Rossbach, Jon Currey, Mark Silberstein, Baishakhi Ray, Emmett Witchel, “PTask: Operating System Abstractions to Manage GPUs as Compute Devices” <i>Symposium on Operating Systems Principles (SOSP) 2011</i> Christopher J. Rossbach, Jon Currey, Emmett Witchel, “Operating Systems must support GPU abstractions”, <i>Hot Topics in Operating Systems (HotOS) 2011</i> Christopher J. Rossbach, Owen S. Hofmann, Emmett Witchel, “Is Transactional Programming Actually Easier?”, <i>Principles and Practice of Parallel Programming (PPoPP) 2010</i> Donald E. Porter, Owen S. Hofmann, Christopher J. Rossbach, Alex Benn, Emmett Witchel “Operating System Transactions”, <i>Symposium on Operating Systems Principles (SOSP) 2009</i> Owen S. Hofmann, Christopher J. Rossbach, Emmett Witchel, “Maximal Benefit from a Minimal HTM”, <i>Architectural Support for Programming Languages and Operating Systems (ASPLOS) 2009</i> Hany E. Ramadan, Christopher J. Rossbach, Emmett Witchel, “Dependence-Aware Transactional Memory for Increased Concurrency” <i>International Symposium on Microarchitecture (MICRO) 2008</i> Christopher J. Rossbach, Owen S. Hofmann, Donald E. Porter, Hany E. Ramadan, Aditya Bhandari, Emmett Witchel, “TxLinux: Using and Managing Transactional Memory in an Operating System” <i>Symposium on Operating Systems Principles (SOSP) 2007</i> Owen S. Hofmann, Donald E. Porter, Christopher J. Rossbach, Hany E. Ramadan, and Emmett Witchel, “Solving Difficult HTM Problems Without Difficult Hardware” <i>Second Workshop on Transactional Computing (TRANSACTION), 2007</i>	

Hany E. Ramadan, Christopher J. Rossbach, Donald E. Porter, Owen S. Hofmann, Aditya Bhandari, Emmett Witchel, “MetaTM/TxLinux: Transactional Memory For An Operating System” *International Symposium on Computer Architecture (ISCA) 2007*.

Jungwoo Ha, Christopher J. Rossbach, Jason V. Davis, Indrajit Roy, David L. Chen, Hany E. Ramadan, and Emmett Witchel, “Improved Error Reporting for Software that Uses Black Box Components” *Programming Language Design and Implementation (PLDI) 2007*

Jason V. Davis, Jungwoo Ha, Christopher J. Rossbach, Hany E. Ramadan, and Emmett Witchel, “Cost-Sensitive Decision Tree Learning for Forensic Classification” *17th European Conference on Machine Learning (ECML) 2006*.

Hany E. Ramadan, Christopher J. Rossbach, and Emmett Witchel “The Linux Kernel: A Challenging Workload for Transactional Memory” *Workshop on Transactional Memory Workloads (WTW), 2006*

Jungwoo Ha, Hany Ramadan, Jason V. Davis, Christopher Rossbach, Indrajit Roy, and Emmett Witchel “Navel: Automating Software Support by Classifying Program Behavior” *The University of Texas at Austin, CS Technical Report TR-06-11, 2006*.

Abbas Rafii, Chris Rossbach, Peter Zhao “RGB-Z: Mapping a Sparse Depth Map to a High Resolution RGB Camera Image” *CVPR (2) 2005*

CONFERENCE
PRESENTATIONS

“PTask: Operating System Abstractions to Manage GPUs as Compute Devices” *23rd ACM Symposium on Operating Systems Principles*
October 2011

“Operating Systems must support GPU Abstractions” *13th Workshop on Hot Topics in Operating Systems (HotOS) 2011*
May 2011

“Operating System Abstractions for GPU Programming” *NVIDIA GPU Technology Conference (GTC) 2010*
September 2010

“Is Transactional Programming Actually Easier?”, *Principles and Practice of Parallel Programming (PPoPP) 2010*
January 2010

“Dependence-Aware Transactional Memory for Increased Concurrency”, *41st International Symposium on Microarchitecture*
November 2008

“TxLinux: Managing and Supporting Hardware Transactional Memory in an Operating System”, *21st ACM Symposium on Operating Systems Principles*
October 2007

“Is Transactional Programming Actually Easier?”, 8th Annual Workshop on Duplicating, Deconstructing, and Debunking
June 2009

AWARDS

SOSP 2007 Audience Choice Best Paper:
TxLinux: Managing and Supporting Hardware Transactional Memory in an Operating System

University of Texas at Austin Computer Science Department Browne Fellowship 2008

CACM Invited Article for September 2008: Christopher J. Rossbach, Owen S. Hofmann, Donald E. Porter, Hany E. Ramadan, Aditya Bhandari, Emmett Witchel, “TxLinux: Using and Managing Transactional Memory in an Operating System”

IEEE Top Pick for 2008: Hany E. Ramadan and Christopher J. Rossbach and Donald E. Porter and Owen S. Hofmann and Aditya Bhandari and Emmett Witchel, “MetaTM/TxLinux: Transactional Memory for an Operating System”

Stanford University
Stanford Scholar Athlete 1988-1991 (Varsity Soccer)

RESEARCH EXPERIENCE

Microsoft Research, Silicon Valley Mountain View CA, USA

Researcher **October 2010 to present**
University of Austin Computer Science Department, Austin, Texas USA

Post-doctoral researcher **August 2009 to September 2010**

University of Austin Computer Science Department, Austin, Texas USA

Research Assistant **August 2005 to August 2009**

- Developed hardware-based implementation of Dependence-Aware Transactional Memory (DATM) and TagTM: both hardware transactional memory designs feature architectural support to improve performance of HTM under contention.
- Worked on team to develop TxLinux/MetaTM, a simics-based Hardware transactional memory model, and variant of Linux that uses transactional memory for synchronization.
- Worked on team to develop Clarify, a tool for improving software error reporting leveraging machine learning and program control flow.

TEACHING

University of Austin Computer Science Department, Austin, Texas USA

Teaching Assistant **January 2009 to May 2009**

TA for two sections University of Texas Undergraduate Operating Systems course (cs372). Responsible for office hours, lab development, occasional lecturing. Approximately 90 students. Developed a search-engine project for the course, designed to teach MapReduce and Hadoop.

SERVICE

Program Committee Member, Workshop on General-Purpose GPU Computing (GPGPU 2011)

Program Committee Member, Transact 2011

Committee Member, Graduate Faculty Recruiting Committee, University of Texas Computer Science Department, 2008

PROFESSIONAL EXPERIENCE

Microsoft Research, Silicon Valley, Mountain View, CA USA

Researcher **September 2010 to present**

University of Texas Computer Science Department, Austin TX, USA

Post-doctoral fellow

August 2009 to September 2010

Canesta, Inc., San Jose, CA USA

Software Systems Consultant

October 2004 to September 2010

Responsible for development of tools and sample applications for Electronic Perception SDK and time-of-flight range sensors. Developed DirectX visualization and signal processing tools for rendering 3D models of data collected from depth, brightness, and RGB image sensors.

Symbol Technologies, Inc., San Jose, CA USA

Lead Systems Architect

September 2000 to February 2004

Responsible for requirements gathering and systems level architecture specification for a number of projects including enterprise-wide point-of-sale applications. Responsible for architecture definition processes for SecureGlass, a touch-screen ASIC integration project providing PKI and 3DES encryption services as well as PIN pad, signature capture and verification services on a chip embedded in touch-screens. Sole architect and developer for a signature-based biometric authentication server built on top of BEA WebLogic, and Oracle 8i.

Savi Technologies, Inc., Sunnyvale, CA USA

Software Architecture Consultant

October 2000 to December 2000

Architecture and development roles contributing to Smart-Chain supply-chain-visibility platform. Projects included architecture review, and prototyping of EJBs and PL/SQL modules, and specification, design, and implementation of the billing system for SmartChain.

iFoodNet, Inc., Oakland, CA USA

Systems Architect

May 2000 to December 2000

Responsible for systems-level architecture, design and implementation of iFoodnet.coms B2B supply-chain management service. Service implemented as Java servlets and EJBs running on top of BEAs WebLogic Server, Suns Java Web Server, Oracle 8i.

Penware/Mobinetix/ReceiptCity.com Inc. Palo Alto, CA USA

Systems Architect

June 1992 to April 2000

- Responsible for end-to-end systems-level architecture for ReceiptCity.coms eNetx services. System services include both browser and point-of-sale device front ends, providing payment-processing, electronic receipts, advertising and other services through back-end server clusters.
- Development of signature recognition and validation algorithms.
- Spreadsheet engine architect and primary developer for Mobinetixs PenCell Spreadsheet which runs on a number of PDAs and handheld devices including Sharp Wizard, Sharp Zaurus, and devices which support General Magics Magic Cap.

ADDITIONAL
INFORMATION

Professional Guitarist: I play in a number of professional music groups, teach guitar, do session recording, and have operated a professional recording studio. I play a broad range of styles, have recorded on over 30 CDs, and am a signed artist on the JoMod Music recording and publishing label.

Yoga Instructor: I taught Iyengar Yoga at the Yoga Center of Palo Alto and Ashtanga Yoga at Its Yoga in San Francisco CA from 1997-2005, and currently teach at Castle Hill Fitness and Bodhi Yoga in Austin TX.