

Joseph A. Roback

Curriculum Vitae

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Fields of Interest

Concurrent Programming, Parallel Computing, Distributed Computing
Operating Systems, Systems Programming, Device Drivers, Distributed Systems
Programming Languages, Compilers

Work Experience

NVIDIA, *Automotive Engineering*, 10/2016–Present.

NVIDIA DRIVE PX 2 is the open AI car computing platform that enables automakers and their tier 1 suppliers to accelerate production of automated and autonomous vehicles.

Front Range Community College, *Part-Time Professor*, 08/2016–Present.

Part-time lecturer in Computer Science. Object-oriented programming (C++, Java), Linux Systems.

SolidFire, *Principal Software Engineer*, 11/2011–08/2016.

SolidFire Element, Distributed SSD Block Storage. Designed and developed a distributed storage system based entirely on SSDs. Responsible for network communication and RPC infrastructure, multi-threading designs/algorithms, and metadata/cloning architecture. Lead performance engineer charged with x86 architecture optimizations, data path optimizations — decreased IO latencies and increased throughput.

Hewlett-Packard, *HP-UX Kernel*, 09/2010–11/2011.

HP-UX 11i v3. Worked on various parts of the Itanium-based kernel including interrupt handling.

The Iconfactory, *Apple OS X Dashboard Widget Developer*, 03/2006–06/2007.

Dine-O-Matic. Developed a promotional Mac OS X dashboard widget.

Choicepoint, *Unix/Linux C/C++/Java Developer*, 06/2004–12/2004.

Developed high-transaction multithreaded XML based search engine for U.S. Customs & Border Patrol.

GUARD Insurance Group, *Windows/Web/Database Delphi/MSSQL Developer*, 11/2001–04/2004.

Project lead in rewriting GUARD's three major billing and accounting systems.

Wilkes University, *Unix System Administrator and Purchasing Consultant*, 12/1998–05/2002.

UNIX Administrator for Engineering and Physics department.

Education

Ph.D. Computer Science, The University of Arizona, Tucson, Arizona, August 2010.

Committee: Gregory R. Andrews (chair), David K. Lowenthal, Saumya K. Debray, and John H. Hartman.

M.S. Computer Science, The University of Arizona, Tucson, Arizona, December 2006.

B.S. Computer Science, Wilkes University, Wilkes-Barre, Pennsylvania, May 2002.

Minor: Physics

Computer Knowledge

Programming

Languages: Awk, C/C++, L^AT_EX, Make, Python, Shell (bash)

APIs: BSD sockets, POSIX Threads (pthreads), Linux Futexes, C++11, x86 assembly

Environments and Tools: gdb, gprof, oprofile, perf

Version Control: Git, Mercurial

UNIX Administration

Systems: Linux (Ubuntu/Fedora/Gentoo), HP-UX, IRIX, Mac OS X (Client & Server)

Patents

US 20150242478 A1: Data Syncing in a Distributed System

Research

Publications

Roback, Joseph A. and Andrews, Gregory R. Gossamer: A Lightweight Programming Framework for Multicore Machines. In *Proceedings of the 2nd USENIX Workshop on Hot Topics in Parallelism (HotPar'10)*, Berkeley, CA, June 2010.

Roback, Joseph A. and Andrews, Gregory R. Gossamer: A Lightweight Approach to Using Multicore Machines. In *Proceedings of the 2010 International Conference on Parallel Processing (ICPP'10)*, San Diego, CA, Sept. 2010.

Software

Gossamer, a lightweight programming framework and run-time for C. Gossamer supports iterative and recursive parallelism, pipelined computations, domain decomposition, and MapReduce computations.

Academic Experience

Front Range Community College, Department of Computer Science

Part-Time Lecturer, Fall 2016–Present.

The University of Arizona, Department of Computer Science

Research Assistant, Gregory R. Andrews, Spring 2006–Spring 2010.

The University of Arizona, School of Information Resources and Library Science

Research Assistant, Anita S. Coleman, Spring 2005–Fall 2006.

Open Source Software

LibClang C/C++ Package for Atom Editor. LibClang Package for Atom Editor. Provides fast, low latency code completions and linting for C/C++ via LibClang/Nodejs.

Available online at <http://github.com/joeroback/atom-clang>

SSH Tunnel Framework. A Cocoa framework for creating SSH tunnels.

Available online at <http://github.com/joeroback/SSHTunnel>

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