

ANDREW LENHARTH

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OBJECTIVE

To research and develop advanced optimization and compilation techniques, to study the interaction between compiler optimizations and architecture features, and to increase the expressiveness of languages with regards to multi-threading and distributed computing.

SKILLS

Programming: C, C++, OCaml, Perl, Java, Scheme, Assembly (esp Alpha), and others

Systems and Middle-ware: Corba, Real-time Linux

System, Network and Database Administration: Linux, Windows, Netware, and common services

RESEARCH INTERESTS

I am interested in the interaction of compilers and architecture, especially for modern programming languages and styles. I am interested in ways hardware can support aggressive restructuring of code and memory by compilers. I am also interested in ways in which compilers can communicate additional information to the processor to simplify, improve the scaling, or make possible hardware structures and optimizations.

EDUCATION

Doctoral Candidate in Computer Science

(in progress)

University of Illinois at Urbana Champaign

Advisor: Prof. Vikram Adve

Research Topic: Compiler and Architecture Co-design

Master of Science in Computer Science

August 2004

Ohio University

Advisor: Prof. Lonnie Welch

Thesis: *Algorithms for Stable Allocations in Distributed Real-Time Resource Management Systems*

1st place local ACM programming contest

Bachelor of Engineering with Distinction in Computer Engineering

June 2001

University of Washington

Advisor: Prof. Richard Ladner

Magna Cum Laude, Minors in Math and Philosophy, Department Honors, Dean's List all quarters, Annual Dean's List all years

PUBLICATIONS

- David Fleeman, Andrew Lenharth, Matthew Gillen, David Juedes, Lonnie Welch, and Chang Liu. Quality-based adaptive resource management architecture (qarma): A corba resource management service. In *18th International Parallel and Distributed Processing Symposium - Workshop 2*, page 116b, April 2004.
- Andrew Lenharth. Algorithms for stable allocations in distributed real-time resource management systems. Master's thesis, Ohio University, August 2004.
- Andrew Lenharth, Richard E. Ladner, Scott Hauck, Eve A. Riskin, and Agnieszka Miguel. Wavelet compression of modis satellite images. In *NASA Earth Science and Technology Conference*, 2001.

WORK EXPERIENCE

- University of Illinois** **Urbana, IL**
Graduate Research Assistant **August 2004 - Present**
- Explore design trade-offs when co-designing compilers and microprocessors
 - Implement an Alpha back-end for the LLVM compiler suite
 - Integrate LLVM with hardware simulators
 - Explore novel memory system organizations
 - Explore the use of compiler information in an augmented ISA to improve hardware scalability
 - Provide tools, support, and features for using LLVM in microprocessor architecture research
- Software in the Public Interest** **International**
Debian GNU/Linux Developer (Volunteer) **1999-present**
- Package and modify software for inclusion in large project
 - Work with hundreds of other developers to create and maintain a complete Linux Distribution
 - Fix bugs and assist users for the packages I maintain
- Ohio University** **Athens, OH**
Research Assistant **2003-2004**
- Define architecture for Distributed Real-time Resource Management (RM) service
 - Implement RM service for CORBA
 - Define metrics and write benchmarks for RM service
 - Write distributed application simulator
- Ohio University** **Athens, OH**
Teaching Assistant **2002-2003**
- Teach labs and grade projects, labs, homework and tests
- State of Washington, Division of Child Support** **Everett, WA**
Information Technology Systems Specialist **1998 - 2002**
- Design and program several critical internal applications
 - Received *Governor's Award for Excellence in State Government*
 - Implement and maintain Linux web server. Maintain Novell Netware, NT, Solaris and OS/2 servers
 - Implement and manage video conferencing equipment
 - Train fellow network administrators in Linux and Perl
 - Work with staff to replace processes with computerized tools
- University of Washington** **Seattle, WA**
Programmer **2001**
- Prepared a paper and presentation for a NASA conference
- University of Washington** **Seattle, WA**
Grading Assistant **2000**
- Graded classes in data structures and algorithms
- Holy Cross High School** **Everett, WA**
Network Administrator **1994 - 2000**
- Designed and built school's first network from donated parts
 - Install and upgrade networking infrastructure, connecting it to the Internet
 - Troubleshoot and repair equipment. Choose and procure new equipment
 - Train faculty and staff to use the computers
 - Work with teachers to integrate computers into their curriculum