

Bruno Cardoso Lopes

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Education

Bachelor in Computer Engineering (2003-2007) by the University of Campinas in Brasil and currently a PhD Student in the same university.

Professional Experience

1. INTERN at *Apple Inc*, Cupertino, CA, USA, from May 2010 to Sep 2010
Summer internship in the Apple compiler code generator team, working with improvements to the LLVM x86 backend - support for an additional vector instruction set extension and vector shuffle handling rewrite.
2. GOOGLE SUMMER OF CODE 2007, 2008 AND 2009
The work proposed to the LLVM Compiler Infrastructure has been accepted and successfully completed every year: Implementation of a MIPS backend, support for the PSP (Playstation Portable) allegrex core into the same backend and target independent support for direct object code emission for the ELF binary format. <http://www.llvm.org>
3. EMBEDDED SYSTEMS at *Kryptus*, from Jan 2007 to Dec 2007
Development of embedded cryptographic firmware, drivers to the Linux Kernel and modifications to FreeBSD kernel TCP/IP protocol stack. <http://www.kryptus.com.br>
4. LINUX DISTRIBUTION at *Itautec-Unicamp*, from Aug 2005 to Nov 2006
Development of a Brazilian Linux distribution based on Gentoo called Librix. The work consisted in a implementation of the distribution Graphic Installer using PyQt, implementation of a graphic package installer and tutoolyst, a tool designed to automatically compile, pack and easy generate live and install cd's. <http://www.librix.com.br>

Research

PHD RESEARCH at UNICAMP, from March 2008 to current
Software support and design of the SPARC16 architecture.

The research includes the design of a 16-bit version of the SPARCV8 architecture and its support in software (compiler backend and port of an operational system).

UNDERGRAD RESEARCH PROGRAM at UNICAMP, Jul 2006 - July 2007
Linux on Leon simulator

Implementation of a Sparv8 processor (Leon3) and peripherals simulator using the SystemC and ArchC tools aimed at booting the Linux kernel.

Publications

L. E. Luiz, B.C. Lopes. SPARC16: A New Compression Approach for the SPARC Architecture. Computer Architecture and High Performance Computing, Symposium on, 2009, ISSN 1550-6533.

Conferences

LLVM Lab, Monitor, Apple Worldwide Developers Conference (WWDC) San Francisco, CA, USA, June 7-11, 2010

The LLVM MIPS and ARM Back-ends, Speaker, CELF Embedded Linux Conference Europe, Grenoble, France, October 15-16, 2009

Object Code Emission and llvm-mc, Speaker, LLVM Developers' Meeting, Cupertino, CA, USA, October 2, 2009

Understanding and writing an LLVM Compiler Backend, Speaker, Embedded Linux Conference, San Francisco, California, USA, April 6-8, 2009

Low Level Playground - PCI Rootkits, Speaker, Hackers to Hackers Conference (H2HC), São Paulo, SP, Brasil, November 2008

Workshop: High Computing Performance with CUDA, Speaker, Workshop de Computação de Alto Desempenho (WSCAD 2008), Campo Grande, MS, Brasil, October 2008

Writing LLVM backends, Speaker, International Free Software Forum (FISL9), Porto Alegre, RS, Brasil, April 2008

Buffer Overflow Attack, in SEMATIS - IT Week, Speaker, on Parana, second edition. Pato Branco, PR, Brasil, June 2006

Extra Curricular Projects

1. PSX EMULATOR: Playstation one (PSX) simple emulator created using Archc and SystemC tools.
2. GENESIS EMULATOR IN FLASH: Initial implementation of a m68k processor emulator in flash, using the Haxe Universal Web Language

Programming Languages

C, C++, Python, Java, Lisp, Assembly (Mips, x86, Sparc), SystemC

Areas of Interest

Compilers, Computer Architecture, Operating Systems and Hardware Design. (experience on each of these areas)

REFERENCES AVAILABLE UPON REQUEST