Felipe Portavales Goldstein

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Education

Education Level : Undergraduate (Graduating July, 2008)
University : University of Campinas - UNICAMP
Major : Computer Engineering

Research

Undergrad Research Program at University of Campinas, (Dec 2004 to Nov 2006)
Brazil-IP project: design and implementation of an MP3 decoder in hardware entirely developed by undergrad students. Validated in FPGA and silicon chip. I developed two modules of the MP3 pipeline in SystemC RTL and the entire MP3 pipeline in SystemC behavioral synthesizable with the Forte Cynthesizer tool. I was sponsored by CNPq from December 2004 to June 2005 and FAPESP from July 2005 to November 2006.

Publications

Goldstein F. and Azevedo R., *Design, Implementation and Evaluation of two MP3 Hardware Decoder in Different Abstraction Levels using SystemC*, In DVCon 2008, San Jose CA, (February 2008)

Goldstein F., Araujo G. and Azevedo R., *Behavioral SystemC Implementation of an MP3 Decoder*, In 5th NASCUG, San Francisco CA, (July 2006)

Professional Experience

1. Google Internship (C++), from Feb 2007 to June 2007
   Software Engineer internship on the Platforms Team at the Google Office at Mountain View, CA.
2. Google Summer of Code 2006 (VHDL), from May 2006 to Aug 2006
   The work proposed to the Xiph.org Foundation has been accepted and successfully completed: *Hardware implementation of Theora decoding.*
   (http://wiki.xiph.org/index.php/TheoraHardware)
3. Embedded Systems (C and ARM assembly) at *Z80Software*, from Dec 2003 to Dec 2004
   Implementation of the ray-cast algorithm and a "First Person Shooting" game to mobile phones with a pseudo-3D visual. (www.z80software.com)
4. Game Developer (C++ and DirectX) at *Z80Software*, from Jun 2003 to Dec 2003
   Development of the G.U.I. of a 3D MMORPG computer game using C++ and DirectX. (www.z80software.com)

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Scientific Software

Artificial Life, Evolutionary Algorithms, Neural Networks:
Use of Evolutionary Algorithms and rigid-body physics simulation to evolve the morphology and Neural Network of 3D virtual creatures.
The source code can be found at: `http://code.google.com/p/evomorph/`

Extra Curricular Projects

1. Theora encoder Multithreaded Theora is an OpenSource video codec. This is the first attempt to parallelize the Theora encoder implementation. The Source Code can be found on the Xiph.org SVN: http://svn.xiph.org/branches/theora-multithread/
2. PortaOS: Monolithic preemptive operating system entirely programmed in x86 assembly with a small number of syscalls.
3. RISC Processor: Small MIPS implementation in VHDL, prototyped in FPGA.
4. File System: B+ Tree implementation in C to build a very simple file system.
5. Wavelet Image Compression: Designed a simple algorithm to compress images using the wavelet transform.
6. RSA Cryptography: Simple implementation of the RSA algorithm in C.
7. Simple 3D game: Programmed in C++ and OpenGL. Able to load Quake3 characters and height maps.

Awards

Forte Cynthesizer Design Contest - Forte Design Systems - 2006
First place with a Behavioral SystemC implementation of the MP3 decoder algorithm.

Congress Participation

1. September, 2007 - 1st LASCUG : Latin American SystemC User Group - Rio de Janeiro, RJ, Brazil
2. July, 2006 - 43rd DAC : Design Automation Conference - San Francisco, CA
3. July, 2006 - 5th NASCUG: North American SystemC User Group - San Francisco,CA
4. September, 2005 - 18th SBCCI : Symposium on Integrated Circuits and Systems Design - Florianopolis, Brazil

Presentations

Principles of OpenGL for game development, in EMECOMP - State Meeting of Computation Students. Lavras, MG, Brazil (May 2004)

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Languages

Portuguese
- Reading: Fluent
- Writing: Fluent
- Speaking: Fluent

English
- Reading: Fluent
- Writing: Fluent
- Speaking: Advanced

Programming Skills

Programming Languages :
object oriented languages (C++, Python), *structured languages* (C, Pascal), *script languages* (Bash, PHP, LUA, Perl), *functional languages* (Lisp, MatLab), *logical languages* (Prolog), *database languages* (MySQL), *assembly* (x86, ARM) and *hardware description languages* (SystemC, VHDL, Verilog).

Operating Systems : Unix, Linux

Areas of Interest

Operating Systems, Computer Architecture, Hardware Design, Computer Graphics, Machine Learning, Evolutionary Algorithms and Neural Networks
(experience on each of these areas)

References Available Upon Request