Leonardo de Paula Rosa Piga

E-Mail: `leonardo.piga@lsc.ic.unicamp.br`
Web Site: `http://lampiao.lsc.ic.unicamp.br/~piga/`

Education

PhD Computer Science Student (Mar. 2009 - Now)
Title: Modeling and Characterization of Web Server Power in Data Centers
University: University of Campinas(UNICAMP) - Institute of Computing - Campinas, Brazil

Bachelor's in Computer Engineering (Mar. 2004 - Jul. 2008)
University: University of Campinas(UNICAMP) - School of Electrical and Computer Engineering - Campinas, Brazil

Research Experience

Undergraduate Research Program at University of Campinas, Campinas - Brazil
(Dec 2006 to Mar 2008): This work involved: (1) profiling of the decoder software and selection of modules to be accelerated using FPGAs; (2) coding of the modules using VHDL and SystemC; (3) Synthesis of the hardware for FPGAs using the Forte Cynthesizer tool; (4) Verification of the final FPGA implementation.

Undergraduate Research Program at University of Campinas, Campinas - Brazil
(May 2006 to Aug. 2006): WebMaps Project: The project involved research in databases, computer networks, software engineering, man-machine interfaces and image processing. This work integrated the libraries developed in C language with the software interface developed in Java.

Professional Experience

Internship at AMD Reseach, from Jan. 2012 to Aug. 2012
Title: *Cloud Workload Analysis*. The work was to port an internal cloud monitoring tool to a physical cluster, add performance counter measuring capability, and analyze system and micro-architecture measurements.

Google Summer of Code 2008, from May 2008 to Aug. 2008
Title: *Parallelize the most time consuming functions of Theora Decoder*. The work proposed to the Xiph.org Foundation was accepted as a Google Summer of Code project. This work involved parallelization of Theora decoder to use multiple cores. Using three cores the working time was sped up in 15%.

Publications

1. R. Bergamaschi, L. Piga, R. Azevedo, S. Rigo, and G. Araujo "Data center power and performance optimization through global selection of P-states and utilization rates," in *Sustainable Computing: Informatics and Systems*, 2012.

2. M. Breternitz, K. Lowery, A. Chernoff, P. Kaminski, and L. Piga, "Cloud Workload Analysis with SWAT," in *SBAC PAD 2012*, 2012.

3. L. Piga, R. Bergamaschi, F. Klein, R. Azevedo, and S. Rigo, "Empirical Web Server Power Modeling and Characterization," in *IISWC 2011*, 2011. (Abstract)

4. R. Bergamaschi, L. Piga, R. Azevedo, and S. Rigo, "Modeling, Simulation and Optimization of Power and Performance of Data Centers," in *MoBS 2011*, 2011.

5. L. Piga, R. Bergamaschi, R. Azevedo, and S. Rigo, "Power Measuring Infrastructure for Computing Systems," in *Technical Report - Institute of Computing - UNICAMP*, 2011.

6. L. Piga and S. Rigo, "Comparing RTL and High-Level synthesis methodologies in the design of a theora video decoder IP core," in *V IEEE Southern Programmable Logic Conference*, 2009.

Extra Curricular Projects

1. OGR/GDAL GTM DRIVER - August of 2009: Implementation of a module on the free software GDAL (Geospatial Data Abstraction Library) API that handles GTM files.

Awards

1. FAPESP SCHOLARSHIP - PhD Scholarship - September 2010

2. BEST UNDERGRADUATE RESEARCH PROGRAM OF 2007 - University of Campinas; Institute of Computing - November of 2008[1]

3. MENTION OF HONOR, EMINENT STUDENT - SBC (Brazilian Computing Society) - July of 2008[2]

4. MENTION OF HONOR, BEST STUDENT AWARD - Engineering Institute (Brazilian Engineering Society) - July of 2008[2]

5. MENTION OF HONOR, BEST STUDENT AWARD - CREA-SP (Regional Engineering Council) - July of 2008[2]

6. FAPESP SCHOLARSHIP - Undergraduate Research Scholarship - April 2007

Extra Curricular Experience

STUDENT EXCHANGE PROGRAM at *ELS Philadelphia*, from July 2008 to January 2009
English study at ELS Philadelphia.

Languages

PORTUGUESE (native), ENGLISH (Fluent), some experience with Spanish

Programming Skills

PROGRAMMING LANGUAGES:
object oriented languages (Java, Python), *structured languages* (C, Basic, Pascal),
script languages (Bash, PHP), *assembly* (x86) and *hardware description languages* (SystemC, VHDL).
DATABASE: Oracle, PostgreSQL, MySQL

Areas of Interest

Computer Architecture, Hardware Design, Compilers, Embedded Systems
(experience on each of these areas)

---

[1]For the work on the Theora hardware implementation
[2]For being the Computer Engineering student who graduated with the highest grade.

References

1. REINALDO BERGAMASCHI: University of Campinas - Institute of Computing
   rberga@ic.unicamp.br

2. SANDRO RIGO: University of Campinas - Institute of Computing
   sandro@ic.unicamp.br

3. RODOLFO AZEVEDO: University of Campinas - Institute of Computing
   rodolfo@ic.unicamp.br