Ramón A. Mercado–Reyes

Electrical and Computer Engineering
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Education

Ph.D. Computer Engineering, Iowa State University, 2010 (Expected)

B.S. Electrical Engineering, University of Puerto Rico, 2005, *Summa Cum Laude*

Awards and Honors

Best Paper Award, International Conference on Microelectronic Systems Education, 2007

GAANN Fellowship, 2006 – present

Teaching Excellence Award, Iowa State University, 2006

Lockheed Martin Fellowship, 2005

Research

Research Assistant — Current
Academic Advisor: Diane T. Rover — Iowa State University
Communication-Based system level modeling, in SystemC, for high level design exploration. This research aims to develop new communication-centric high levels models and the tools necessary to include this models into the early stages of the system design process. The modeling was perform with simulation data from an SystemC framework and Matlab analysis of the captured data.

Research Assistant — 2009 – 2010
Academic Advisor: Zhao Zhang — Iowa State University
System integration using Xilinx Virtex 5 platform for curriculum development on Embedded Systems courses. Hardware/software integration for implementation of JPEG and MP3 algorithms, including VHDL for hardware acceleration and VxWorks for realtime audio decoding. The resulting system is the current base platform for all lab modules of the Embedded Systems course.

Research Assistant — Summer 2004
Academic Advisor: Joshua Whiting — University of Michigan
Application code development for an Environmental Monitoring device. DSP algorithms for data detection in noisy mediums.

Research Assistant — Fall 2004
Academic Advisor: Nayda Santiago — University of Puerto Rico
Continuation of the work done before in University of Michigan and team leader.

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Publications

Journal Papers

1. D. T. Rover, R. Mercado, Z. Zhang, M. Shelley, and D. Helvick, *Reflections on Teaching and Learning in an Advanced Undergraduate Course in Embedded Systems,* Education, IEEE Transactions on, 51(2):400-412, Aug. 2008.

Conference Papers

1. R. Mercado, Z. Cao, and D. T. Rover *Mixture Models for System-Level Communication Analysis at Higher Levels of Abstraction.* IEEE International Conference on Electro/Information Technology, May 2010
2. Z. Cao, R. Mercado, and D. T. Rover *System-Level Memory Modeling for Bus-Based Memory Architecture Exploration.* IEEE International Conference on Electro/Information Technology, May 2009
3. G. Sudha Anil Kumar, R. Mercado, G. Manimaran, and D. T. Rover *Enhancing Student Learning with Hands-On RTOS Development in Real-Time Systems Course.* Frontiers in Education Conference, 38th Annual, Vol., Iss., Oct. 2008
4. D. Helvick, R. Mercado, D. Rover, Zhao Zhang *Reflections on Implementing and Teaching an Advanced Undergraduate Course in Embedded Systems.* Microelectronic Systems Education, 2007. (IEEE '07). Proceedings. 2007 IEEE International Conference on, Vol., Iss., 2-4 June 2007. Best Paper Award.
5. R. Mercado, M. Bezdek, D. Helvick, D. Rover, A. Tyagi, and Zhao Zhang *Developing and Teaching an Integrated Series of Courses in Embedded Computer Systems.* Frontiers in Education Conference, 36th Annual, Vol., Iss., Oct. 2006

Teaching Experience

Fill-in Lecturer, Embedded Computer Systems, Iowa State University, Spring 2009

Fill-in Lecturer, Introduction to Embedded Systems, Iowa State University, Fall 2008

TA, Embedded Computer Systems, Iowa State University, Spring 2006

TA, Embedded Systems Design, Iowa State University, Fall 2005

Math Tutor, University of Puerto Rico, 2001

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Employment

Iowa State University — Ames, IA
System Integration for Lab Development — Current
System integration using Xilinx Virtex 5 platform for lab development on Embedded Systems course, CPRE488. Hardware/software integration for implementation of JPEG and MP3 algorithms, including VHDL for hardware acceleration and VxWorks for realtime audio decoding. The system developed is the current base platform for all 9 lab modules of Embedded Systems course.

Texas Instruments — Dallas, TX
System Level Test Engineer — 2005
Verification and validation of the OMAP34xx architecture. Application development on Code Composer for the purpose of validating architecture modifications on the OMAP processor.

Texas Instruments — Dallas, TX
Characterization Engineer — 2003–2004
Design of embedded systems, hardware and software, for characterization and testing of cellphone systems. Test software development with LabVIEW. DSP programming and implementation on a TI DSP 6711. Implementation of DSP algorithms in a Xilinx's Virtex II FPGA.

Texas Instruments — Dallas, TX
Characterization Engineer — 2001–2002
Testing and characterization of chip components for cellphone systems. Test software development with LabVIEW.

Workshops

Design Automation Summer School, San Diego, CA 2006, 2007.

Skills

Languages: Spanish (native), English (fluent), some experience with Japanese and Italian

Software Development: C/C++(expert), Perl (expert), Java (proficient), Unix/Linux (advanced)

Hardware Development: Xilinx Virtex family (advanced), VHDL (expert), Verilog (proficient), LabVIEW (proficient)

Misc: Matlab (advanced), LaTeX, Go (AGA,4k)