

# JOSE M. ALMODOVAR-FARIA

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## Education

2011-Present	<b>Doctor of Philosophy</b> in Electrical Engineering (Wireless Systems and Networks) from the University of Florida. Expected graduation year: 2014.
2011	<b>Master of Science</b> in Electrical Engineering (Signals and Systems) from the University of Florida in Gainesville.
2008	<b>Master of Science</b> in Electrical Engineering (Circuits and Microsystems) from the University of Michigan in Ann Arbor.
2006	<b>Bachelor of Science</b> in Electrical Engineering (Electronics) from the University of Puerto Rico in Mayaguez.

## Research and Work Experience

2011-Present September	<b>Electrical and Computer Engineering Department, University of Florida, Gainesville, FL:</b> <i>Teaching Assistant</i> for the Computer Communications and Wireless Networks Graduate Courses. Teach several topics in class. Provide help to students with the class material. Guide and advice students for their final projects.
2009-Present September-August	<b>Wireless and Mobile Systems Laboratory, University of Florida, Gainesville, FL:</b> <i>Research Assistant.</i> Analysis and simulation of non-coherent PPM UWB radios for performance optimization.
2009 June-August	<b>Texas Instruments, Cary, North Carolina:</b> <i>Graduate Student Co-op.</i> Provide customer support for the Computing Power Management Group; build a customer service automated database; standardize the product competitive analysis.
2008-2009 July-April	<b>Wireless Integrated Circuits and Systems Group, University of Michigan, Ann Arbor, MI:</b> <i>Research Associate.</i> Study the effect of channel non-idealities (noise, interference and multipath) for non-coherent and coherent UWB receiver architectures. Design of a non-coherent PPM receiver front-end.
2008 January-June	<b>Wireless Integrated Circuits and Systems Group, University of Michigan, Ann Arbor, Michigan:</b> <i>Graduate Student Research Assistant.</i> System modeling of three digital communication schemes (PPM, NC-PPM, BPSK) for UWB wireless transmission including non-idealities such as noise, multipath, and interference.
2008 January-April	<b>Electrical Engineering and Computer Science Department, University of Michigan, Ann Arbor, Michigan:</b> <i>Teaching Assistant</i> of the Analog Integrated Circuits Graduate Course. Make solutions for weekly homework and CAD assignments. Help to design exams. Grade homework and exams.
2007 September-December	<b>Electrical Engineering and Computer Science Department, University of Michigan, Ann Arbor, Michigan:</b> <i>Directed Study and Research.</i> Energy analysis for synchronization and re-synchronization of transceivers in a wireless sensor network.
2007 May-September	<b>Electrical Engineering and Computer Science Department, University of Michigan, Ann Arbor, Michigan:</b> <i>Summer Research.</i> Automate the generation of schematics, layouts, and simulations of a comparator for an ADC converter in 90nm CMOS technology in Cadence.
2005 June-August	<b>General Motors Tech Center, Warren, Michigan:</b> <i>Summer Internship.</i> Build several cluster harnesses for different car programs and run test procedures for radios in several vehicle benches.
2005 January-May	<b>General Electric, San German, Puerto Rico:</b> <i>Student Co-op.</i> Establish a rework process, which include data collection (daily input/output and material flow) and training. Develop a calibration program for the Quality Department including equipment inventory, frequency, process to follow, and a computer database.
2004 August-December	<b>Strain Sensor Research Project, University of Puerto Rico-Mayaguez:</b> <i>Research Assistant.</i> This project aimed at developing low-cost strain wireless micro-sensing techniques to monitor the structural health of mechanical and composite structures. I tested and characterized one of the sensors and an electronic circuit previously designed.
2004 June-August	<b>General Motors Tech Center, Warren, Michigan:</b> <i>Summer Internship.</i> Voltage and current analysis for the interior lighting and the starter motor of a GM vehicle.
2003 June-July	<b>Glenn Research Center (NASA), Cleveland, Ohio:</b> <i>Research Internship.</i> I was involved with the design, test, characterization, and documentation of a DC-AC Inverter and a Low-Pass Filter for the <i>Flywheel Energy Storage System.</i>

## Electrical Engineering Projects

2010 Fall Semester	<b>Time-Domain Convolution Circuit,</b> University of Florida, Reconfigurable Computing Course: Create a custom digital circuit on a FPGA board that performs the time-domain convolution of two inputs with size of up to 4 MB each.
2010 Fall Semester	<b>Study and Implementation of Urgency-based MAC (U-MAC) Protocol,</b> University of Florida, Wireless Sensor Networks Course: Apply and simulate the U-MAC protocol for a wireless body area network (WBAN).
2010 Spring Semester	<b>Effect of ISI due to Multipath Fading on Non-Coherent UWB Receivers,</b> University of Florida, Wireless Communications Course: Simulate non-coherent UWB receivers (PPM, OOK) under multipath fading and determine their optimal integration windows accounting for inter-symbol interference.
2009 Fall Semester	<b>TCP Transmission Rate Control,</b> University of Florida, Wireless Networks Course: Implement an algorithm to update the TCP congestion window based on the channel utilization and the contention ratio.
2008 Fall Semester	<b>Magnetic Levitation Controller,</b> University of Michigan, Control Systems Course: Design, simulate, and test a controller for a magnetic levitation system with small settling time and moderate overshoot.
2007 Fall Semester	<b>S-Band Down-Converter,</b> University of Michigan, RF/Microwave Circuits Course: Design, simulate, and layout and S-band (2.4 GHz) down-converter including filters, amplifiers, and mixer.
2007 Fall Semester	<b>Auto-tunable IR Sensor for Use in IR Wireless Communication,</b> University of Michigan, Integrated Microsystems Course: Design a system able to detect the wavelength of an input infrared signal and filter out interferers using a micro Fabry-Perot Interferometer actuated by a control circuitry.
2007 Winter Semester	<b>AM Radio Receiver,</b> University of Michigan, Analog Integrated Circuits Course: Design and simulate a fully-integrated AM Radio Receiver in 0.24 $\mu$ m CMOS technology using Cadence.
2006 Fall Semester	<b>Modified Cherry-Hooper Amplifier,</b> University of Michigan, Monolithic Amplifier Circuits Course: Implement a modified Cherry-Hooper amplifier with low output impedance in a 0.24 $\mu$ m CMOS technology. Implementation included design, simulation, and layout using Cadence.
2005 Fall Semester	<b>Automated Monitoring and Cleaning System for Aquariums,</b> University of Puerto Rico-Mayaguez, Microprocessor Interfacing Course: Design and build an automated system, using the HC11 Microcontroller, able to maintain the water quality for fish aquariums. The system utilizes a keypad and a LCD as user interface.
2005 Fall Semester	<b>Sound Pressure Level (SPL),</b> University of Puerto Rico-Mayaguez, Instrumentation Course: Design and build an SPL able to display sound levels in dB units. The design operated properly from 20 to 20,000 Hz and in a range of 40-100dB.
2005 Fall Semester	<b>8-Bit Adder-Subtractor,</b> University of Puerto Rico-Mayaguez, Integrated Circuits Course: Design an adder-subtractor using 0.5 $\mu$ m CMOS technology. This project included the simulation of the design and the layout using Tanner software.
2004 Spring Semester	<b>Temperature Controller,</b> University of Puerto Rico – Mayaguez, Electronics II Course: Design and build an adjustable oven temperature controller based on the LM335 sensor.
2003 Spring Semester	<b>BCD to 7-segment Converter,</b> University of Puerto Rico – Mayaguez, Digital Logic Design Course: Design a BCD to 7-segment circuit using logical gates and simulating the design in LogicWorks software.

## Certifications

2009-Present	Licensed Professional Engineer (PE)
2006-2009	Engineer in Training (EIT)

## Publications

2012 December	<b>Optimal Integration Time for Energy-Detection PPM UWB Systems;</b> Jose M. Almodovar-Faria and Janise McNair; to appear in IEEE Global Communications Conference (GLOBECOM) 2012.
2011 March	<b>Optimal Receiver Bandwidth for Energy-Detection PPM UWB Systems;</b> Jose M. Almodovar-Faria, Janise McNair, and David Wentzloff; IEEE Wireless Communications and Networking Conference (WCNC) 2011.

## Software Experience

*Programming languages:* Perl, Visual Basic, Java, C/C++, Prolog, VHDL  
*Control and communication systems:* MATLAB, Simulink, LabView  
*Electronic design and layout:* Cadence, Electronics Workbench, PSpice, Multisim  
*Layout and engineering graphics:* Microsoft Visio, AutoCAD  
*Operating systems:* Windows, Linux, Unix  
*Office:* Microsoft Word, Excel, Power Point, Access, Outlook

## Professional Memberships

Professional College of Engineers and Land Surveyors of Puerto Rico (Spanish: Colegio de Ingenieros y Agrimensores de Puerto Rico)  
Institute of Electrical and Electronics Engineers (IEEE)  
- Communications Society  
- Circuits and Systems Society  
Society of Hispanic Professional Engineers (SHPE)