Orlando J. Hernandez, Ph.D.
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Highlights:

- Teaching: VLSI Design, Digital Circuits and Microprocessors, Digital Image Processing, Computer Architecture and Organization.
- Experience with academic research in the areas of image processing and computer vision.
- Experience with guiding fourteen students in nine undergraduate student research projects in the areas of computer vision and related VLSI architectures with peer refereed published results.
- Experience with business management, program management, and chipset development - design and software integration at a system level.
- Experience with large team leadership and team work at a world wide level.
- Experience with embedded processors systems architecting.
- Experience with digital signal processing systems.
- Experience with development of highly integrated ASICs, high data bandwidth ASICs, and VLSI circuits for DSP.
- Experience with ASIC design using Verilog, VHDL, Synopsys family of tools, and back-end tools.
- Experience with C, C++, Unix software development utilities, and assembly language for generic processors and DSPs.
- Experience with MATLAB and Microsoft productivity tools.

Academic Appointments:

The College of New Jersey — Ewing, New Jersey
Associate Professor - Elec. & Computer Eng. — 09/08 to present

The College of New Jersey — Ewing, New Jersey
Assistant Professor - Elec. & Computer Eng. — 08/03 to 08/08

Southern Methodist University — Dallas, Texas
Guest Lecturer — 08/01 to 08/03
Have been invited repeatedly as a guest lecturer for the Computer Vision course in the department of Electrical Engineering.

Education:

Southern Methodist University — Dallas, Texas
Doctor of Philosophy in Electrical Engineering — 05/2002
Minor: Statistics.
Area of Concentration: Image Processing and Computer Vision.
Dissertation Title: Color Image Retrieval Using Multispectral Random Field Texture Models and Color Content Features.

University of South Florida — Tampa, Florida
Master of Science in Electrical Engineering — 05/1993
Area of Concentration: Digital and Analog VLSI Design for Communications and Digital Signal Processing.

University of South Florida — Tampa, Florida
Bachelor of Science in Electrical Engineering — 12/1991
GRADUATED MAGNA CUM LAUDE

Awards:

EXTERNAL GRANTS (PI)
GEARS SMP Surface Mobility Platform Robot
$ 1, 500 - Spring 2009
GEARS-EDS Inc.

Precision Stabilization of a Ball Joint Gimbaled Mirror
$ 24, 870 - 8/1/07 to 3/1/08
DSCI, US Navy STTR

Acquisition of Instrumentation Systems for Education and Research in Image Processing and Understanding
$ 93, 320 - 9/1/04 to 8/31/06
National Science Foundation

CourseMaker Studio authoring suite. e-learning development and delivery tool
$ 3, 995 - Spring 2005
Learn.com Inc.

TMS320C6701 Digital Signal Processor (DSP), and TMS320C6000 DSP Platform Code Composer Studio Development Tools and Software
$ 3, 679 - Spring 2005
Texas Instruments Inc.

Xilinx DSP and Embedded Systems Design Tools and Software
$ 6, 864 - Spring 2005
Xilinx Inc.

Xilinx Field Programmable Gate Arrays (FPGAs) and Complex Programmable Logic Devices (CPLDs) Development Tools and Software
$ 3, 990 - Spring 2004
Xilinx Inc.

EXTERNAL FELLOWSHIPS
Selected as a participant in the 2004 Excellence in Engineering Education Teaching Workshop at the US Military Academy in West Point, NY. Selection was competitive for commitment to excellence in education. $ 2, 500 - Summer 2004

TCNJ GRANTS
SOSA 2009-2010

SOSA 2008-2009

Student Summer Research 2008 - $ 8,504

SOSA 2007-2008

Student Summer Research 2007 - $ 6,000

SOSA 2006-2007

Student Summer Research 2006 - $ 5,000

SOSA 2005-2006

Student Summer Research 2005 - $ 10,000

MINI-GRANT - $ 929 - Spring 2005

OTHER AWARDS
One of the recipients of the New Jersey Technology Award for Excellence in Technology from the New Jersey Technology Council. This award is based on the work of faculty members using technology in the classroom.

Publications: *High-Performance VLSI Architecture for the Microsoft® HD Photo Image Compression Algorithm*
Submitted to Journal of Computer Science and Technology, September 2009

Precision Stabilization Simulation of a Ball Joint Gimbaled Mirror Using Advanced MATLAB(R) Techniques
IEEE Southeast Conference 2009, March 5-8, 2009, Atlanta, Georgia

An Autonomous Off-Road Robot Based on Integrative Technologies
IEEE/ASME International Conference of Advanced Intelligent Mechatronics, July 2-5, 2008, Xi'an, China

A Low Cost Advanced Encryption Standard (AES) Co-Processor Implementation
Journal of Computer Science and Technology, Volume 8, Number 1, April 2008

An FPGA Architecture for Low Density Parity Check Codes
IEEE Southeast Conference 2008, April 3-6, 2008, Huntsville, Alabama

A Combined VLSI Architecture for Nonlinear Image Processing Filters
IEEE Southeast Conference 2006, March 31 - April 2, 2006, Memphis, Tennessee

A High Performance VLSI Architecture for the Histogram Peak-Climbing Data Clustering Algorithm
IEEE Transactions on Very Large Scale Integration (VLSI) Systems, Volume 14, Number 2, February 2006

A Classification Methodology for Color Textures Using Multispectral Random Field Mathematical Models
Mathematical and Computational Applications, Volume 11, Number 2, 2006

Face Recognition Using Multispectral Random Field Texture Models, Color Content, and Biometric Features
34th Applied Imagery Pattern Recognition Workshop, October 19-21, 2005, Washington, DC

Taking Advantage of Low Enrollment Scheduled Courses for the Integration of Research and Teaching
35th ASEE/IEEE Frontiers in Education Conference, October 19-22, 2005, Indianapolis, Indiana

Classification of Color Textures with Random Field Models and Neural Networks
Journal of Computer Science & Technology, Volume 5, Number 3, October 2005

C++ Encapsulated Dynamic Runtime Power Control for Embedded Systems
IEEE Southeast Conference 2005, April 8-10, 2005, Fort Lauderdale, Florida

Low-Cost Advanced Encryption Standard (AES) VLSI Architecture: A Minimalist Bit-Serial Approach
IEEE Southeast Conference 2005, April 8-10, 2005, Fort Lauderdale, Florida

High Performance VLSI Architecture for Data Clustering Targeted at Computer Vision
IEEE Southeast Conference 2005, April 8-10, 2005, Fort Lauderdale, Florida

Color Image Segmentation Using Multispectral Random Field Texture Model & Color Content Features
Journal of Computer Science & Technology, Volume 4, Number 3, October 2004

A Case Study on Teaching Design to Undergraduates: A Comprehensive First Course in VLSI Design
International Conference on Engineering Education 2004, October 16-21, 2004, Gainesville, Florida

An Image Retrieval System Using Multispectral Random Models, Color, and Geometric Features
33rd Applied Imagery Pattern Recognition Workshop, October 13-15, 2004, Washington, D.C.

Teaching Comprehensive Real World VLSI Design to Undergraduate Students
2004 National Conference: Integrating Practice into Engineering Education, October 3-5, 2004
University of Michigan-Dearborn, Dearborn, Michigan

Color Image Retrieval Using Multispectral Random Field Texture Model & Color Content Features
Pattern Recognition Journal, Volume 36, Issue 8, August 2003
Elsevier Science B.V. and the Pattern Recognition Society

Color Image Retrieval Using Multispectral Random Field Texture Models and Color Content Features
Dissertation, Spring 2002
Southern Methodist University

Color Image Retrieval Using Multispectral Random Field Texture Models
IEEE Digital Signal Processing Workshop, October 15-18, 2000, Hunt, Texas

Color Image Database Browsing and Retrieval using Multispectral Random Field Texture Models
Research Day Conference, Spring 2000
Southern Methodist University

Integration of a Single-Chip Hard Disk Drive Controller Using Intellectual Property Modules
14th TI-Japan Technical Conference, November 17, 1997
Texas Instruments Inc.

The UltraSPARC-I data buffer: TI ASIC's first 0.5 um-class product
Texas Instruments Technical Journal, May-June 1996
Texas Instruments Inc.

Phase Locked Loop (PLL) Characterization Techniques
Internal Paper, July 15, 1995
Texas Instruments Inc.

Contemporary ASIC Design Methodologies
Internal Paper, November 11, 1994
Texas Instruments Inc.

A Parametric Logic Synthesis System for Nonlinear Mathematical Functions
Internal Paper, March 21, 1994
Texas Instruments Inc.

Using MATLAB for Algorithm Development and Performance Analysis: A Coordinate Mapping for a Rapid Prototyping System
1993 MATLAB Conference, Proceedings, October 18-20, 1993, Cambridge, Massachusetts

Rapid Prototyping Using Laser Restructuring VLSI Circuits
4th International Workshop on Rapid System Prototyping, Proceedings, June 28-30, 1993, Research Triangle Park, North Carolina

Industry Experience:

Maxim Integrated Products, Inc. - uController Business Dallas, Texas
Technical Business Manager 07/02 to 08/03

- Responsible for product definition to architect single chip microcontroller and DSP systems with analog content, as well as formulating business plans for each development program.
- Responsible for the following end equipments: electricity metering, safety system such as CO detectors and O2 monitors, hearing aids, networked media appliances, and digital audio players.

Texas Instruments, Inc. - Imaging & Audio Group Dallas, Texas
Design & Development Director 04/00 to 07/02

- Managed a large team of engineers developing next generation Digital Imaging and Internet Audio DSP platforms. These designs contain DSP core and memory, microcontroller, co-processors, and peripherals. Data conversion, analog, and on-chip software are included in the system level integration as well (System-on-a-Chip).
- Drove full technology entitlement and very aggressive time to market and profitability cycle times.
- Drove chip set roadmap for the business unit.
- The group is divided in different functional sub-team: Systems/architecture/software, design, platform hardware, and product engineering.
- The group is divided in sub-teams across several regions of the world: US, Japan, and India.

Texas Instruments, Inc. - Imaging & Audio Group Dallas, Texas
Streaming Media Business Manager 05/01 to 11/01

- Managed a group chartered with developing and marketing chipsets for Streaming Media end equipments. This team has the responsibility of defining a common platform for audio and imaging; then promote its wide adoption by 3rd parties, system houses, and customers. Ultimately, responsibility for development, execution, and marketing of the product fall within this group as well.

Texas Instruments, Inc. - ASIC/SLI Development Dallas, Texas
Design Manager 05/97 to 04/00

- Integrated a single chip system for a hard disk drive that contained a micro-controller, memories (including embedded flash), and ASIC logic.
- Interfaced with the customer to architect the integrated system solution.
- Led a team of design engineers engaged in the design of micro-controllers for hard disk drives, and the integration of hard disk drive ASICs.
- Led a team of design engineers developing micro-controllers for embedded system applications. The team is also responsible for the chip level design of some of the embedded systems. These were System-on-a-Chip class designs.

Texas Instruments, Inc. - Telecom Systems Division Dallas, Texas
Digital Signal Processing Systems Engineer 01/97 to 05/97

- Designed, coded, and tested Digital Signal Processing software for telecommunications systems platforms for voice recognition and speech processing with the TI TMS320C30 digital signal processor.

Texas Instruments, Inc. - ASIC Product Development Dallas, Texas
Applications Engineer 05/93 to 01/97

- Prototyped multiple hard disk drive controller ASICs.
- Performed the role of Program Manager, and led the development team working on the data buffer ASICs for the UltraSPARC (TM) processor.
- Developed and delivered training on ASIC products and libraries.
- Participated in the definition and development of ASIC products and libraries.

Affiliations: Membership in the ACM, the IEEE (Senior Member), along with the IEEE Computer Society and the IEEE Signal Processing Society, the American Society for Engineering Education, the National Society of Professional Engineers, and the Society of Hispanic Professional Engineers.

Foreign Languages:

Spanish	Can read, write, and speak fluently.
Japanese	Rudimentary.