

## **Appendix C: Faculty Biosketches**



## **APONTE, ERICK**

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**Academic rank:** *Assistant Professor*

**Degrees with fields, institution, and date:**

BE	Electrical Engineering	University of Puerto Rico, Mayaguez , P.R.	94-97
MENG	Electric Power Eng.	Rensselaer Polytechnic Institute, Troy, NY	97-98
DENG	Electric Power Eng.	Rensselaer Polytechnic Institute, Troy, NY	00-05

**Faculty service at UPRM:**

*Date of original appointment: January 1999*

*Dates of advancement in rank:*

Instructor	1998-2000
Leave of Absence D.Eng	2000 -2005
Assistant Professor:	2006 to present
Total years of service:	2.5

**Areas of professional expertise:**

*Distributed Generation, Islanding, DG Systems Dynamics, Optimization Techniques*

**Other related experience—academic or industrial:**

**Consulting, patents:**

**State(s) in which registered:**

**Principal publications of last five years: (FY 2002-2003-2006-2007)**

*Time Optimal Load Shedding for Distributed Power Systems [IEEE TPRWS],02/2006*

*Time Optimal Load Shedding for Power Systems with Distributed Resources [Doctoral Thesis]*

**Grants or externally funded project active during the last five years: (FY2002-2003-2006-2007):**

*DOE Solar Decathlon 2007*

**Scientific and professional societies of which a member:**

*IEEE*

**Honors and awards:**

*Gates Millennium Scholarship Program [2000-2004]*

**Institutional and professional service in the last five years: (FY2002-2003-2006-2007)**

Reviewer: IEEE MWCAS 2006; Reviewer: International Journal of Power and Energy Systems;  
UPRM Committees: EPOW, Graduate Committee.

**Professional development activities in the last five years: (FY2002-2003-2006-2007)**

*Career Development for New Engineering Faculty[2/2007]*

*Professional Development Center New Faculty Orientation[8/2006]*

*ABET Accreditation Workshop [4/2006]*

**Offered Courses in the past two years**

*INEL 4103 Electrical Systems Analysis III, INEL 6028 Optimization and Economic Operation of Integrated Power Systems, INEL 6046 Master Thesis, INEL 4998 Undergraduate Research, INEL 4415 Power Systems Analysis, INEL 4086 Fundamentals of Transformers and Electric Machines*

**Community service activities: (FY2002-2003-2006-2007)**

**Dr. Javier A. Arroyo-Figueroa, Associate Professor**

Electrical and Computer Engineering Department  
University of Puerto Rico at Mayagüez  
Ph. 787-832-4040 x2369, FAX 787-831-7564  
E-mail: jarroyo@ece.uprm.edu

**Professional Preparation:**

Ph.D.	University of Florida, 1997
M.E.E.	University of Florida, 1992
B.S.Cp.E.	University of Puerto Rico Mayagüez Campus, 1990

**Appointments:**

**Department of Electrical and Computer Engineering,  
University of Puerto Rico Mayagüez Campus,  
Associate Professor  
Assistant Professor**

Mayagüez, P.R.  
2001-Present.  
1997-2001

**Database Systems R&D Center, University of Florida, Postdoctoral Associate, 1997-1998.**

**Database Systems R&D Center, University of Florida, Research Assistant, 1991-1997.**

**Current Professional Memberships and Affiliations:**

Licensed Engineer in Training (EIT) in Puerto Rico since 2005

Colegio de Ingenieros y Agrimensores de Puerto Rico

Institute for Electrical and Electronics Engineers (IEEE)

**Academic Service Activities:**

Program Evaluator, Council for Higher Education, Puerto Rico, 2002-2003.

Panelist, Science Foundation of Ireland, 2001.

Reviewer, Guide to the Software Engineering Body of Knowledge, IEEE/ACM , 2001.

Served in several National Science Foundation Proposal Review Panels

**Patents:**

"Sequential Machine for Solving Boolean Satisfiability (SAT) Problems in Linear Time", US Patent Number 7,120,569

**Other Professional Activities:**

Senior Member of the Technical Staff, Commoca, Inc. , Mayagüez, Puerto Rico, 2005-2006.

President, Entevia Corporation, Mayagüez, Puerto Rico, 2001-present.

Technology Director, Tecnium Products Corp., Mayagüez, Puerto Rico, 2003.

Consulting on application development for IP telephony, Commoca, Inc, 2004.

Consulting on software development and software process improvement , PRSoft, Inc. 2001-2002.

Development of an intelligent system for improving the functional quality control process of motherboards, Intel Puerto Rico, Las Piedras Plant, 1998.

Consulting on hardware/software acquisition, Party City of Puerto Rico, San Juan, P.R., 1992-1997

Development of business accounting software, AbleSoft Corp., Gainesville, FL, 1991-1997.

**GERSON BEAUCHAMP**  
Professor of Electrical Engineering  
College of Engineering  
Electrical and Computer Engineering Department  
University of Puerto Rico – Mayagüez Campus  
P.O. Box 9042  
Mayagüez, PR 00681-9042

### **EDUCATION**

Ph.D., Electrical Engineering, Georgia Institute of Technology, Atlanta, Georgia, March, 1990.  
M.S. in Electrical Engineering, Georgia Institute of Technology, Atlanta, Georgia, December, 1985.  
B.S. in Electrical Engineering, University of Puerto Rico at Mayagüez, Mayagüez, Puerto Rico, June, 1984.

### **RESEARCH INTERESTS**

Engineering Education, Pre-College Outreach Programs. Control Systems Design and Simulation. Instrumentation Systems. Optimal Control and its applications. Alternative energy systems. The analysis and control of implicit (singular) linear systems, specifically the use of computational algorithms to solve several problems regarding these systems.

### **ACADEMIC EXPERIENCE**

July 1998 – Present, Professor, College of Engineering, Electrical and Computer Engineering Department, University of Puerto Rico at Mayagüez  
August 1993 – May 1994, Special Assistant to the Engineering Dean, UPRM  
July 1993 – June 1998, Associate Professor, College of Engineering, Electrical and Computer Engineering Department, University of Puerto Rico at Mayagüez  
December 1991 – July 1997, Project Coordinator, PR-AMP Pre-College Engineering Program  
January 1990 - June 1993, Assistant Professor, College of Engineering, Electrical and Computer Engineering Department, University of Puerto Rico at Mayagüez

### **PUBLICATIONS**

1. G. Beauchamp-Báez and L. V. Meléndez-González, “A Design Approach to Teach Electronic Instrumentation,” Proceedings of the Frontiers in Education 1999 Conference, San Juan, Puerto Rico, Nov. 10-13, 1999.
2. G. Beauchamp-Báez and L. V. Meléndez-González, “Design Projects for Digital and Process Control Courses,” Proceedings of the Frontiers in Education 1998 Conference, Tempe, Arizona, Nov. 4-7, 1998, pp. 69-72.
3. G. Beauchamp-Báez, J.L. Cruz-Rivera, and W. Lugo Beauchamp, “The Pre-College Engineering Program at the University of Puerto Rico-Mayagüez: Methods and Assessment,” Proceedings of the Frontiers in Education 1998 Conference, Tempe, Arizona, Nov. 4-7, 1998, pp. 1274-1278.
4. L. Morrel and G. Beauchamp, “Integration of Skills Development Across the Engineering Curriculum,” Proceedings of the 1995 ASEE Annual Conference, Anaheim, CA, June 25-28, 1995, pp. 1098-1101.
5. G. Beauchamp and M. Vélez, “A Process Instrumentation and Control Laboratory,” Proceedings of the 1995 ASEE Annual Conference, Anaheim, CA, June 25-28, 1995, pp. 675-679.
6. G. Beauchamp, E. Rodríguez, and E.L. Muñiz, “A Fuzzy Logic Based Phase Sequencer for Traffic Control,” Proceedings of the Sixth International Conference on Fuzzy Systems, Barcelona, Catalonia, Spain, July 1-6, 1997, pp. 1533-1539.
7. R. Rivas-Pérez, S. Pérez-Pereira, G. Beauchamp-Báez, D. Rodríguez, “Computer Control of Water Distribution and Irrigation Systems,” Third International Symposium on Tropical Hydrology & Fifth

Caribbean Islands Water Resources Congress," July 12-16, 1998.

8. G. Beauchamp, Algorithms for Singular Systems, Ph.D. Thesis, School of Electrical Engineering, Georgia Institute of Technology, Atlanta, GA 30332, January 1990.
9. G. Beauchamp, A. Banaszuk, M. Kociecki, and F.L. Lewis, "Inner and outer geometry for singular systems with computation of subspaces," Int. J. Control, vol. 53, no. 3, pp. 661-687, 1991.
10. G. Beauchamp and F.L. Lewis, "Shuffle algorithm for two-dimensional singular systems with a Fornasini-Marchesini model," Kybernetika, Special Issue on System Structure and Control, vol. 27, no. 3, pp. 243-252, 1991.
11. F.L. Lewis, G. Beauchamp, K. Özçaldıran, and R.P. Malhamé, "Large-scale dynamical interconnections of stochastic singular systems," Circuits Systems and Signal Proc., vol. 10, no. 1, pp. 115-133, 1991.

### **THESES SUPERVISED**

Luis V. Meléndez -González, Automation and Control of Solar Assisted Air Conditioning System, Masters Thesis, Electrical and Computer Engineering Department, University of Puerto Rico, Mayagüez, PR 00681, May, 2000.

Luis I. García-Cabrera, A Methodology for Designing Traffic Signal Controllers Based on Fuzzy Logic, Masters Thesis, Electrical and Computer Engineering Department, University of Puerto Rico, Mayagüez, PR 00681, December, 1999.

Enid L. Muñiz-Marrero, Fuzzy Logic Based Control and Coordination of Intersections Along an Arterial Street, Masters Thesis, Electrical and Computer Engineering Department, University of Puerto Rico, Mayagüez, PR 00681, December, 1998.

Edilberto Rodríguez-Morales, Traffic Signal Control Based on Fuzzy Logic, Masters Thesis, Electrical and Computer Engineering Department, University of Puerto Rico, Mayagüez, PR 00681, May, 1995.

### **PROFESSIONAL WORK EXPERIENCE**

- Technical Support Engineer, Photosystems and Electronic Products Department, E.I. DuPont de Nemours and Company, Parlin, NJ, Summer 1986
- Technical Support Engineer, Photosystems and Electronic Products Department, E.I. DuPont de Nemours and Company, Parlin, NJ (GEM Summer Intern), Summer 1985
- Technical Support Engineer, Engineering Development Laboratory, E.I. DuPont de Nemours and Company, Wilmington, DE (GEM Summer Intern), Summer 1984

### **COLLABORATORS**

Iván Baigés, Mechanical Engineering Department, UPR-Mayagüez  
José L. Cruz-Rivera, Electrical and Computer Engineering Department, UPR-Mayagüez  
Antonio A. González, Civil Engineering Department, UPR-Mayagüez  
Jorge E. González, Mechanical Engineering Department, UPR-Mayagüez  
Lueny Morell, Chemical Engineering Department, UPR-Mayagüez

### **GRADUATE ADVISEES**

Luis I. García-Cabrera  
Luis V. Meléndez-González, GE, Florida  
Enid L. Muñiz-Marrero, Kodak, New Jersey  
Edilberto Rodríguez-Morales, PEC Technologies, San Juan, PR

### **GRADUATE ADVISOR**

Frank L. Lewis, Automation and Robotics Research Institute, The University of Texas at Arlington

**JOSÉ R. CEDEÑO-MALDONADO, Ph.D., P.E.**  
**Associate Professor & Associate Director**  
**Department of Electrical and Computer Engineering**  
**University of Puerto Rico at Mayagüez, P.O. Box 9042, Mayagüez, PR 00681-9042**  
**E-mail: jcedeno@ece.uprm.edu, Phone: (787) 832-4040 Ext. 2170, Fax: (787) 831-7564**

**Research and Teaching Interests:** Power System Operation and Control, Transmission & Distribution Engineering, Forensic Engineering, High Voltage Engineering, Electrical Safety, Evolutionary Computation Techniques.

### **Professional Preparation**

Ph.D.	Electrical Engineering	The Ohio State University	2002
M.S.	Electrical Engineering	The Ohio State University	1996
B.S.	Electrical Engineering	University of Puerto Rico	1991

### **Appointments**

#### *Associate Professor*

Department of Electrical and Computer Engineering  
University of Puerto Rico, Mayagüez, Puerto Rico  
August 2001 – present

#### *Teaching Assistant*

Department of Electrical and Computer Engineering  
The Ohio State University, Columbus, Ohio  
January 1997 – May 2001

#### *Research Assistant*

Department of Electrical and Computer Engineering  
The Ohio State University, Columbus, Ohio  
September 1994 – December 1996

#### *Instructor*

Department of Electrical Engineering  
Polytechnic University of Puerto Rico, Hato Rey, Puerto Rico  
February 1992 – August 1993

#### *Electrical Engineer*

Puerto Rico Electric Power Authority – Planning & Research Division  
San Juan, Puerto Rico  
June 1991 – August 1993

### **Recent Publications**

- Emilio J. Contreras and José R. Cedeño, “Evolutionary Programming Approach to Branch Outage Simulation for Contingency Studies”, Submitted to the *International Journal of Power and Energy Systems*.
- Agustín A. Irizarry-Rivera, Manuel Rodríguez-Martínez, Bienvenido Vélez, Miguel Vélez-Reyes, Alberto R. Ramirez-Orquín, Efraín O’Neill-Carrillo and José R. Cedeño, “Intelligent Power Routers: A Distributed Coordination Approach for Electric Energy Processing Networks,” Submitted to *International Journal of Critical Infrastructures*, Special Issue, 2006.



- Emilio J. Contreras and José R. Cedeño, "Evolutionary Programming Applied to Profit-Based Unit Commitment", In *Proceedings of the IEEE Transmission and Distribution Conference and Exposition*, Caracas, Venezuela, August 15-18, 2006.
- Alfredo A. Cuello and José R. Cedeño, "Analytical Hierarchical Process and Differential Evolution Approach for Optimal Reactive Power Planning", In *Proceedings of the IEEE Transmission and Distribution Conference and Exposition*, Caracas, Venezuela, August 15-18, 2006.
- Marianela Santiago and José R. Cedeño, "Optimal Placement of FACTS Controllers in a Power System Via Evolution Strategies", In *Proceedings of the IEEE Transmission and Distribution Conference and Exposition*, Caracas, Venezuela, August 15-18, 2006.
- Emilio J. Contreras and José R. Cedeño, "A Self-Adaptive Evolutionary Programming Approach for Power System State Estimation", In *Proceedings of the 49<sup>th</sup> IEEE International Midwest Symposium on Circuits and Systems*, San Juan, Puerto Rico, August 6-9, 2006.
- Alfredo A. Cuello and José R. Cedeño, "Differential Evolution-Based Weighted Least Squares State Estimation with Phasor Measurement Units", In *Proceedings of the 49<sup>th</sup> IEEE International Midwest Symposium on Circuits and Systems*, San Juan, Puerto Rico, August 6-9, 2006.
- Emilio J. Contreras and José R. Cedeño, "Voltage Security Analysis by Evolutionary Programming-Based Branch Outage Simulation", In *Proceedings of the 9<sup>th</sup> International Conference on Probabilistic Methods Applied to Power Systems*, Stockholm, Sweden, June 11-15, 2006.
- Alfredo A. Cuello and José R. Cedeño, "Combined Analytic Hierarchical Process-Differential Evolution Approach for Optimal Reactive Power Planning", In *Proceedings of the 9<sup>th</sup> International Conference on Probabilistic Methods Applied to Power Systems*, Stockholm, Sweden, June 11-15, 2006.
- Emilio J. Contreras and José R. Cedeño, "Evolutionary Programming Applied to Unit Commitment with Network Flow Constraints", In *Proceedings of the First International ICSC Symposium on Artificial Intelligence in Energy Systems and Power*, Island of Madeira, Portugal, February 7-10, 2006.
- Alfredo A. Cuello and José R. Cedeño, "Transmission Congestion Management in Deregulated Environments Using Differential Evolution", In *Proceedings of the Eight IASTED International Conference on Power and Energy Systems*, Marina del Rey, CA, October 24-26, 2005.
- Raúl E. Pérez and José R. Cedeño, "Economic Power Dispatch with Non-Smooth Cost Functions Using Differential Evolution", In *Proceedings of the 37<sup>th</sup> North American Power Symposium*, Ames, IA, October 23-25, 2005.
- Raúl E. Pérez and José R. Cedeño, "Differential Evolution Based Economic Environmental Power Dispatch", In *Proceedings of the 37<sup>th</sup> North American Power Symposium*, Ames, IA, October 23-25, 2005.
- Juan J. Jiménez and José R. Cedeño, "A Particle Swarm Optimization Approach for Reactive Power Dispatch", In *Proceedings of the 37<sup>th</sup> North American Power Symposium*, Ames, IA, October 23-25, 2005.
- Alfredo A. Cuello and José R. Cedeño, "OPF Framework for Congestion Management in Deregulated Environments Using Differential Evolution", In *Proceedings of the 37<sup>th</sup> North American Power Symposium*, Ames, IA, October 23-25, 2005.
- Noel G. Figueroa and José R. Cedeño, "A Differential Evolution Solution Approach for Power System State Estimation", In *Proceedings of the Seventh IASTED International Conference on Power and Energy Systems (PES 2004) – Special Theme: Distributed Energy and Demand Response*, Clearwater Beach, FL, November 28-December 1, 2004.
- Angel Aquino, Atzel Santiago, José R. Cedeño and Efraín O'Neill, "Optimal Location of Distributed Generation Units on Radial Distribution Feeders", In *Proceedings of the Power Systems*

*Conference 2004: Distributed Generation, Advanced Metering and Communication*, Clemson, SC, March 10-12, 2004.

- Juan J. Jiménez and José R. Cedeño, “Application of Particle Swarm Optimization for Electric Power System Restoration”, In *Proceedings of the IASTED International Conference PowerCon 2003 – Special Theme: Blackout*, New York City, NY, December 10-12, 2003.
- J. R. Cedeño, M. Rodríguez and E. O’Neill-Carrillo, “Research and Education Challenges for Advanced Mathematics Applications in Power System Control, Security, and Restoration”, *Proceedings of the Applied Mathematics for Deregulated Electric Power Systems: Optimization, Control, and Computational Intelligence*, Arlington, VA, November 2003.
- Agustín A. Irizarry-Rivera, Manuel Rodríguez, Miguel Vélez-Reyes, José R. Cedeño, Bienvenido Vélez, Efraín O’Neill-Carrillo and Alberto Ramírez, “Intelligent Power Routers for Distributed Coordination in Electric Energy Processing Networks”, In *Proceedings of the 2003 EPNES Workshop*, Orlando, Florida, October 23-24, 2003.
- Juan J. Jiménez and José R. Cedeño, “A Particle Swarm Optimization Approach for Electric Power System Restoration”, In *Proceedings of the 35<sup>th</sup> North American Power Symposium*, Rolla, MO, October 20-21, 2003.

### **Professional Activities and Honors**

Registered Professional Electrical Engineer in Puerto Rico – Lic. No. 12191

Director, Pre-College Engineering Program, UPRM (2002 – present)

Secretary-Treasurer, Caribbean Colloquium on Power Quality (CCPQ 2003)

Member, Institute of Electrical and Electronic Engineers (IEEE) - Power Engineering Society

Treasurer, IEEE Power Engineering Society Chapter - PR West (2004 – present)

Faculty Advisor, IEEE Student Chapter, UPRM (2002 – present)

Member, Illuminating Engineering Society of North America (2005 – present)

Member, “Colegio de Ingenieros y Agrimensores de Puerto Rico”

Member, Tau Beta Pi National Engineering Honor Society

Member, Phi Kappa Phi Honor Society

Recipient, Dean’s Fellowship, The Ohio State University (1993)

Magna Cum Laude – BSEE, University of Puerto Rico, 1991

### **Awards and Grant Support**

- *Co-PI*: “Intelligent Power Routers for Distributed Coordination in Electric Energy Processing Networks,” NSF/ONR EPNES Grant, January 2003 – December 2005.
- *Co-PI*: “Acquisition of Instrumentation for the Electric Energy Processing Systems Laboratory,” National Science Foundation Grant for Major Research Instrumentation (MRI), January 2002 – December 2003.

**Dr. Jose G. Colom-Ustariz, Professor**  
Electrical and Computer Engineering Department  
University of Puerto Rico at Mayagüez  
Ph. 787-832-4040 x2448, FAX 787-832-2485  
E-mail: colom@ece.uprm.edu

**Professional Preparation:**

Ph.D.	Penn State University, 1998
Electrical Engineer	University of Massachusetts, 1991
B.S.E.E.	University of Puerto Rico Mayagüez Campus, June 1988

**Appointments:**

**Department of Electrical and Computer Engineering,  
University of Puerto Rico Mayagüez Campus,**

Mayagüez, P.R.

Instructor:	1991 to 1994
Assistant Professor:	1998 to 2001
Associate Professor:	2001 to 2006
Professor	2006-present

**5 Recent Journal Publications**

Colom, J. G., R. Medina and R. Rodriguez-Solis, "Design of Tunable Balanced Amplifier Using Ferroelectric Materials," *Journal Integrated Ferroelectrics*, 56:1097-1106, 2003.

Colom, J. G., R. Medina and Y. Perez, "Simulation of Single-Stage Tunable Amplifier Using Ferroelectric Materials," *Journal Integrated Ferroelectrics*, 56:1131-1140, 2003.

Colom, J. G. and R. Rodriguez-Solis, "Design and Simulation of a Tunable Multilayer Lange Coupler," *Journal Integrated Ferroelectrics*, Volume 42, 2002.

**5 Recent Conference Proceedings**

Colom, J., Giraldo L., Knapp E., "Phase Shifter System Using Vector Modulation For X Band Phased Array Radar Applications," IGARSS 2007, Barcelona, Spain, July 2007.

Vega, M., Colom, J., "Student Developed Meteorological Radar Network for the Western Part of Puerto Rico: First Node," , IGARSS 2007, Barcelona, Spain, July 2007

Vega, M., Colom J., Orama L., "Student Developed Meteorological Radar Network for Western Puerto Rico" MWSCAS 2006, San Juan, PR., Aug 2006.

Colom, J., Giraldo L., Knapp E., "Phase Shifter System Using Vector Modulation," MWSCAS 2006, San Juan, PR., Aug 2006.

McLaughlin, D. , V. Chandrasekar, K. Droegemeier, S. J. Frasier, J. Colom, J. Kurose, and S. Cruz-Pol. "Distributed Collaborative Adaptive Sensing (DCAS) for Improved Detection, Understanding, and Prediction of Atmospheric ", 2005 American Meteorological Society (85th AMS Annual Meeting), Ninth Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS), 2005.

**Current Grants:**

UPRM Project Co-Director in **Collaborative Adaptive Sensing of the Atmosphere**. NSF ERC in collaboration with UMASS, OU, and CSU. 2002-2012.

**Current Professional Memberships and Affiliations:**

Institute for Electrical and Electronics Engineers (IEEE)

Tau Beta PI

**Number of graduate students supervised in the past 5 years: 8**

## **COUVERTIER, ISIDORO**

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### **Academic rank: Professor**

#### **Degrees with fields, institution, and date:**

BS	Electrical Engineering	University of Puerto Rico, Mayagüez Campus	1981
MS	Electrical Engineering	University of Wisconsin-Madison	1983
Ph. D.	Electrical Engineering	Louisiana State University-Baton Rouge	1996

#### **Faculty service at UPRM:**

Date of original appointment: August 1985

Dates of advancement in rank:

Instructor:	1985
Assistant Professor:	1989
Associate Professor:	1999
Professor	2004
Total years of service:	21 (Five Year Leave)

#### **Areas of professional expertise:**

Computer Networking, Embedded Systems

#### **Other related experience—academic or industrial:**

Product/Design Engineer, **Hewlett Packard Co.** 2.5 years

Computer Center Director, **UPR-Arecibo**, 4 years

Computer Science Department Head, **UPR-Arecibo**, 1.5 years

#### **Consulting, patents:**

Consulting for Hewlett Packard – Aguadilla in 2000-2001, TCP/IP

Consulting for Hewlett Packard – Aguadilla in 1997, C Programming

Atlantea Project UPR Central Administration – Haiti in 1998, C and C++

#### **State(s) in which registered:**

Puerto Rico

#### **Principal publications of last four years: (FY 2002-2003-2006-2007)**

Couvertier, I., M. Jiménez, and Palomera R. “Integrating Concepts and Practice in Teaching Embedded Systems Design”, International Conference on Engineering Education, Gainesville, Florida, October 16-21, 2004

Solá, Juan and I. Couvertier “A parallel TCP/IP offloading framework for TOE devices,” in Proceedings of the Applied Telecommunication Symposium, Orlando, FL, Mar. 2003, pp. 115–121

J. M. Solá-Sloan and I. Couvertier, “A parallel TCP/IP offloading framework for a TCP/IP offloading implementation,” in Proceedings of IPSOC Based Design, Grenoble, France, Oct. 2002.

Solá, Juan and I. Couvertier, “A TCP/IP Framework for TCP/IP Offloading Implementation”, in 2002 Computing Research Conference, UPR-Mayaguez, March 2002

**Grants or externally funded project active during the last four years: (FY 2002-2003-2006-2007)**

**Scientific and professional societies of which a member:**

Institute of Electrical and Electronics Engineers, Senior Member

Colegio de Ingenieros y Agrimensores, Member

**Honors**

IEEE Senior Member, Graduate Student Association Recognition, UPRM's IEEE Student Chapter Recognition

**Institutional and professional service in the last four years: (FY 2002-2003-2006-2007)**

**Professional development activities in the last four years: (FY 2002-2003-2006-2007)**

Gerencia Academica, CCNA, CCNP

**Offered Courses in the past two years (2005-2007)**

CIIC 9995 Doctoral Dissertatin, ICOM 5318 Intermediate Routing and Wide Area Networks, ICOM 4308 Computer Networking Fundamentals, INEL 4205 Logic Circuits, ICOM 6998 Master's Project,

**Community service activities: (FY 2002-2003-2006-2007)**

## **Cruz-Rivera, José L.**

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### **Academic rank: Professor**

#### **Degrees with fields, institution, and date:**

BS	Electrical Engineering	University of Puerto Rico, Mayagüez Campus	1991
MS	Electrical Engineering	Georgia Institute of Technology	1992
Ph. D.	Electrical Engineering	Georgia Institute of Technology	1996

#### **Faculty service at UPRM:**

Date of original appointment: July 1996

Dates of advancement in rank:

Assistant Professor:	1996 to 1999
Associate Professor:	1999 to 2001
Professor:	2001 to Present
Total years of service:	1

#### **Areas of professional expertise:**

Digital Systems, Parallel Processing, Optoelectronics

#### **Other related experience—academic or industrial:**

##### **University of Puerto Rico System – Central Administration**

July 2006 – Present Associate Vice-President for Student Affairs

##### **University of Puerto Rico – Mayagüez Campus**

Jan. 2003 – Dec. 2003 Chairman, ECE Department

Jan. 2000 – Aug. 2000 Dean of Academic Affairs

Sep. 1999 – Feb. 2000 Director of the Center for the Enhancement of Computing Research and Development.

July 98-July 99 Associate Director for Research and Academic Affairs ECE Department

##### **Commoca – Mayagüez, PR**

Jan. 2004 – Dec. 2006 Chief Technical Officer

##### **International Business Machines (IBM). Poughkeepsie, New York.**

1991 Design Engineer: Summer internship

1990 Design Engineer: Summer internship.

##### **Amper, Madrid, Spain -- R&D Engineer: Summer internship**

1989 R&D Engineer: Summer internship.

#### **Consulting, patents:**

1996 – Present: Consulting in areas of higher education issues, engineering technology, and research and development management.

2005 “Internet Protocol Phone with Search and Advertising Capability.” Patent Pending.

2005 “Software platform for developing, delivering, and managing data-voice applications operating on an Internet Protocol (IP) Phone”. Patent Pending.

#### **State(s) in which registered:**

EIT, Georgia. 1996.

**Grants or externally funded projects active during the last five years: (FY 2002 -- 2007)**

J.L. Cruz-Rivera, “Commoca Internet Telephony”, PRIDCO, \$3.8M, January 2004-December 2006.

J.L. Cruz-Rivera, “Commoca: Making Communications Personal”, NSF SBIR Phase I, \$100,000, January 2004-June 2004.

J.L. Cruz-Rivera, “Commoca: Making Communications Personal”, NSF SBIR Phase II, \$500,000, January 2005-December 2006.

Z. R. Toro, J. L. Cruz Rivera, W. Cruzado, R. Vásquez, R. Dávila, *El Recinto Universitario de Mayagüez: eje académico del Corredor Tecnológico del Oeste*, PRIDCO, \$14M (+ \$14M UPR Matching Funds), July 2000 to June 2004

L. Jiménez, Dr. Miguel Vélez, S. Hunt, S. Cruz Pol, R. Vásquez, and J. L. Cruz Rivera, *Center for Subsurface Sensing and Imaging*, National Science Foundation, \$1,770,000 (+ \$639,502 UPRM Matching Funds), January 2000 to December 2004

**Scientific and professional societies of which a member:**

Institute of Electrical and Electronics Engineers, (Senior Member)

**Honors and awards:**

1997 National Science Foundation Career Award

1999 Distinguished Professor: Electrical and Computer Engineering. UPRM College of Engineering

1999 Frontiers in Education Fellow, given by the Executive Committee of the 1999 Frontiers in Education International Conference.

**Institutional and professional service in the last five years: (FY 2002 -- 2007)**

Associate Vice-Presidente for Student Affairs, UPR System (July 2006-Present)

Chairman, ECE Department (Jan-Dec 2003)

**Academic Rank: Professor****Degrees with fields, institution, and date:**

BS Magna Cum Laude	Electrical Engineering	University of Puerto Rico, Mayagüez Campus	1987
MS Magna Cum Laude	Electrical Engineering	University of Massachusetts at Amherst	1991
Ph. D. Magna Cum Laude	Electrical Engineering	The Pennsylvania State University	1998

**Faculty service at UPRM: Dates of advancement in rank:**

Instructor:	1991 to 1998
Assistant Professor:	1998 to 2001
Associate Professor:	2001 to 2005
Professor	2005 to Present
Total years of service:	17 (4 on leave)

**Areas of professional expertise:***Microwave Remote Sensing, Atmospheric Absorption Modeling, Microwave Ocean Emissivity***Other related experience—academic or industrial:***IEEE Geoscience and Remote Sensing Newsletter- Associate Editor for University Profiles***Principal publications of last 10 years: (until-2007)***Ortíz, Xiomara, Nazario Ramírez and Sandra Cruz Pol, "An algorithm to improve the NEXRAD rain rate estimates", IGARSS 2007, Barcelona, Spain, 2007.**McLaughlin, David J., V. Chandrasakar, Jim Kurose, Kelvin Droegemeier and Sandra Cruz-Pol, "Short Wavelength Technology and the Potential for Distributed Networks of Short-Range Radar Systems", IEEE IGARSS 06, Colorado, 2006.**Cruz Pol, S. L., José Maeso, Margarita Baquero "DSD characterization and computations of expected reflectivity using data from a Two-Dimensional Video Disdrometer deployed in a Tropical Environment", IEEE IGARSS 05, Korea., 2005.**Cruz Pol, S. L., Margarita Baquero, V. Bringi and V. Chandrasekar, "Rain-Rate Estimate Algorithm Evaluation and Rainfall Characterization in Tropical Environments Using 2DVD, Rain Gauges and TRMM data", IEEE IGARSS 05, Korea, 2005.**Colom. J. G., S. Cruz-Pol, V. Marrero, V. Bringi, and K. Droegemeier, "Multi-Campus Courses Via video conference: An Assesment," ITHET 05, Dominican Republic, 2005.**Morales J., J. Trabal, S. L. Cruz-Pol, and S. M. Sekelsky, "Ice Water Content (IWC) Retrieval from Cirrus Clouds Using Millimeter-Wave Radar and In-Situ Ice Crystal Airborne Data," IEEE IGARSS 05, Korea., 2005.**McLaughlin, D.J., V. Chandrasekar, K. Droegemeier, S. Frasier, J. Kurose, F. Junyent, B. Philips, S. Cruz-Pol, and J. Colom, 2005: Distributed Collaborative Adaptive Sensing (DCAS) for Improved Detection, Understanding, and Prediction of Atmospheric Hazards. 9th Symp. Integrated Obs. Assim. Systems - Atmos. Oceans, Land Surface (IOAS-AOLS), Amer. Meteor. Soc., San Diego, CA., Jan 2005.**Cruz-Pol, S., "Built your Own Electronic Piano Workshop for K-12 students", International Conference on Engineering Education (ICEE 04), FL, Oct 18-20 2004.**Morales, J.; Trabal, J., Cruz-Pol, S. and Sekelsky, S., "Cirrus Clouds Millimeter-Wave Reflectivity Comparison with In-Situ Ice Crystal Airborne Data", SPIE 04, Hawaii, Nov 8-12, 2004.**León-Colón, L., S. Cruz-Pol, and S. Sekelsky, "Active Rain Gauge Concept for Moderate to Heavy Precipitation Using W-Band and S-Band Doppler Radars"; IGARSS 03, Toulouse, France, 2003.**Trabal, J, Cruz-Pol, S, Colom, J.G., Sekelsky, S, "Puerto Rico Radar Network Design; Site Survey ", IGARSS 03, France, 2003.*



- Colom, J., Cruz-Pol S. and Sekelsky S., “**An Undergraduate/Graduate Research Collaboration between UMASS and UPRM**”, “*ASEE 2003 International Conference on Engineering Education (ICEE’03)*”, Valencia, Spain, 2003.
- Bartolomei S., and Cruz-Pol S, “**An Electrical Engineering Module for Women in Engineering**”, *Proceeding for the 2003 American Society for Engineering Education (ASEE) Annual Conference and Exposition*, Nashville, TN, 2003.
- Cruz Pol, S., M. Vélez, J. Colom, R. Rodríguez, H. Parsiani, L. Jiménez, R. Vásquez, “**Laboratory for Remote Sensing and Image Processing**”, *IEEE Geoscience and Remote Sensing Newsletter*, Dec. 2001.
- Colom, J.G., and Cruz Pol, S. L., “**Remote Sensing Modules to Increase Interest in Traditional Difficult Courses**”, *IGARSS 2001 Symposium*, Sydney, Australia, 2001.
- Cruz Pol, S. L., “**Teoría y Diseño de Antenas**”, (105 páginas), *Manual de la clase de antenas (INEL 5305)*, impreso en Reproducciones de Ingeniería, UPRM, 2003
- León-Colón, L.V. , S.L. Cruz-Pol, and S.M. Sekelsky, “**Active Rain-Gauge Concept for Liquid Clouds using Vertically oriented W-band and S-band Doppler radars**”, *SPIE 9th International Symposium on Remote Sensing*, Crete, Greece, 2002.
- Colón-Díaz, Nivia, S.M. Sekelsky, and S.L. Cruz-Pol, “**Cloud Images retrieval and Characterization using a Ground-based dual-wavelength millimeter radar**”, *SPIE 9th International Symposium on Remote Sensing*, Crete, Greece, 2002.
- Villa, J. M., S.L. Cruz-Pol, and S.M. Sekelsky, “**Modeling, Simulation and Comparison Study of Cirrus Clouds Ice Crystals**”, *SPIE 9th International Symposium on Remote Sensing*, Crete, Greece, 2002.
- Villa, J., Cruz-Pol, S. and Sekelsky, S. , “**Performance of Scanning Millimeter-Wave Radar in a Tropical Environment**”, *IGARSS 2002*, Toronto, Canada, 2002.
- Cruz Pol, S. and Colom Ustáriz, J., “**A Case Study: High Percentage of Women in Engineering College at UPRM**”, *Wepan Conference 2002*, San Juan, PR, June 2002.
- Cruz Pol, S. L., N. Colón and S. Sekelsky, “**Multidimensional Cloud Images Retrieval From Dual-Frequency Millimeter-Wave Radar**”, *IGARSS 2001 Sydney*, Australia, July 2001.
- Cruz Pol, S. L., and C. S. Ruf, “**A Modified Model for the Sea Surface Emissivity at Microwave Frequencies**”, *IEEE Trans. on Geoscience and Remote Sensing*, Vol. 38 No. 2, pp. 858-869, 2000.
- Cruz Pol, S. L., “**Relevance Of The Modified Model For The Microwave Brightness Temperature To The TOPEX/Poseidon Satellite Altimetry Mission**” *SPIE 99*, Denver , CO, July 1999.
- Cruz Pol, S. L., C. S. Ruf and S. J. Keihm, “**Modified Model for the Microwave Sea Surface Emissivity**”, *IGARSS '99 Symposium*, Germany, 1999.
- Cruz Pol, S. L., C. S. Ruf and S. J. Keihm, “**Improved 20-32 GHz Atmospheric Absorption Model**,” *Radio Science*, Vol. 33, No. 5, pp1319-1333, September-October 1998.
- Cruz Pol, S. L., C. S. Ruf and S. J. Keihm, “**Improved 20-32 GHz Atmospheric Absorption Model**”, *IGARSS '96 Symposium*, Vol. 3, pp 1435-1437, 1996.

**Externally funded project active during the last five years: (FY up to 2007)**

<p><b>An engineering Research Center (ERC) for Subsurface Sensing and Imaging Systems.(CenSSIS)</b>  Source of Support: National Science Foundation (NSF)  Total Award Amount: <b>\$12,500,000 (Joint)</b>      Total Award Period Covered: 07/01/2000-06/30/2010  Location of Project: University of Puerto Rico Mayagüez</p>
<p><b>Collaborative Adaptive Sensing of the Atmosphere (CASA)</b>  Source of Support: NSF  Total Award Amount: <b>\$17,000,000 (Joint)</b>      Total Award Period Covered: 09/01/03-08/31/08</p>
<p><b>Statistical techniques to improve the Hydro-Estimator rainfall algorithm during heavy storms over Puerto Rico</b>  Source of Support: NOAA  Total Award Amount: <b>\$100,000</b>      Total Award Period Covered: 2 yr Started Sept 2006</p>
<p>Project Title: <b>Tropical Center for Earth and Space Science Studies</b>  Source of Support: <b>NASA</b>  Total Award Amount: <b>\$4,999,513</b>      Total Award Period Covered: 7/2000 to 7/2005</p>

Center for **CLoud Microwave Measurement of ATmospheric Events (CLiMMATE)**

Source of Support: NASA

Total Award Amount: **\$300,000**

Total Award Period Covered: 4/2002-5/2005

**Scientific and professional societies of which a member:**

*Institute of Electrical and Electronics Engineers, Senior Member*

*IEEE Geoscience and Remote Sensing Society, member*

*Phi Kappa Phi, Member*

**Honors and awards:**

*May 2001 Excellence in Mentoring Award, The National GEM Consortium, San Diego CA.*

*December 2000, Recognition as IEEE Student Branch Advisor, IEEE Student Branch*

*March 1992, Recognition, Society of Women Engineers (SWE) Student Chapter, Served as panelist for the National Science Foundation, 2002.*

**Institutional and professional service in the last five years: (FY 2002-2003 - 2006-2007)**

- *Microrad06 Specialist Meeting on Microwave Radiometry and Remote Sensing Applications, held in San Juan, Puerto Rico, from 28 February to 03 March 2006. MicroRad'06 is sponsored by the IEEE Geoscience and Remote Sensing Society, NASA, NOAA, NCAR, URSI, UPRM, and Colorado State University. Local Arrangement Chair; Dr. SandraCruz-Pol, Local Arrangement Co-chair; Dr José Colom.*
- *<http://icee2006.uprm.edu/> ICEE 2006 International Conference on Engineering Education in San Juan, July 23-28, 2006, Conference Program Co-Chair, Dr. Sandra Cruz-Pol*

**Offered Courses in the past 3 years (2005-2007)**

*INEL 5305 Antenna Theory and Design,*

*INEL 4102 Electric Circuit Analysis II,*

*INEL 4075 Fundamentals of Electrical Engineering,*

*INEL 4152 Electromagnetics II,*

*INEL 4998 Undergraduate Research,*

*INEL 5995 Special Problems,*

*INTD 8995 PhD Collaborative Research*

*INEL 6069 Microwave remote Sensing,*

*INEL 6046 Master's Thesis,*

**Community service activities: (FY 2002-2003 - 2006-2007)**

**Judge for several Science Fairs in local High schools**

**Coordinator of UNICEF TOT fundraiser and Talent For Life activity for UNICEF and UNWFP**

**Academic Workshops and Seminars**

**Dr. Cruz-Pol has attended numerous seminars and workshops on education/learning methods and technical professional development. She was selected Outstanding Professor of the Year at her department at UPRM, received the NASA Faculty Award for Research and has offered hundreds of presentations, workshops and seminars in her areas of research, in community outreach and education.**

**Dr. Carlos E. Cuadros-Ortiz, Assistant Professor**  
Electrical and Computer Engineering Department  
University of Puerto Rico at Mayagüez  
Ph. 787-832-2825, FAX 787-832-2485  
E-mail: ccuadros@ece.uprm.edu

**Professional Preparation:**

Ph.D. E.E.	Virginia Polytechnic Institute & S. U., December 2003
Master's E.E.	Massachusetts Institute of Technology, June 1998
B.S.E.E.	Pontificia Universidad Javeriana, June 1982

**Appoinments:**

**Department of Electrical and Computer Engineering,  
University of Puerto Rico Mayagüez Campus,  
Assistant Professor**

Mayagüez, P.R.  
February 2004

**Dynamic Structures and Materials:** Senior design engineer; Design and construction of power electronics drivers for piezoelectric actuators, May 1999 - December 2002.

**Lab-Volt Systems USA:** Project Coordinator - Field Engineer; April 1985 - May 1991; Based in Ecuador.

**Books and Book Chapters:**

**Recent Journal Publications:**

**Recent Conference Proceedings:**

Carlos Cuadros, "*Circuit Oriented Average Modeling of Switching Power Converters*," Conf. Conf. Rec. EPE 2005.

J. Paine, D. Bennett and C. Cuadros, "*Compact Drive Electronics for Solid State Actuators*," Conf. Rec. ASME IMEC & CE 2000.

C. Cuadros, S. Chandrasekaran, K. Wang, D. Boroyevich, and F.C.,Lee, *et all*, "*Modeling and Comparison of Two Modulation Schemes for the Quasi-Single Stage Three-Phase Zero-Voltage Zero-Current Switched Buck Rectifier*," Conf. Rec. EPE 1999.

C. Cuadros, S. Chandrasekaran, K. Wang, D. Boroyevich, and F.C.,Lee, "*Modeling, Control and Implementation of the Quasi-Single Stage Three-Phase Zero-Voltage Zero-Current Switched Buck Rectifier*," Rec. IEEE APEC 1999.

**Current Grants:**

**Awards:**

**Current Professional Memberships and Affiliations:**

Institute of Electrical and Electronics Engineers, (Member)

**Academic Service Activities:**

**Number of graduate students supervised in the past 5 years: 2**

## **DIAZ CASTILLO, ANDRES J.**

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**Academic rank: Assistant Professor**

**Degrees with fields, institution, and date:**

BS	Computer Science	Universidad Nacional Pedro H. Urena	1986
MS	Computer Science	University of Puerto Rico, Mayaguez Campus	1992
Ph.D.	Computer Science	Michigan State University	2000

**Faculty service at UPRM:**

*Date of original appointment: January 2007*

*Dates of advancement in rank:*

Assistant Professor: 2007

Total years of service: 1/2

**Areas of professional expertise:**

Electrical Engineer (Power Electronics, Automation, Embedded systems)

**Other related experience—academic or industrial:**

3 Years experience as Electrical Wire Manufacturing Industry Engineer

11 Years experience as Assistant Professor in Private University System

**Consulting, patents:**

Industrial automation consultant

Professional engineer licensed 21076

**State(s) in which registered:**

West area PR

Engineer Licensed for Puerto Rico State

**Principal publications of last four years: (FY 2002-2003-2006-2007)**

Intelligent Test Generator (1<sup>st</sup> Electro technology International Symposium 2002)

Integer Pair Representation of Binary Terms and Equations (IEEE MWCCS 98)

Multilevel Three Phase PWM for Induction Motors (ICEM 98)

New Wide Overmodulation Method (IEEE APEC-2000)

Design a Flyback Converter in a Power Factor Correction Scheme. Junior Technical Meeting (1992)

Solar Car History (Diálogo October, 1990)

Digital Power Factor Meter (UNPHU 1986)

**Grants or externally funded project active during the last four years: (FY 2002-2003-2006-2007)**

Intelligent Exam Generator software development

(2002 Education Innovative Project)

PLC virtual Lab development

(2004 Education Innovative project)

**Scientific and professional societies of which a member:**

IEEE, Power Electronics Society, CIAPR

**Honors and awards:**

Department Distinguish Professor (UIPR Aguadilla)

Research Distinguish Professor (UIPR Aguadilla)

**Institutional and professional service in the last four years: (FY 2002-2003-2006-2007)**

Web Page Development seminar for faculty

Exam Generator seminar for faculty

PE review for HP Engineer

PLC , robotic an automation seminars for Industrial Technicians

Ice Maker Manufacturing Industry Automation work using PLC

**Professional development activities in the last four years: (FY 2002-2003-2006-2007)**

WebCT Vista Certification.

National Electric Safety Code IEEE-CIAPR seminar.

Data Mining IEEE-CIAPR seminar.

**Offered Courses in the past two years (2005-2006)**

INEL 4085 Machine Electric Introduction

**Community service activities: (FY 2002-2003-2006-2007)**

Youth Basketball Team Coach

**Name:** *Ducoudray, Gladys O.*

**Academic Rank:** *Assistant Professor*

**Degrees with fields, institution, and date:**

BS	Physics	University of Puerto Rico, Río Piedras	1994
MS	Electrical Engineering	Oregon Graduate Inst. of Science & Tech.	1997
Ph. D.	Electrical Engineering	New Mexico State University	2003

**Areas of Professional Expertise:**

*Electronics, Analog VLSI Low Power System Design, Automated Testing Circuit Design*

**Other related experience—academic or industrial.**

*Instructor, Introductory Physics, STEP program at Turabo University, 1 year. Teaching prospective students introductory physics. 1995*

*Instructor, Introduction to VLSI System Design, Summer 2000.*

*R&D Analog Designer, Design of instrumentation integrated system used for board testing, Agilent Technologies. Jan 2001-August2001.*

**State(s) in which registered**

*New Mexico*

**Principal publications of last five years: (FY 2000-01 -- 2004-05)**

1. "Class AB Low-Voltage CMOS Voltage Follower" Ivan Padilla Cantoya, Jesus Molinar Solis, Gladys O. Ducoudray, *50th IEEE Midwest Symposium of Circuits and Systems*, Montreal, Canada August 6-9,2007
2. "Highly linear Wide Input Range CMOS OTA Architectures Operating in Subthreshold and Strong Inversion J. Ramirez-Angulo, C. Durbha, G.O. Ducoudray-Acevedo , RG. Carvajal and Antonio J. Lopez-Martin, special issue on "VLSI Design and Test", *Microelectronic Engineering*, vol. 84 (2007) 273–279
3. "High Accuracy self biasing Cascoded Current Mirror" Laura Sanchez and Gladys O. Ducoudray, *2006 Midwest Symposium of Circuits and Systems*: Aug 6-9, 2006 San Juan Puerto Rico, VI pp 465-468.
4. "Low Voltage High Performance Voltage Mode and Current mode WTA Circuits Based On Flipped Voltage Follower," J. Ramirez-Angulo, G. Ducoudray-Acevedo, R. G. Carvajal and A. López-Martín, *IEEE Transactions on Circuits and Systems II*, vol. 52, No. 7, July 2005, pp. 420-423.

5. "Hi-Speed High-precision Analog Rank Order Filter with O(n) complexity in CMOS Technology," R G. Carvajal, J. Ramirez-Angulo, G.O.Ducoudray, and A. López-Martin *IEEE Journal of Solid State Circuits*, Vol. 40, No. 6, June 2005.
6. New compact CMOS continuous-time low-voltage analog rank-order filter architecture, J. Ramirez-Angulo, R. Gonzalez-Carvajal, G.O. Ducoudray, A.J. Lopez-Martin, A. Torralba, *IEEE Transactions on Circuits and Systems II-Express Briefs*; May 2004; v.51, no.5, p.257-261
7. "Innovative Built-In Self-Test Schemes for On-Chip Diagnosis, Compliant with the IEEE 1149.4 Mixed-Signal Test Bus Standard," Gladys Omayra Ducoudray Acevedo and Jaime Ramírez-Angulo, *Journal of Electronic Testing and Applications*, vol. 19, issue 1, February 2003, pp. 21-28
8. "A Switched-OpAmp Comparator for Low Voltage Low Power Successive Approximation ADCs", Carlos A Vega, Gladys Omayra Ducoudray, *Transaction on Circuits and Systems II*, sent for revision Aug, 2005.
9. "High Speed, High precision Analog Rank order filter in CMOS technology," Ramon Gonzalez Carvajal, Jaime Ramírez-Angulo, Gladys Omayra Ducoudray-Acevedo, and Antonio Lopez-Martin., *2004 IEEE International Symposium on Circuits and Systems*, May 23-26 2004, Vancouver, Canada pp. I-793-796
10. "Low-Voltage Low-Power Super Class AB CMOS Op-Amp with Rail-to-Rail Input/OutputSwing", S. Baswa, M. Bikumandla, J. Ramírez-Angulo, A. J. López Martín, R. G. Carvajal, G.O. Ducoudray, *ICCDSCS 2004*, Punta Cana, Dominican Republic, Nov 3-Nov 6, 2004.

**Grants or externally funded project active during the last five years:**

*Gladys Omayra Ducoudray and Manuel Jimenez, Smart Drug Delivery System, Hewlett Packard Palo Alto Research Labs, \$6,000.00, Summer 2005-September2005.*

*UPRM TI Analog Program, Texas Instruments, Dallas TX, \$100,000/year Aug-2006-Aug 2007.*

**Scientific and professional societies of which a member:**

IEEE, Member

**Honors and awards:**

*Outstanding graduating Graduate Student, New Mexico State University, Dec 2003. Recognition award given to a Ph. D. student for outstanding work on his or her field in terms of grants publications and other awards*

*NASA Spacegrant Fellowship, NASA Spacegrant Consortium Fall 2003. Fellowship of \$4,000. for research on the aerospace and related fields in electronics.*

*NMAGEP Fellow, NMAGEP at New Mexico State University, from Jan2002-Dec 2003. Fellowship of \$4,000 yearly. For research on analog and Mixed-signal VLSI in electronics.*

**Institutional and professional service in the last five years:: (FY 1996-97 -- 2001-02)**

*Electronics Committee Coordinator, May 2005-Present, Responsible for reviewing courses textbooks and contents, Projection on electronics area for department, Coordination of laboratory experiences with course work, coordinate meetings between faculty members.*

*IAP Committee member, 1year, Reviewing proposals submitted to the committee.*

*Advisor to Carlos Vega Ms Student graduated Summer 2005. Advisor to Laura Sanchez Ms. Students graduated Summer 2007*

***Professional development activities in the last five years::***

*Seminars Attended: Mixed Signal Electronic Testing(Texas Instruments 2007), Situational Leadership, Moving from Conflict to Collaboration (Texas Instruments 2004)*

***Community Service Activities:***

*Treasurer of Parent Association for Gymnasts at HGU (non-profit organization), Organize Fundraisers, Allocate money for events and purchase gymnastic equipment. In charge of the finances of the Association.*



**André L. M. dos Santos**  
Electrical & Computer Engineering  
University of Puerto Rico  
Mayagüez, PR

**EDUCATION**

University of California at Santa Barbara, Santa Barbara, CA  
Ph. D. degree in Computer Science, March 2000.

University of Washington, Seattle, WA  
M. S. degree in Atmospheric Science, February 1994.

Instituto Tecnológico de Aeronáutica, São Jose dos Campos, Brazil  
B. S. degree in Electronics Engineering, December 1988.

**EMPLOYMENT HISTORY**

August 2005 ....  
*Associate Professor*                      Electrical & Computer Engineering, University of Puerto Rico at Mayagüez

August 2000 . July 2005  
*Assistant Professor*                      College of Computing, Georgia Inst. of Technology

August 1994 . July 2000  
*Research Assistant*                      Dep. of Computer Science, University of California

August 1991 . July 1994  
*Research Assistant*                      Dep. of Atmospheric Science, University of Washington

**SELECTED PUBLICATIONS**

***Five Relevant Publications***

Jeffrey King and A. dos Santos, "A User-Friendly Approach to Human Authentication of Messages," Proceedings of FC05, Financial Cryptography and Data Security, February-March, 2005.

Jeffrey King, A. dos Santos, C. Xuan, "KHAP: Using Keyed Hard AI Problems to Secure Human Interfaces," *Scientia*, vol. 15, n. 01, January/June 2004, pp. 50-59.

Chenghuai Lu and A. dos Santos, "A note on the efficient implementations of prime generation algorithms in small portable devices," *Computer Networks*, pp. 476-491, v. 49, n. 4, 2005.

Chenghuai Lu, A. dos Santos, and F. Pimentel, "Implementation of RSA key generation inside the smart card," Proceedings of the ACM Symposium on Applied Computing SAC 2002, March 2002.

Andre dos Santos, M. Torrey, A. ElSheshai, "Supporting National Public Key Infrastructures Using Smart Cards," *International Journal of Computers and Applications, Special Issue on System and Networking for Smart Objects*, pp. 35-40, v. 27, n. 1, 2005, ACTA Press.

## **Five Other Publications**

Daniel Hanley, J. King, and A. dos Santos, "Defeating Malicious Terminals in an Electronic Voting System," Proceedings of the SBSeg 2005, September 2005.

Donghua Xu, C. Lu and A. dos Santos, "Protecting Web Usage of Credit Cards using One-Time Pad Cookie Encryption," Proceedings of the Eighteenth Annual Computer Security Applications Conference, December 2002.

T. Zhang, S. Pande, A. dos Santos, F. J. Bruecklmayr, "Leakage-Proof Program Partitioning," Proceedings of the International Conference on Compilers, Architecture, and Synthesis for Embedded Systems – CASES 2002, pp. 136-145, October 2002.

André dos Santos, and R. Kemmerer, "Implementing Security Policies using the Safe Areas of Computation Approach", Proceedings of the Sixteenth Annual Computer Security Applications Conference, December 2000.

André dos Santos, G. Vigna, and R. Kemmerer, "Security Testing of an Online Banking Service," E-Commerce Security and Privacy, pp. 3-15, Kluwer Academic Publishers, September 2001.

## **SYNERGISTIC ACTIVITIES**

- I have been working on projects using tamper resistant devices since 1993. The first project I worked was for a system used by Fujitec Corporation.
- I have designed the security framework for the system based on smart cards used for mass transportation by Fujitec Corporation, currently deployed in US, Europe and South America.
- I have been collaborating with Infineon Technologies, performing research using secure processors manufactured by them since 1996.
- I have developed the prototype of a system for securely accessing data for digital libraries that was tested at the University of California Digital Library.
- I have a patent with Zhang, Pande and Bruecklmayr on tools for a secure processor OS (joint patent held by Infineon and Georgia tech).

## **ADVISOR AND COLLABORATORS**

I did my doctoral work with Prof. Richard A. Kemmerer at the University of California, Santa Barbara. I had Prof. Alan G. Konheim and Prof. Terence Smith as members of my doctoral committee, both from University of California, Santa Barbara. I also did work with Prof. Giovanni Vigna from University of California, Santa Barbara. I was an Assistant Professor at the College of Computing at Georgia Tech for 5 years. At Georgia Tech I have worked closely with Wenke Lee, Mustaque Ahamad and Calton Pu.

## Shawn D. Hunt

Department of Electrical and Computer Engineering  
412 Stefani Bld.  
Recinto Universitario de Mayagüez  
University of Puerto Rico  
Mayagüez, Puerto Rico 00681-5000

Tel: (787) 832-4040 ext. 3654  
Fax: (787) 831-7564  
email: shawn@ece.uprm.edu  
<http://ece.uprm.edu/~hunt>

**Academic Rank:** Professor (Full-Time)  
**Education:** Ph.D., Electrical Engineering, Michigan State University, 1992.  
MSEE, Electrical Engineering, Michigan State University, 1989.  
BSEE, Electrical Engineering, Tulane University, 1986.  
**UPRM Service:** 1988-1992 Academic Leave of Absence  
1992-1995 Assistant Professor  
1995-2000 Associate Professor  
2000-present Professor

### 10 Selected Publications:

S. Rosario-Torres, M. Vélez-Reyes, L.O. Jiménez-Rodríguez, and S. Hunt, "The MATLAB Hyperspectral Image Analysis Toolbox." Accepted for publication in R. Rajesh, editor, Introduction to Advanced Scientific Softwares and Toolboxes, International Association of Engineers Press, 2007.

C. Rivera, S. Hunt, 'Comparative Study of State of the Art Algorithms for Hyperspectral Image Analysis,' In Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII, Proceedings of SPIE Vol. 6565, pp. 656517-1-656517-9, April 2007.

S. Rosario, M. Velez, S. Hunt, L. Jimenez, 'New Developments and Applications of the UPRM MATLAB Hyperspectral Image Analysis Toolbox,' In Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII, Proceedings of SPIE Vol. 6565, pp. 6565OE-1-6565OE-12, April 2007.

L. O. Jimenez, E. O'Neill-Carrillo, W. Frey, R. Rodriguez-Soliz, A. Irizarry, S. Hunt, 'Social and Ethical Implications of Engineering Design: A Learning Module Developed for ECE Capstone Design Courses,' in Frontiers in Education Conference, October 2006.

C. Benitez-Quiroz, and S. Hunt, 'Determining the Need for Dither when Re-Quantizing a One-dimensional Signal,' 121<sup>st</sup> AES Convention, San Francisco, October 2006.

F. Gilbes, R. Armstrong, J. Goodman, M. Velez, S. Hunt, 'CenSSIS SeaBED: Diverse Approaches for Imaging Shallow and Deep Coral Reefs,' Ocean Optics Conference XVIII, Montreal, October 2006.

James A. Goodman, Miguel Vélez-Reyes, Shawn Hunt, Roy Armstrong, 'Development of a field test environment for the validation of coastal remote sensing algorithms: Enrique Reef, Puerto Rico,' SPIE conference on Remote Sensing Europe, September 2006.

Torres-Rosario, J.A.; Rondineu, S.; Rodriguez-Solis, R.A.; Hunt, S.; Popovic, Z., "Adaptive discrete lens antenna array for direction of arrival detection," in **Antennas and Propagation Society International Symposium**, 2005 IEEE Volume 4A, 3-8 July 2005 Page(s):122 - 125 vol. 4A.

S. Morillo-Contreras, M. Vélez-Reyes, and S.D. Hunt, "A comparison of noise reduction methods for image enhancement in classification of Hyperspectral imagery." In Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI, **Proceedings of SPIE** Vol. 5806, pp. 384-392, April 2005.

Shawn Hunt, and Leila S. Rodríguez, "Fast Piecewise Linear Predictors for Lossless Compression of Hyperspectral Imagery," To be published in the Proceedings of the **IEEE International Geoscience and Remote Sensing Symposium (IGGARS) 2004** Conference.

### **Selected Funded Proposals:**

Researcher in "An **Engineering Research Center for Subsurface Sensing and Imaging Systems**," 5 years starting August 2005, \$12M.

PI in "Proposal for the **Communication and Signal Processing Laboratory**," sponsored by Texas Instruments, December 2002, \$38,870.00.

PI in "Proposal for a **Communication and Signal Processing Laboratory**," sponsored by the DOD, 18 months starting August 2000, \$235,266.37.

PI in "Proposal for a **Digital Signal Processing Laboratory**," sponsored by Intel Corporation, June 1999, \$67,500.00.

PI in "Proposal for a **Digital Signal Processing Laboratory**," sponsored by Texas Instruments Incorporated, July 1998, \$16,980.00.

CO-PI in "**Unsupervised Classification System for Hyperspectral Data Analysis**," sponsored by DEPCOR, Grant no. DAAG55-98-1-0016, 3 years starting August 1997, \$328,180.

CO-PI in "**Tropical Center for Earth and Space Studies**," sponsored by NASA, 5 years starting July 1995, \$5.5M

CO-PI in "**Development of a Computer Engineering Research Environment at UPR-Mayagüez**," sponsored by the National Science Foundation, 5 years starting July 1994, \$1.5M.

### **Selected Funded and Supervised Research Topics: (2000-2007)**

MS Thesis "**Adaptive Dither for one Dimensional Signals**," C. Fabian Benitez. Funded by Censsis grant. June 2007

"Data collection of the Enrique reef for hyperspectral algorithm validation," Adrienne Mundorf (U of Rhode Island) and Suhaily Cardona, Summer 2007, CenSSIS grant, US Department of Transportation fellowship.

"De-noising of Raman Spectroscopy Signals," Luis Quintero. Funded by Censsis Grant. 2006

MS Thesis "**Resolution enhancement of Hyperspectral Imagery using Oversampling**," Jaime Laracuente, Dec. 2005. Funded by Censsis grant.

MS Thesis "**Implementation of a Phased Array Antenna using Beamforming**," Juan Torres, Dec. 2005. Funded by CASA grant.

MS Thesis "**Perceptually Lossless conversion of high quality PCM to Sigma- $\Delta$  digital Signals**," Edward Latorre, May 2004. Funded by CenSSIS grant.

MS Thesis "**Lossless Compression of Hyperspectral Imagery**," Leila Rivera. Dec. 2003. Funded NASA grant.

MS Thesis "**Trading resolution between different domains**," Heidy Sierra. Funded by Censsis grant July 2003.

MS Thesis "**Feedback in Pattern Recognition**" by Diego Rivera, December 2002. Funded by Censsis grant.

"**Resolution enhancement of AVHRR images**," Alfredo Garcia, Fall 2000, NASA grant.

"**Band selection in AVIRIS images for lossless image compression**," Juan Fernandez and Eric Lafontaine, Spring 2000, NASA grant.

"**Resolution enhancement of Remotely sensed images**," Hector Crespo and Luis Molina, Spring 2000.

## BIOGRAPHICAL SKETCH

Henrick Mario Ierkic

Electrical and Computer Engineering (ECE) Department  
University of Puerto Rico at Mayagüez (UPRM)  
PH: 787 8324040 ext. 2081, E-mail: ierkic@ece.uprm.edu

### RESEARCH INTERESTS

Radar remote sensing of the atmosphere. Wave propagation. Wireless Communications.

### PROFESSIONAL PREPARATION

BS, Ingeniería Eléctrica, Universidad Nacional de Ingeniería, Perú, 1972.  
Ph. D., Electrical Engineering, Cornell University, 1980.  
Postdoc, Max-Planck Institute for Aeronomy, Germany. 1980-1981

### APPOINTMENTS

1997--present, Professor, University of Puerto Rico at Mayaguez (UPRM)  
1990—1996, Associate Professor, UPRM  
1982-1990, Arecibo Observatory. Research Associate Space Sciences.  
1971-1974, Jicamarca Radio Observatory, Peru. Research Assistant.

### RELEVANT PUBLICATIONS (5)

Zhou, Q. H., H. Monroy, D. C. Fritts, H. M. Ierkic, B. Isham, J. R. Isler, and S. E. Palo, Radar Observation of Longitudinal Variability of Tidal/Planetary Waves and Mean Winds in the Tropical Mesosphere, *J. Geophys.Res.*, 105, 2151-2157, 2000.

Ierkic H.M., C. Haldoupis, D.R. Moorcroft, and D. Nielsen, "Coherent Radar Interferometry of Vertical Irregularity Structures in the Auroral E Region," *Radio Sci.*, 27, 743-758, 1992.

Ierkic H.M., R.F Woodman and P. Perillat, "Ultrahigh Vertical Resolution Radar Measurements in the Lower Stratosphere at Arecibo," *Radio Sci.*, 25, 941-952, 1990.

Roettger J., and H. M. Ierkic, "Postset beam steering and interferometer applications of VHF radars to study winds, waves and turbulence in the lower and middle atmosphere", *Radio Sci.* 20, 1461, 1985.

H.M. Ierkic, and B. G. Fejer, "Radar interferometry: A new technique for studying plasma turbulence in the ionosphere", *J. Geophys. Res.*, 86, 1467-1472, 1981

### ADDITIONAL PUBLICATIONS

Fejer J.A., F.T. Djuth, H.M. Ierkic, and M.P. Sulzer, "Simultaneous observations of the enhanced plasma line and the reflected HF wave at Arecibo", *J. Atmos. Terr. Phys.*, 51, 721-725, 1989.

Sulzer M.P., H. M. Ierkic, and J.A. Fejer, "Observational limitations on the role of Langmuir cavitons in ionospheric modification experiments at Arecibo", *J. Geophys. Res.*, 94, 6841, 1989.

Djuth F. T., B. Thide, H. M. Ierkic, M. P. Sulzer, "Large F-Region Electron-Temperature Enhancements Generated by High-Power HF Radio Waves" *Geophys. Res. Lett.*, 14, 953-956, 1987.

Djuth F.T., R.J. Jost, H. M. Ierkic, M.P. Sulzer, S.T. Noble, "Observation of HF-enhanced ion waves in the ionosphere", *Geophys. Res. Lett.*, 14, 194-197, 1987.

Djuth F.T., C.A. Gonzales, and H.M. Ierkic, "Temporal evolution of the HF-enhanced plasma line in the Arecibo F-region", *J. Geophys. Res.*, 91, 12089-12107, 1986.

Hagfors T., T. Gold, and H. M. Ierkic, "Refraction scattering as origin of the anomalous radar returns of Jupiter's satellites", *Nature*, 315, 637, 1985.

M. Sulzer, H.M. Ierkic, and J.A. Fejer, "HF-enhanced ion and plasma line spectra with two pumps", *J. Geophys. Res.*, 89, 6804-6812, 1984.

Nielsen E., C.I. Haldoupis, B.G. Fejer, and H. M. Ierkic "Dependence of auroral power spectra variations upon electron drift velocity in the eastward electrojet", *J. Geophys. Res.*, 89, 253-260, 1984.

Haldoupis C., E. Nielsen, and H.M. Ierkic, "STARE Doppler spectral studies of westward electrojet radar aurora", *Planet. and Space Sci.*, 32, 1291-1300, 1984

Whitehead J.D., H.M. Ierkic, and E. Nielsen, "Splitting and divergence of STARE auroral radar velocities", *J. Geophys. Res.*, 88, 2147-2154, 1983.

Kudeki E., B.G. Fejer, D.T. Farley, and H. M. Ierkic, "Interferometer studies of equatorial F region irregularities and drifts", *Geophys. Res. Lett.*, 8, 377-380, 1981.

Ierkic H.M., B.G. Fejer, and D.T. Farley, "The dependence on zenith angle of the strength of 3 meter equatorial electrojet irregularities" *Geophys. Res. Lett.*, 7, 497-500, 1980.

## SYNERGISTIC ACTIVITIES

AFRL/ASEE Summer Faculty Fellow, Summer 2006. Hanscom Air Force Base.  
Gravity Waves and Turbulence. Technical point of contact: Dr. George Jumper  
Colorado State University (ECE and Atmospheric Sciences). Sabbatical leave 2005.  
IBM Academic Visitor, Summer 2000

## ACADEMIC ACTIVITIES

Courses in the area of Applied Electromagnetics (e.g. Radar Theory and Practice, Electromagnetics, Wireless Communications, Smart Antennas), Communications (Telecommunication Theory I and II) and DSP (DSP I). Undergraduate research advisor of many students. MS thesis advisor of 4 students (Radar for atmospheric research) two of which have completed PhDs.

Reviewer for *Journal of Atmospheric and Oceanic Technology* (2004, 2005).  
Member of the American Meteorological Society (AMS), American Geophysical Union (AGU), and Institute of Electronic and Electrical Engineers (IEEE)..

**Dr. Agustín A. Irizarry Rivera**  
**agustin@ece.uprm.edu**

**P.O. Box 717**  
**Rosario, Puerto Rico 00636**

**Tel. (787) 833-9652**  
**Cel. (787) 448-2553**

## **EDUCATION**

Ph.D., Electrical Engineering, December 1996 Iowa State University, Ames, Iowa  
Dissertation: "Risk-based operating limits for dynamic security constrained electric power systems."

Master of Science Electrical Engineering May 1990 University of Michigan, Ann Arbor, Michigan

Bachelor of Science Electrical Engineering, Magna cum Laude, June 1988 University of Puerto Rico, Mayagüez, PR

## **ACADEMIC WORK EXPERIENCE**

Professor (7/05 – present), Associate Professor (6/00 – 6/05) and Assistant Professor (1/97 – 6/00) of Electrical Engineering, Electrical and Computer Engineering Department, University of Puerto Rico, Mayagüez (UPRM)  
Example of courses taught: Introduction to Electric Power Systems, Electric Power System Analysis, Advanced Energy Conversion, Electric Power Systems Dynamics and Control, Reactive Power.

General Chair of the 10th International Conference on Probabilistic Methods Applied to Power Systems (PMAPS 2008) Rincón, Puerto Rico, May 25-29, 2008. The PMAPS Conferences fill a needed role in the power engineering community by providing a regular forum for engineers and scientists worldwide to interact around the common theme of power engineering decision problems under uncertainty. (06/06 – 05/08)

President, Electrical and Computer Engineering Department Personnel Committee (8/06 – 06/07)

Elected Academic Senator for the College of Engineering – University of Puerto Rico, Mayagüez. (8/05 – 8/06)

Assistant Dean of Academic Affairs UPRM 2/00 – 8/00 - Duties included: supervisor of the Registrar Office and the Admissions Office of the University of Puerto Rico at Mayagüez, coordinator of the registration process for the whole Campus.

Associate Director for Academic Affairs, Electrical and Computer Engineering Department UPRM 10/00 – 01/02 and 8/99 – 2/00 Duties included: Graduate Programs Director, updating the faculty recruitment plan, coordinator of the curriculum revision and accreditation processes, evaluate the creation of new academic programs, coordinator and supervisor of the Department registration process.

**ACADEMIC INTERESTS AT GRADUATE LEVEL:** Renewable energy systems and their influence on the electric power network, electric power system dynamics and operation

## **EXAMPLES OF FUNDED RESEARCH PROJECTS**

**Achievable Renewable Energy Targets For Puerto Rico's Renewable Energy Portfolio Standard (2007)** A \$327,197 project to estimate the renewable energy available in Puerto Rico for electricity production to establish adequate targets, as a function of time, for Puerto Rico's Renewable Portfolio Standard.

**Colegio San Ignacio - Ejemplo de Sostenibilidad (2007)** A \$73,332 project to match the energy needs of Colegio San Ignacio with its available renewable energy sources. Demonstration projects with a strong educational component will be proposed to the School to be designed, installed and operated on the Scholl Campus with the participation of the School Faculty and students. The philosophy behind the program will be one of sustainable development.

**Programa Panamericano de Capacitación en Ingeniería de Potencia Eléctrica (2006)** A \$97,370 educational project to deliver a Web-broadcast master program in electric power engineering to engineers in the Dominican Republic. Courses in this program will respond to the reality and necessities of the Dominican Republic electric power industry. The philosophy of the program will be one of sustainable development.

**Caguas Sustainable Energy Showcase, Phase I (2006)** A \$90,055 project sponsored by the Municipality of Caguas, Puerto Rico to assess the current electric energy consumption profile, by sector; residential, commercial, industrial and governmental, of Caguas and to propose achievable goals (percentages of demand), by sector, to be satisfied using renewable energy sources.

**Failure Probabilities for Risk-Based Maintenance and Parameter Estimation of Synchronous Machines (2003)** A \$99,444 project sponsored by the National Science Foundation (NSF) to estimate parameters and failure probabilities for synchronous generators. The proposed method improves estimates of synchronous machine parameters from on-line terminal voltage and current measurements to monitor field and stator winding deterioration over time. The main outcomes of this work are the application of useful alternate robust estimation techniques and the identification of failure modes for risk-based maintenance of generators.

**Intelligent Power Routers for Distributed Coordination in Electric Energy Processing Networks (2002)** A \$499,849 project sponsored by the National Science Foundation (NSF) and the Office for Naval Research (ONR) to develop a model for the next generation power network using a distributed concept based on scalable coordination by an *Intelligent Power Router (IPR)*. Our goal is to show that by distributing network intelligence and control functions using the IPR, we will be capable of achieving improved survivability, security, reliability, and re-configurability. Our approach builds on our knowledge from power engineering, systems, control, distributed computing, and computer networks.

#### **PUBLICATIONS RELATED TO PROPOSED PROJECT**

- José A. Colucci Ríos, Agustín A. Irizarry-Rivera and Efraín O’Neill-Carrillo, “Sustainable Energy for Puerto Rico”, Proceedings of the 2007 Energy Sustainability Conference, June 27-30, 2007, Hilton Long Beach, California, USA.
- Agustín A. Irizarry-Rivera, Manuel Rodríguez-Martínez, Bienvenido Vélez, Miguel Vélez-Reyes, Alberto R. Ramirez-Orquín, Efraín O’Neill-Carrillo and José R. Cedeño, “Intelligent Power Routers: A Distributed Coordination Approach for Electric Energy Processing Networks”, International Journal of Critical Infrastructures, Vol. 3 No 1/2 pp. 20-57, 2007.
- Carlos A. Ramos-Robles and Agustín A. Irizarry-Rivera, “Development of Eolic Generation Under Economic Uncertainty”, Proceedings of the Eighth Probabilistic Methods Applied to Power Systems (PMAPS) International Conference, Ames, Iowa, September 13-16, 2004.
- Carlos M. Torres-Ortolaza and Agustín A. Irizarry-Rivera, “Failure Modes and Failure Probability of Intelligent Power Routers”, Proceedings of the Eighth Probabilistic Methods Applied to Power Systems (PMAPS) International Conference, Ames, Iowa, September 13-16, 2004.

#### **OTHER PROFESSIONAL EXPERIENCE**

- (05/07 – present) Consultant – Engineering evaluation of power system transmission and distribution limitations for C Lewis Accountants. Provided technical advice associated to a claim of increased operational costs due to restrictions on a power system operation.
- (10/06 – 12/06) Consultant – Wind Energy Consulting Services for UPC Wind. Provided technical advice in siting and interconnection issues for potential wind energy projects.
- (06/04 – 06/05) Consultant and Partner of ecoEnergy a private corporation that had the objective of building the first commercial electric power plant of Puerto Rico using eolic energy.
- (4/01 – 07/02) Consultant – Wind Energy Consulting Services for the Puerto Rico Energy Affairs Administration. Provider of technical consulting and advisory services in the area of wind energy and electric power systems technology.
- (1998 – present) Expert witness - Civil court cases involving electric hazard, shock and/or electrocution.



**Dr. Luis O. Jiménez-Rodríguez.**

Professor

Electrical and Computer Engineering Department  
University of Puerto Rico at Mayagüez  
Ph. 787-832-2825, FAX 787-832-2485  
E-mail: jimenez@ece.uprm.edu

**Professional Preparation:**

Ph.D.	Purdue University, 1996
MSEE	University of Maryland at College Park, 1991
BSEE	University of Puerto Rico Mayagüez Campus, 1989

**Appointments:**

**Professor**, 1996-present, Department of Electrical and Computer Engineering, University of Puerto Rico Mayagüez Campus, Mayagüez, P.R.

**Visiting Professor**, June -December 2004. Department of Telecommunication Systems, and Department of Philosophy and Theology, Pontificia Universidad Católica Madre y Maestra. Teaching courses in social ethics and in pattern recognition.

**10 Recent Publications**

S. Rosario-Torres, M. Vélez-Reyes, L.O. Jiménez-Rodríguez, and S. Hunt, "The MATLAB Hyperspectral Image Analysis Toolbox." Accepted for publication in R. Rajesh, editor, **Introduction to Advanced Scientific Softwares and Toolboxes**, International Association of Engineers Press, 2007.

M. Vélez-Reyes, W. Rivera-Gallego, and L.O. Jiménez-Rodríguez, "A Solutionware for Hyperspectral Image Processing and Analysis." To appear in A.J. Plaza and C.I. Chang, editors, **High-Performance Computing in Remote Sensing**, Chapman & Hall/CRC Press, October 2007.

S. Rosario-Torres, M. Vélez-Reyes, S.D. Hunt and L.O. Jiménez, "New Developments and Application of the UPRM MATLAB Hyperspectral Image Analysis Toolbox." In **Proceedings of SPIE: Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII**, Vol. 6565, May 2007.

V. Manian and L.O. Jimenez, "Land cover and benthic habitat classification using texture features from hyperspectral and multispectral images." In **Journal of Electronic Imaging**, Volume 16, Issue 2 April-June 2007,.

L.O. Jiménez-Rodríguez, E. Arzuaga-Cruz, and M. Vélez-Reyes, "Unsupervised Feature Extraction Techniques for Hyperspectral Data and its Effects on Supervised and Unsupervised Classification." In **IEEE Trans. on Geosciences and Remote Sensing.**, Vol. 45, no. 2, February 2007, page(s):469 – 483.

M. Vélez-Reyes, J.A. Goodman, A. Castrodad-Carrau, L.O. Jiménez-Rodríguez, S.D. Hunt, and Roy Armstrong. "Benthic habitat mapping using hyperspectral remote sensing." **Proceedings of SPIE: Remote Sensing of the Ocean, Sea Ice, and Large Water Regions 2006**, Vol. 6360, Oct. 6, 2006.

V. Manian, L.O. Jimenez-Rodriguez, and M. Velez-Reyes, "A comparison of statistical and multiresolution texture features for improving hyperspectral image classification." In **Proceedings of SPIE: Image and Signal Processing for Remote Sensing XI**, Volume 5982, 12 pages, October 2005.

L.O. Jiménez-Rodríguez, A. Umana-Diaz, J. Diaz-Santos, C. Gerardino-Neira, and J. Morales-Morales, "Subsurface object recognition by means of regularization techniques for mapping coastal waters floor." In **Proceedings of SPIE: Remote Sensing of the Ocean, Sea Ice, and Large Water Regions 2005**, Vol. 5977, 8 pages, October 2005.

L.O. Jimenez, J.L. Rivera-Medina, E. Rodriguez-Diaz, E. Arzuaga-Cruz, M. Ramirez-Velez, "Integration of spatial and spectral information by means of unsupervised extraction and classification for homogenous objects applied to multispectral and hyperspectral data." In **IEEE Transactions on Geoscience and Remote Sensing**, Vol. 43, Iss. 4, Page(s):844 – 851, April 2005.

S. Rosario-Torres, E. Arzuaga-Cruz, M. Velez-Reyes and L.O. Jiménez-Rodríguez, “An Update on the MATLAB Hyperspectral Image Analysis Toolbox.” In **Proceedings of SPIE Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI**, Vol. 5806, pp. 743-752, April 2005.

### **Papers in Engineering Ethics and Education:**

L.O. Jimenez, E. O'Neill-Carrillo, W. Frey, R. Rodriguez-Solis, A. Irizarry-Rivera, S. Hunt, “Social and Ethical Implications of Engineering Design: A Learning Module Developed for ECE Capstone Design Courses.” In **Proceedings 36th Annual Frontiers in Education Conference**, Pages 1-6, Oct. 2006.

L.O. Jimenez, E. O'Neill-Carrillo, E. Marrero, “Creating ethical awareness in electrical and computer engineering students: a learning module on ethics.” In **Proceedings 36th Annual Frontiers in Education Conference**, Pages:T2D - 7-12, Oct. 2005.

### **Awards:**

Distinguished Professor, UPRM ECE Department, 2000-2001 Academic Year.

UPR Distinguished Researcher in Science and Technology, UPR Office of the President, December 2000.

### **Synergistic Activities**

Dr. Luis O. Jimenez in collaboration with Dr. Miguel Vélez-Reyes (UPRM) and Mr. Samuel Rosario have developed the MATLAB Toolbox for Hyperspectral Image Analysis. <http://www.censsis.neu.edu>

Dr. Luis O. Jimenez in collaboration with Dr. Miguel Vélez-Reyes developed a software system for the ARMY Topographic Engineering Center in Ft. Belvoir, VA based on the algorithms developed as part of their work in hyperspectral image processing. This is currently used by TEC researchers in the analysis of hyperspectral data.

Dr. Luis Jiménez has served as panelist in NASA PEER review panel to evaluate proposals in The Carbon Cycle Science Program Area, March 2001, Washington.

Dr. Jiménez was Assistant of the Dean to develop an Ethics Across the Curriculum Program to accomplish ABET requirements and UPRM institutional values.

### **List of Collaborators and Co-Editors**

Dr. Efrain O'Neill, UPRM

Dr. Michael Silevitch, Northeastern University

Dr. Charles DiMarzio, Northeastern University

Dr. Shawn Hunt, UPRM

Dr. Eddie Marrero, UPRM

Dr. Miguel Vélez-Reyes, UPRM

Dr. Rosa Buxeda, UPRM

Ms. Lueny Morell, Hewlett Packard

Dr. David Castañon, Boston University

Dr. David Kaeli, Northeastern University

### **Thesis Advisor and Post Graduate Scholar Sponsor**

**Phd Advisor:** Prof. David Landgrebe, Purdue University

# MANUEL A. JIMÉNEZ-CEDEÑO

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## Academic Preparation:

Ph. D.	Electrical Engineering	Michigan State University	1999
MS	Electrical Engineering	University of Puerto Rico at Mayagüez	1991
BS	Electrical Engineering	Universidad Autónoma de Santo Domingo	1986

## Faculty service at UPRM:

Date of original appointment: August 1991

Dates of advancement in rank:

Professor	July 2007 to present
Associate Professor	July 2002 to June 2007
Assistant Professor	July 1999 to June 2002
Instructor	Aug 1991 to June 1994*
Total years of service:	16

\*On study leave from July 1994 to June 1999

## Areas of professional expertise:

CAD Techniques for Digital VLSI Layout, Digital Systems Design, Microprocessors/Embedded Systems

## Other related experience—academic or industrial.

APEC University: Invited Professor, Summer 2003. Engineering and Technology School, Santo Domingo, Dominican Republic. Taught graduate-level course in Digital Microelectronics and IC Design.

Texas Instruments Inc. Wireless CAPCOM Division, Dallas, Texas, Visiting Professor, Summer 2000, Collaborator in the design team of a variable output band-gap voltage reference bank IC.

Texas Instruments Inc. Power Management Products Division, Dallas, Texas, Visiting Professor, Summer 1999

Michigan State University, East Lansing, Michigan, Teaching Assistant Microprocessors and Computer Interfacing Laboratory. Aug. 1995 - to May 1999, Instructor, Summer 1996 Circuit Analysis Class (EE-200),

## State(s) in which registered

Professional License, Dominican Republic

Engineer in Training, Michigan

## Selected publications of last three years: (FY 2005-2006-2007)

1. G. Suarez, M. Jimenez, and F. Fernandez, "Behavioral Modeling Methods for Switched-Capacitor  $\Sigma\Delta$  Modulators", *IEEE Transactions on Circuits and Systems*, Vol. 54, No. 6, pp. 1236-1244, June 2007
2. R. Arce, M. Jiménez, and D. Rodriguez, "Algorithmic-level Exploration of Discrete Signal Transforms for Partitioning to Distributed Hardware Architectures" To appear in *IET Computers and Digital Techniques - Institution of Electrical Engineers research Journals*, in Sept. 2007.
3. M. Jimenez, N. Santiago, F. Vega, C. Rubert, G. Bonilla, I. Torres, C. Maldonado, J. Malavé, and R. Rosario, "Integrating Fundamental and Advanced Concepts in a Rounded Capstone Design Experience in Computer Engineering", To appear In *Proc. Of Frontiers in Education 2007*, Milwaukee, WI Oct. 10-13, 2007.
4. R. Arce, M. Jimenez, and D. Rodriguez, "Partitioning Exploration for Automated Mapping of Discrete Cosine trans onto Discrete Hardware Architectures" In *Proceedings of The 2007 IEEE International Midwest Symposium on Circuits and Systems*, Montreal, Canada, August 6-9, 2007
5. M. Jiménez, C. Pomales, A. Nieves, N. Santiago, F. Vega, "An Analysis of Behavioral Patterns in Generation-Y Engineering Students and their Implications in the Teaching-learning Process" In *Proceedings of the 2007 ASEE Annual Conference and Exposition*, Honolulu, HI, June 24-27, 2007
6. G. Suarez, and M. Jiménez, "Considerations for Accurate Behavioral Modeling of High-Speed SC  $\Sigma\Delta$  Modulators", In *Proceedings of The 2006 IEEE Custom Integrated Circuits Conference (CICC 2006)*, San Jose, CA, Sep. 2006

7. R. Arce, M. Jiménez, and D. Rodriguez, "High-level Partitioning of Discrete Signal Transforms for Multi-FPGA Architectures", In *Proceedings of the 16th International Conference on Field Programmable Logic and Applications (FPL 2006)*, Madrid, Spain, Aug. 2006
8. R. Arce, M. Jiménez, and D. Rodriguez, "Functionally-aware Partitioning of Discrete Signal Transforms for Distributed Hardware Architectures", In *Proceedings of the 49th International IEEE Midwest Symposium on Circuits and Systems (MWSCAS 2006)*, San Juan, PR Aug. 2006
9. G. Suarez and M. Jiménez, "Behavioral Modeling of Switched Capacitor Integrators with Application to  $\Sigma\Delta$  Modulators", In *Proceedings of the 49th International IEEE Midwest Symposium on Circuits and Systems (MWSCAS 2006)*, San Juan, PR Aug. 2006
10. M. Jiménez, R. Palomera, M. Toledo, D. Rodriguez, A. Ramirez, and L. Bautista, "Signal Processing for High School Students: Learning from a Reach-out Experience", In *Proceedings of the International Conference on Engineering Education (ICEE 2006)*, San Juan, PR, July 2006
11. R. Arce, M. Jiménez, and D. Rodriguez, "Effects of High-level Discrete Signal Transform Formulations on Partitioning for Multi-FPGA Architectures", Poster at *Field-Programmable Custom Computing Machines Conference FCCM 2006*, Napa Valley, CA, Apr. 2006
12. G. Suarez and M. Jiménez, "Behavioral Modeling of Sigma-Delta Modulators Using VHDL-AMS" In *Proceedings of the 48th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS 2005)*, IEEE Circuits and Systems Society, Cincinnati, OH, August. 2005
13. A. Rivera and M. Jiménez, "Analytical Models for Estimating Parasitic Components in Power Electronics PCBs", In *Proceedings of the 48th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS 2005)*, IEEE Circuits and Systems Society, Cincinnati, OH, August. 2005
14. R. Arce and M. Jiménez, "An Assessment of High-level Partitioning Techniques for Implementing Discrete Signal Transforms on Distributed Hardware Architectures", In *Proceedings of the 48th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS 2005)*, IEEE Circuits and Systems Society, Cincinnati, OH, August. 2005
15. M. Jiménez and N. Santiago, "The Supporting Role of CAD/CAM Tools in Undergraduate Research Education in Electrical and Computer Engineering", In *Proc. of the 6th Annual International Conference in Information Technology in Higher Education and Training (ITHET 2005)*, Juan Dolio, Dominican Republic, July 2005

**Grants or externally funded project active during the last three years: (FY 2005-2006-2007)**

1. Title: "Establishment of a Computational Infrastructure for Researching Hardware and Electronics Design Challenges at the UPRM"  
 Researchers: Manuel Jiménez (PI), Nayda Santiago, Domingo Rodriguez, Nelson Sepúlveda, Rogelio Palomera, Gladys Ducoudray  
 Sponsor: IBM Shared University Research (SUR) Program  
 Funding: \$85,000  
 Period: Aug. 2007 – Jul. 2008
2. Title: "L-DMOS Model Validation Circuits"  
 Researchers: Manuel Jiménez(PI) and Rogelio Palomera  
 Sponsor: Texas Instruments  
 Funding: \$50,000  
 Period: Aug. 2007-Jul. 2008
3. Title: "2007 Continuation of the TI Analog, Digital and Mixed-signal Electronics Program at UPRM"  
 Researchers: Rogelio Palomera, **Manuel Jiménez** (Co-PI), and Gladys O. Ducoudray  
 Sponsor: Texas Instruments  
 Funding: \$129,119  
 Period: January-December 2007
4. Title: "Study of System-level Design Methodologies for Implementing SAR Support Algorithms"  
 Researchers: **Manuel Jiménez** (PI), Domingo Rodriguez, Nayda Santiago, and Ana Nieves  
 Sponsor: Lockheed Martin Corporation  
 Funding: \$260,000  
 Period: January-December 2007

5. Title: "ATE/TPS 44 Voltage Regulator THT to SMT Redesign and Prototyping"  
 Researchers: Pedro Resto, **Manuel Jiménez** (Co-PI)  
 Sponsor: Intuitive Research and Technology Corporation  
 Funding: \$36,000  
 Period: January-October 2006
6. Title: "Integrated Methodology for IPEM Gate Driver Layout Improvement – 2007 Continuation"  
 Researchers: **Manuel Jiménez** (PI)  
 Sponsor: Center for Power Electronic Systems (CPES)  
 Funding: \$30,000  
 Period: August 2006 – July 2007
7. Title: "2006 Continuation of the TI Analog, Digital and Mixed-signal Electronics Program at UPRM"  
 Researchers: Rogelio Palomera, **Manuel Jiménez** (Co-PI), Gladys O. Ducoudray, and Manuel Toledo  
 Sponsor: Texas Instruments  
 Funding: \$116,000  
 Period: January-December 2006
8. Title: "Integrated Methodology for IPEM Gate Driver Layout Improvement – 2006 Continuation"  
 Researchers: **Manuel Jiménez** (PI)  
 Sponsor: Center for Power Electronic Systems (CPES)  
 Funding: \$40,000  
 Period: August 2005 – July 2006
9. Title: "Study of Controller Architectures and GLP Regulations for the Smart Drug Delivery Platform"  
 Researchers: **Manuel Jiménez** (PI), and Gladys Omayra Ducoudray  
 Sponsor: Hewlett-Packard Corporation  
 Funding: \$5,600.00  
 Period: Summer 2005
10. Title: "2005 Continuation of the TI Analog, Digital and Mixed-signal Electronics Program at UPRM"  
 Researchers: Rogelio Palomera, **Manuel Jiménez** (Co-PI), and Manuel Toledo  
 Sponsor: Texas Instruments  
 Funding: \$120,000  
 Period: January-December 2005
11. Title: "Hardware and Software Tools to Support Embedded/DSP Systems Education at UPRM"  
 Researchers: Rogelio Palomera, **Manuel Jiménez** (Co-PI), Domingo Rodriguez, M. Toledo  
 Sponsor: Texas Instruments  
 Funding: \$10,000.00  
 Period: January-August 2005
12. Title: "Integrated Methodology for IPEM Gate Driver Layout Improvement"  
 Researchers: **Manuel Jiménez** (PI), and Miguel Vélez-Reyes  
 Sponsor: Center for Power Electronic Systems (CPES)  
 Funding: \$45,000.00  
 Period: August 2004 – July 2005

**Scientific and professional societies of which a member:**

*Institute of Electrical and Electronics Engineers IEEE*  
*American Society of Engineering Education ASEE*

**Honors and awards:**

- General Co-Chair 49<sup>th</sup> IEEE Int. Midwest Symposium on Circuits and Systems, Aug. 6-9, San Juan PR
- Member Steering Committee for the "Midwest Symposium on Circuits and Systems" (Spring 2001 – to present)
- Panelist for the National Science Foundation 2003-present
- Recipient of a National Science Foundation Fellowship for Minorities and Women (1994-1998)
- Recipient of a GTE Corporation Fellowship Award (Spring 1996)

**Institutional and professional service in the last three years: (FY 2005-2006-2007)**

- ECE-CSE Transition Committee – ECE Department (2006 – to present)
- Research Committee – Engineering College (2004 – to present)
- Electronics Committee Member – ECE Department (2004 – to present)
- ICOM Steering Committee Member – ECE Department (2003 – to present)
- Planning Committee – ECE Department (1999 – to present)
- Graduate Committee Member -- ECE Department (1999 - 2005)

**Professional development activities in the last three years: (FY 2005-2006-2007)**

1. Title: "High Performance Embedded Computing Workshop (HPEC 2006)"  
Sponsor: MIT Lincoln Laboratory  
Date: September 19-21, 2006 (24 hours)
2. Title: "Organizational Savvy"  
Sponsor: Texas Instruments & Center for Professional Enhancement UPRM  
Date: October 12, 2006 (7 hours)
3. Title: "The Four Disciplines of Execution"  
Sponsor: Texas Instruments & Center for Professional Enhancement UPRM  
Date: August 31, 2006 (7 hours)
4. Title: "Group Decision Making and Problem Solving"  
Sponsor: Texas Instruments & Center for Professional Enhancement UPRM  
Date: May 9, 2006 (7 hours)
5. Title: "Emotional Intelligence"  
Sponsor: Texas Instruments & Center for Professional Enhancement UPRM  
Date: April 6, 2006 (7 hours)
6. Title: "Understanding Ethics in the Context of Engineering as a Global Profession"  
Sponsor: System for the Evaluation of Education Office and the College of Engineering, UPRM  
Date: April 5, 2005 (2 hours)
7. Title: "Crucial Conversations"  
Sponsor: Texas Instruments & Center for Professional Enhancement UPRM  
Date: November 18, 2005 (7 hours)
8. Title: "Win-Win Negotiations"  
Sponsor: Texas Instruments & Center for Professional Enhancement UPRM  
Date: September 23, 2005 (7 hours)
9. Title: "Orientación para Profesores de Nueva Contratación en el Recinto"  
Sponsor: Center for Professional Enhancement UPRM  
Date: August 3 to 5, 2005 (21 hours)
10. Title: "Design of On-line Courses Using WebCT"  
Sponsor: Instituto para el Desarrollo de la Enseñanza y el Aprendizaje en Línea (IDEAL)  
Date: May 5, 2005 (6 hours)
11. Title: "Excercising Influence"  
Sponsor: Texas Instruments & Center for Professional Enhancement UPRM  
Date: April 1, 2005 (6 hours)

**Courses taught in the past three years (2005-2007)**

CIIC 9995 Doctoral Dissertation	INEL 6079 Advanced IC Design Techniques,
CIIC 8997 Special Topics in CISE	INEL 6045 Engineering Project
INEL 4207 Digital Electronics	INEL 6046 Master Thesis
ICOM 5217/INEL 4217 Microprocessor Interfacing	INEL 6080 VLSI Systems Design
INEL 4998 Undergraduate Research	INEL 4206 Microprocessors
ICOM 4998 Undergraduate Research	INEL 4102 Electrical Systems Analysis II
ICOM 5995 Special Problems	INEL-4076 Fundamentals of Electronics

**Community service activities: (FY 2005-2006-2007)**

- *President – Year 2006-2007 Parents and Teachers Association of School W.A.L.K.S. (Sep. 2006 – Aug. 2007)*
- *Organizing Committee for The 49th International Midwest Symposium on Circuits and Systems, MWSCAS 2006, (Aug. 2003 – Dec. 2006)*
- *Organization of Workshop “Organizational Savvy” Sponsored by Texas Instruments (October 12, 2006)*
- *Organization of Workshop “The Four Disciplines of Execution” Sponsored by Texas Instruments (August 31, 2006)*
- *Organization of Workshop “Group Decision Making and Problem Solving” Sponsored by Texas Instruments (May 9, 2006)*
- *Organization of Workshop “Problem Solving” Sponsored by Texas Instruments (May 9, 2006)*
- *Organization of Workshop “Emotional Intelligence” Sponsored by Texas Instruments (April 6, 2006)*
- *Organization of Workshop “Tools and Toys for an Introductory DSP Experience” offered to High School Students in Pre-engineering Camp, Sponsored by Texas Instruments (Summer 2005)*
- *Organization of Workshop “A hands-on Experience in DSP” offered to non-EE majors, Sponsored by Texas Instruments (Spring 2005)*
- *Treasurer – Year 2004-2005 Parents and Teachers Association of School W.A.L.K.S. (Sep. 2004 – Aug. 2005)*
- *Organization of workshop “La Inteligencia Emocional y el Desarrollo Social y Emocional en los Niños”, Nursing Amphitheater, co-sponsored by APEM-WALKS, and the Continuing Ed. Office UPRM (April 9, 2005)*
- *Organization of Workshop “Crucial Conversations” Sponsored by Texas Instruments (November 18, 2005)*
- *Organization of Workshop “Win-Win Negotiations” Sponsored by Texas Instruments (September 23, 2005)*
- *Organization of Workshop “Zodiak: The Game of Business Finance and Strategy” Sponsored by Texas Instruments (May 1, 2005)*
- *Organization of Workshop “Excercising Influence” Sponsored by Texas Instruments (April 1, 2005)*

Eduardo J. Juan, PhD, PE  
Associate Professor  
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---

**Education:**

- Ph.D. Electrical Engineering, Purdue University, May 2001
- B.S. Electrical Engineering, University of Puerto Rico at Mayagüez, May 1997

**Professional Experience:**

- |              |   |
|--------------|---|
| 7/04-present | Associate Professor, Department of Electrical and Computer Engineering, University of Puerto Rico at Mayagüez, Mayagüez, PR                 |
| 2/05-present | Co-Founder and Scientific Advisor, SonarMed, Inc., IN, USA  |
| 7/01-6/04    | Assistant Professor, Department of Electrical and Computer Engineering, University of Puerto Rico at Mayagüez, Mayagüez, PR                 |
| 1/98-5/01    | Research Assistant, Biomedical Acoustics Laboratory, School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN   |
| Spring 2000  | Teaching Assistant, biomedical instrumentation course, School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN |

**Research Interests:**

Biomedical acoustics, medical instrumentation, biosensors.

**Funded Research Projects:**

- *Acoustical Guidance of Liquid-Filled Catheters*. Funded by NIH-MBRS Program; \$111,361. 5/01/03-4/30/07
- *Non-Invasive Stress Level Assessment Using a Hydrogel-Based Biosensor*. Funded by Tropical Center for Earth and Space Studies (TCESS-NASA); \$60,000, 10/02-10/03.
- *Biomedical Research and Education Experiences (BReEd) at UPRM*. Funded by NSF; \$99,653, 9/03-8/04.
- *Development of Technologies for the Manufacture of Cardiac Pacing and Defibrillation Leads: Phase I*. Funded by Medtronic, Inc. \$45,863, 8/03-12/03.
- *Development of Technologies for the Manufacture of Cardiac Pacing and Defibrillation Leads: Phase II*. Funded by Medtronic, Inc. \$65,363, 1/04-9/04.

**Journal Articles:**

Juan, E.J., Mansfield, J.P., Wodicka, G.R., *Miniature Acoustic Guidance System for Endotracheal Tubes*, IEEE Transactions on Biomedical Engineering, vol.49, pp. 584-596, 2002.



**Conference Articles:**

Goenaga M., Juan, E.J., *Modeling Impermeable Membranes as Acoustic Filters for Biomedical Applications*, Proceedings of the 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE. New York City, NY, 2006.

Figuerola H., Juan, E.J., *Estimation of Tube Wall Compliance Using Pulse-Echo Acoustic Reflectometry*, Proceedings of the 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE. New York City, NY, 2006.

Ugarte D., Santana J., Velázquez L., Juan, E.J., *Acoustical Characterization of Impermeable Membranes: Hearing Aid Applications*, Proceedings of the 25th Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE. Cancún, Mexico, 2003.

Juan, E.J., Mansfield, J.P., Wodicka, G.R., *In-line Acoustic System to Position and Monitor Infant-sized Endotracheal Tubes*, Proceedings of the 22nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE. Part vol.4, 2000, pp.2571-4 vol.4. Piscataway, NJ, USA.

**Conference Presentations:**

A.M. Kyle, G.R. Wodicka, S.L. Ordonez, E.J. Juan, J.S. Bolton, *"Wave Propagation In Lliquid-Filled Tubes: Measurements and Model Predictions"*, J. of Acoustical Society of America, vol. 199(5) Part 2, May 2006, p. 3410. (Awarded as Best Student Paper in Engineering Acoustics)

**Magazine Articles:**

Juan, E.J., *Biomedical Engineering: an Overview*, Dimensión, Revista del Colegio de Ingenieros y Agrimensores de Puerto Rico, vol.4, pp. 25-27, 2005.

**Patents:**

Juan, E.J., Mansfield, J.P., Wodicka, G.R., *Miniature Acoustical Guidance and Monitoring System for Tube or Catheter Placement*, U.S. patent 6,705,319.

**Selected Technical Presentations:**

*Medical Device Accidents: Causes and Case Studies*, Medical Device Puerto Rico Exhibition and Conference, San Juan, PR, February 2006.

*Electrical Shock and Trauma: Cause, Mechanisms of Injury and Case Studies*, Colegio de Ingenieros y Agrimensores de Puerto Rico, Mayagüez Chapter, Mayagüez, PR, November 2005.

*Acoustical Guidance of Intravascular Catheters: Theory and Application of an Acoustical Transmission Line Model*, Annual Symposium of Chemical Engineering and Biotechnology, Mayagüez, PR, October 2004.

*Biomedical Engineering at UPRM*, CIAPR - Industry University Symposium on Electrical Engineering, San Juan, PR, November 2003.

*Biomedical Engineering: An Overview*, presentation to engineering students of the University of Puerto Rico- Mayagüez, Mayagüez, PR, October 17, 2002.

*Novel Acoustic Methods for the Development of Intelligent Catheters*, 2002 Forum for Innovation, San Juan, PR, May 23, 2002.

**Honors and Awards:**

Geddes-Laufman-Greatbach Outstanding Graduate Student Award, Department of Biomedical Engineering, Purdue University, 1999  
SLOAN Fellowship, 1997-1998  
GEM Fellowship, 1997-1998

**Professional Memberships:**

Institute of Electrical and Electronics Engineers (IEEE) – Senior Member  
IEEE-Engineering in Medicine and Biology Society – Senior Member

**Professional Service:**

Reviewer, IEEE Transactions on Biomedical Engineering  
Academic Program Reviewer, Puerto Rico's Council on Higher Education

**Institutional Service:**

***Courses Taught:***

INEL 4505 Introduction to Control Systems  
INEL 5205 Instrumentation  
INEL 5506 Process Control and Instrumentation Engineering  
INEL 4102 Circuits Analysis II

***Courses Developed:***

INEL 5208 Principles of Biomedical Instrumentation

***Students:***

Supervised research projects of 15 undergraduate students.  
Supervised research projects of 5 graduate students.

**Electrical and Computer Engineering Service:**

Coordinator, Control Systems Area Committee 2002-2007  
Member, Departmental Planning Committee 2002-2007  
Member, Graduate Committee 2001-present

**Dr. KEJIE LU**  
**Assistant Professor**

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[University of Puerto Rico at Mayagüez](#)

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## Teaching

- ICOM 4015-050, Advance Programming, Spring 2007
- ICOM 4015-076, Advance Programming, Spring 2007
- ICOM 4015-100, Advance Programming, Fall 2006
- INEL 4207, Digital Electronics, Spring 2006
- INEL 4207-021, Digital Electronics, Fall 2005
- ICOM 5026-080, Computer Networks, Fall 2005

## Services

- Member of the Graduate Committee, 2006-2008
- Member of ICOMSW Committee, 2005-current
- Member of COMMSIG Committee, 2005-current

## Education

- Ph.D. Electrical Engineering (major in Telecommunications), [The University of Texas at Dallas](#), Dallas, Texas, USA, 2003
- M.S. Communications and Electronic Systems, [Beijing University of Posts and Telecommunications](#), Beijing, China, 1997
- B.S. Telecommunications Engineering, Beijing University of Posts and Telecommunications, Beijing, China, 1994

## Experience

- Assistant Professor, Department of Electrical and Computer Engineering, University of Puerto Rico at Mayagüez, Jul. 2005 ~
- Postdoctoral Research Associate, [University of Florida](#), 2004-2005
- Research Assistant, The University of Texas at Dallas, 2001-2003
- Senior Software Engineer, Beijing Research Institute, [Huawei Technologies](#), Beijing, China, 1998-2000
- Software Engineer, GAOHONG Telecommunications, Beijing, China, 1997-1998
- Research Assistant, China Academy of Telecommunications Technology (CATT), Beijing, China, 1995-1997

## Research Interests

- Computer and communications networks: architecture and protocol design, performance evaluation, network security, network coding
- Wireless communications: space-time coding, channel capacity, cooperative communication

## Funded Research Project

- NSF-EPSCOR Start-Up Grant: \$200,000, August 2005 - July 2007, PI: Project on "A Novel Medium Access Framework for Emerging Wireless Mesh Networks: Protocol Design, Theoretical Analysis, and Prototype Development".

## Publications

### Selected Journal Publications

1. Kejie Lu, Yi Qian, Mohsen Guizani, and Hsiao-Hwa Chen, "A Distributed Key Management Scheme in Heterogeneous Wireless Sensor Networks", accepted for publications, to appear in IEEE Transactions on Wireless Communications.
2. Kejie Lu, Jianfeng Wang, Dapeng Wu, and Yuguang Fang, "Performance of A Burst-Frame-Based CSMA/CA Protocol: Analysis and Enhancement," accepted by ACM Wireless Networks.
3. Bo Rong, Yi Qian, and Kejie Lu, "Integrated Downlink Resource Management for Multiservice WiMAX Networks", IEEE Transactions on Mobile Computing, Vol. 6, No. 6, June 2007.
4. Kejie Lu, Yi Qian, and Hsiao-Hwa Chen, "A Secure and Service-Oriented Network Control Framework for WiMAX Networks", IEEE Communications Magazine, Vol.45, No.5, May 2007.
5. Kejie Lu, Dapeng Wu, Yi Qian, Yuguang Fang, and Robert C. Qiu, "Performance of An Aggregation-Based MAC Protocol for High-Data-Rate Ultra-Wideband Ad Hoc Networks", IEEE Transactions on Vehicular Technology, Vol.56, No.1, pp 312-321, Jan. 2007.
6. Yu Zheng, Kejie Lu, Dapeng Wu, and Yuguang Fang, "Performance Analysis of IEEE 802.11 DCF in Imperfect Channels," IEEE Transactions on Vehicular Technology, Vol. 55, No. 5, pp. 1648-1656, Sept. 2006.
7. Tao Zhang, Kejie Lu, and Jason P. Jue, "Shared Buffering in Optical Packet-Switched Networks," IEEE Journal on Selected Area in Communications (JSAC), Vol. 24, No. 4, pp. 118-127, Apr. 2006.
8. Wei Liu, Yanchao Zhang, Kejie Lu, and Yuguang Fang, "Energy conservation through resource-aware movement in heterogeneous mobile ad hoc networks," Journal of Combinatorial Optimization, Special Issue on Network Applications, Vol. 11, No. 1, pp. 7-20.
9. Kejie Lu, Shengli Fu, and Xiang-Gen Xia, "Closed-Form Designs of Complex Orthogonal Space-Time Block Codes of Rates  $(k+1)/(2k)$  for  $2k$  or  $2k+1$  Transmit Antennas," IEEE Transaction on Information Theory, Vol 51, No. 12, pp. 4340-4347, Dec 2005.
10. Kejie Lu, Dapeng Wu, and Yuguang Fang, "A Novel Framework for Medium Access Control in Ultra-Wideband Ad Hoc Networks", Dynamics of Continuous, Discrete and Impulsive Systems, Series B, Vol. 12, No. 3, pp. 427-441, Jun. 2005.
11. Yu Zheng, Kejie Lu, Dapeng Wu, and Yuguang Fang, "Performance Analysis Of Frame-Burst-based Medium Access Control Protocols Under Imperfect Wireless Channels, " International Journal of Intelligent Control and System Vol. 10, No. 1, pp. 43-51, Mar 2005.

12. Kejie Lu, Gaoxi Xiao, and Imrich Chlamtac, "Analysis of Blocking Probability for Distributed Lightpath Establishment in WDM Optical Networks," *IEEE/ACM Transaction on Networking*, Vol. 13, No. 1, Feb. 2005.
13. Tao Zhang, Kejie Lu, and Jason P. Jue, "Differentiated Contention Resolution for QoS in Photonic Packet-Switched Networks," *IEEE/OSA Journal of Lightwave Technology (JLT)*, Vol.22, No.11, pp.2523--2535, Nov. 2004.
14. Gaoxi Xiao, Kejie Lu, and Imrich Chlamtac, "An Evaluation of Distributed Wavelength Provisioning in WDM Optical Networks with Sparse Wavelength Conversion," *IEEE/OSA Journal of Lightwave Technology (JLT)*, Vol.22, No.7, pp.1668--1678, Jul. 2004.
15. Kejie Lu, Jason P. Jue, Gaoxi Xiao, Imrich Chlamtac, and Timucin Ozugur, "Intermediate-Node Initiated Reservation (IIR): A New Signaling Scheme for Wavelength-Routed Networks," *IEEE Journal on Selected Areas in Communications (JSAC)*, Vol.21, No.8, pp.1285--1294, Oct. 2003.
16. Yunfeng Shen, Kejie Lu, and Wanyi Gu, "Coherent and Incoherent Crosstalk in WDM Optical Networks," *IEEE/OSA Journal of Lightwave Technology (JLT)*, Vol.17, No.5, pp.759--764, May 1999.

### **Selected Conference Publications**

1. Kejie Lu, Tao Zhang, and Ayat Jafari, "Performance of An Anycast Routing Scheme in All-Optical Networks", *Proceedings of IEEE ICC'2007*, Glasgow, UK, June 24-28, 2007.
2. Bo Rong, Yi Qian, and Kejie Lu, "Downlink Call Admission Control in Multiservice WiMAX Networks", *Proceedings of IEEE ICC'2007*, Glasgow, UK, June 24-28, 2007.
3. Yi Qian, Kejie Lu, and David Tipper, "Towards Survivable and Secure Wireless Sensor Networks", *WIA'2007*, *Proceedings of IEEE IPCCC'2007*, New Orleans, LA, April 11-13, 2007.
4. Kejie Lu, Yi Qian, and Shengli Fu, "Enhancing The Performance of Wireless LANs in Error-Prone Environment", in *Proc. IEEE Globecom 2006*, Nov. 2006, San Francisco, CA, USA.
5. Tao Jiang, Kejie Lu, Dapeng Wu, and Guangxi Zhu, "On The Uniform Companding Transform for Reducing PAPR of MCM Signals", in *Proc. IEEE Globecom 2006*, Nov. 2006, San Francisco, CA, USA.
6. Jieyan Fan, Dapeng Wu, Kejie Lu, and Antonio Nucci, "Design of Bloom Filter Array for Network Anomaly Detection", in *Proc. IEEE Globecom 2006*, Nov. 2006, San Francisco, CA, USA.
7. Kejie Lu and Yi Qian, "On The Performance Of A Distributed Key Management Scheme In Heterogeneous Wireless Sensor Networks", in *Proc. of IEEE MILCOM*, Oct. 2006, Washington DC, USA.
8. Hua Zhu and Kejie Lu, "On The Interference Modeling Issues for Coordinated Distributed Scheduling in IEEE 802.16 Mesh Network," in the *Third International Conference on Broadband Communications, Networks and Systems (BROADNETS 2006)*, October 1-5, 2006, San José, California, USA.
9. Xiaodong Huang, Qinya She, Tao Zhang, Kejie Lu, and Jason P. Jue, "Small Group Multicast with Deflection Routing in Optical Burst Switched Networks," in *Proc. of International Workshop on Optical Burst/Package Switching (WOBS 2006)*, in conjunction with *BroadNets 2006* in San José, Ca. on Oct. 2nd, 2006.
10. Kejie Lu, Jiangfeng Wang, Dapeng Wu, and Yuguang Fang, "Performance of A Burst-Frame-Based CSMA/CA Protocol for High Data Rate Ultra-Wideband Networks: Analysis and Enhancement," in *Proc. of The Third International Conference on Quality of Service in Heterogeneous Wired/Wireless Networks (QShine 2006)*, August 7-9, 2006, Waterloo, Ontario, Canada.
11. Marc De Leenheer, Farid Farahmand, Kejie Lu, Tao Zhang, Pieter Thysebaert, Bruno Volckaert, Filip De Turck, Bart Dhoedt, Piet Demeester, and Jason P. Jue, "Anycast

- Algorithms Supporting Optical Burst Switched Grid Networks," in Proc. of International Conference on Networking and Services (ICNS'06), July 16-18, 2006, Silicon Valley, USA.
12. Hua Zhu and Kejie Lu, "Performance of IEEE 802.16 Mesh Coordinated Distributed Scheduling Under Realistic Non-Quasi-Interference Channel," in Proc. of the International Conference on Wireless Networks (ICWN'06), June 26-29, 2006, Las Vegas, USA.
  13. Kejie Lu and Yi Qian, "Performance Analysis of A Retransmission Scheme for High-Data-Rate MAC Protocol in Wireless LANs," in Proc. of IEEE International Conference on Communications (ICC) 2006, Istanbul, Turkey, June 11-15, 2006.
  14. Kejie Lu, Yi Qian, and Jiankun Hu, "A Framework for Distributed Key Management Schemes in Heterogeneous Wireless Sensor Networks," in Proc. of IEEE International Performance Computing and Communications Conference (IPCCC), Workshop on Information Assurance 2006, pp. 513-519, Phoenix, Arizona, USA, April 10-12, 2006.
  15. Yu Zheng, Kejie Lu, Dapeng Wu, and Yuguang Fang, "Performance Analysis of IEEE 802.11 DCF in Binary Symmetric Channels," in Proc. of IEEE Globecom 2005, St. Louis, MO, USA, November 28 - December 2, 2005.
  16. Kejie Lu, Jieyan Fan, James Greco, Dapeng Wu, S. Todorovic, and Antonio Nucci, "A Novel Anti-DDoS System for Large-Scale Internet," ACM SIGCOMM 2005, Work-in-Progress Session, Philadelphia, PA, USA, August 22--26, 2005.
  17. M.-A. Park, Kejie Lu and Jason P. Jue, "On the Routing and Wavelength Assignment with Inaccurate Network State Information in Wavelength-Routed Networks," in Proc. of IASTED International Conference on Optical Communication Systems and Networks, Banff, Canada, July 2005.
  18. Kejie Lu, Dapeng Wu, Yuguang Fang, and Robert C. Qiu, "Performance Analysis of A Burst-Frame-Based MAC Protocol for Ultra-Wideband Ad Hoc Networks", in Proc. of IEEE International Conference on Communications (ICC) 2005, Vol. 5, pp. 2937-2941, Seoul, Korea, May 2005.
  19. Tao Zhang, Kejie Lu, and Jason P. Jue, "An Analytical Model for Shared Fiber Delay Line Buffers in Asynchronous Optical Packet and Burst Switches," in Proc. of IEEE International Conference on Communications (ICC) 2005, Vol. 3, pp. 1636-1640, Seoul, Korea, May 2005.
  20. Tao Zhang, Kejie Lu and Jason P. Jue, "Performance of Fiber Delay Line Buffers in Packet-Based Multifiber Optical Networks," in Proc. of OFC 2005, Vol.1, pp 220-222.
  21. Kejie Lu, Dapeng Wu, Yuguang Fang, and Robert C. Qiu, "On Medium Access Control for High Data Rate Ultra-Wideband Ad Hoc Networks", in Proc. of IEEE Wireless and Communications and Networking Conference (WCNC) 2005, Vol. 2, pp. 795-800, New Orleans, LA, March, 2005.
  22. Kejie Lu, Gaoxi Xiao, Jason P. Jue, Tao Zhang, Shengli Yuan, and Imrich Chlamtac, "Blocking Analysis of Multifiber Wavelength-Routed Networks," in Proc. of IEEE Global Telecommunications Conference (Globecom) 2004, pp. 1958--1962, Dallas, TX, December 2004.
  23. Guoping Zeng, Kejie Lu, and Imrich Chlamtac, "On the Conservation Law in Optical Burst Switching Networks," in Proc. of Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECT) 2004, pp.124--129, San Jose, CA, July, 2004.
  24. Guoping Zeng, Imrich Chlamtac, and Kejie Lu, "A Finite Queueing Network Model for Burst Assembler in OBS Networks", in Proc. of Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECT) 2004, pp. 642--648, San Jose, CA, July, 2004.
  25. Kejie Lu, Shengli Fu, and Xiang-Gen Xia, "Closed Form Designs of Complex Orthogonal Space-Time Block Codes of Rates  $(k+1)/(2k)$  for  $2k$  or  $2k+1$  Transmit Antennas," in Proc. of IEEE International Symposium on Information Theory (ISIT) 2004, pp. 307--307, Chicago, IL, June 2004.
  26. Tao Zhang, Kejie Lu, and Jason P. Jue, "Differentiated Contention Resolution for QoS in

- Photonic Packet-Switched Networks," in Proc. of IEEE International Conference on Communications (ICC) 2004, pp. 1599--1603, Paris, France, June 2004.
27. Kejie Lu, Jason P. Jue, Gaoxi Xiao, Imrich Chlamtac, and Timucin Ozugur, "A Distributed Signaling Scheme for Provisioning Dynamic Traffic in Wavelength-Routed Networks," in Proc. of SPIE Opticomm. 2003, pp.151--162, Dallas, TX, October 2003.
  28. Kejie Lu, Jason P. Jue, Timucin Ozugur, Gaoxi Xiao, and Imrich Chlamtac, "Intermediate-Node Initiated Reservation (IIR): A New Signaling Scheme for Wavelength-Routed Networks with Sparse Conversion," in Proc. of IEEE International Conference on Communication (ICC) 2003, Anchorage, AK, vol.2, pp.1386--1390, May 2003.
  29. Kejie Lu, Gaoxi Xiao, and Imrich Chlamtac, "Behavior of Distributed Wavelength Provisioning in Wavelength-Routed Networks with Partial Wavelength Conversion," in Proc. of IEEE INFOCOM 2003, San Francisco, CA, vol.3, pp.1816--1825, March-April 2003.
  30. Kejie Lu, Gaoxi Xiao, and Imrich Chlamtac, "Blocking Analysis of Dynamic Lightpath Establishment in Wavelength-Routed Networks," in Proc. of IEEE International Conference on Communication (ICC) 2002, New York, NY, vol.5, pp.2912--2916, April 2002.

## Professional Activities And Honors

- Senior Member of the [IEEE](#)
  - Member of IEEE [Communications Society \(ComSoc\)](#)
    - [Technical Committee on Computer Communications \(TCCC\)](#)
    - [Optical Networking Technical Committee \(ONTC\)](#)
    - [Technical Committee on Communications Switching and Routing](#)
    - [Technical Committee on Personal Communications \(TCPC\)](#)
    - [Communications and Information Security Technical Committee \(CIS TC\)](#)
    - [Radio Communications Committee \(RCC\)](#)
- NSF Panelist
- Reviewer of Journals:
  - IEEE Transaction on Communication
  - IEEE Journal on Selected Areas in Communications (JSAC)
  - IEEE Transaction on Vehicular Technology
  - IEEE Transaction on Wireless Communications
  - IEEE Communications Magazine
  - IEEE Communication Letter
  - IEEE Signal Processing Letter
  - SPIE / Kluwer Optical Networks Magazine
  - Elsevier Computer Networks
  - Elsevier Theoretical Computer Science A
  - Elsevier Optics Communications
  - Wiley Wireless Communications and Mobile Computing (WCMC)
  - The International Journal of Management Science (OMEGA)
- Reviewer of Conferences:
  - IEEE INFOCOM
  - IEEE ICC
  - IEEE Globecom
  - IEEE WCNC
  - SPIE Opticomm
  - IEEE ICCCN
  - IEEE LANMAM
  - IEEE VTC
  - IEEE BroadNets

- QShine
- TPC chairing
  - TPC co-chair of [ISWPC 2007](#)
- TPC member
  - TPC member of [BroadWISE 2004](#)
  - TPC member of [IEEE Globecom 2006](#)
  - TPC member of [IEEE ICC 2007](#)
  - TPC member of [Chinacom 2007](#)
  - TPC member of [AccessNets 2007](#)
  - TPC member of [IEEE Globecom 2007](#)
- Special Session chairing
  - [IASTED PDCS 2007](#)
- Publicity chairing
  - Publicity chair of [BroadWISE 2004](#)
  - Publicity chair of [GridNets 2004](#)
  - Publicity vice chair of [SPECTS 2005](#)
  - Publicity co-chair of [Valuetools 2006](#)
- Honors
  - NSF Student Travel Grant for SPIE Opticomm 2003
  - Doctoral Scholarship, The University of Texas at Dallas (2001-2003)
  - Texas Public Education Grant Scholarship, The University of Texas at Dallas (2001-2003)



**Dr. Vidya Manian**  
**Electrical and Computer Engineering Department**  
**University of Puerto Rico at Mayagüez**  
**Ph. 787-832-2825, FAX 787-832-2485**  
**E-mail: manian@ece.uprm.edu**

**Professional Preparation:**

Ph.D.	University of Puerto Rico, Mayaguez, June 2004
MS E.E.	University of Puerto Rico, Mayaguez, June 1995
B.S.E.E.	A. C. College of Eng. Tech., Karaikudi, India, June 1990

**Appoinments:**

**Department of Electrical and Computer Engineering,  
University of Puerto Rico Mayagüez Campus,  
Assistant Professor**

Mayagüez, P.R.  
Jan 2006 - present  
Jan 2005-Dec 2005

**Post doctoral Associate, CenSSIS  
Lane Department of Computer Science and Electrical Engineering,  
West Virginia University,  
Visiting Scholar**

Morgantown, WV.  
Jan 2004-Dec 2004

**Journal Publications**

Land cover and benthic habitat classification using texture features from multispectral and hyperspectral images, V. Manian and L. O Jimenez, accepted for SPIE Journal of Electronic Imaging, 2007.

Face detection using statistical and multi-resolution texture features, V. Manian and A. Ross *Multimedia Cyberspace Journal*, Special Issue on Pattern Recognition and Bioinformatics, Vol. 3, No. 3, pp. 1-9, 2005.

Approaches to color and texture based image classification, V. Manian and R. Vasquez, *Journal of Optical Engineering*, SPIE, July 2002.

Texture classification using logical operators, V. Manian, R. Vásquez, and P. Katiyar, *IEEE Trans. on image processing*, Vol. 9, No: 10, pp. 1693-1703, Oct. 2000.

Scaled and rotated texture classification using a class of basis functions, V. Manian and R. Vásquez, *Journal of Pattern Recognition*, Vol. 31, No. 12, pp. 1937-1948, 1998.

**Conference Publications**

V. Manian and M. Velez-Reyes, "Support vector classification of alnd cover and benthic habitat from hyperspectral images,"accepted for **2006 International Symposium on Spectral Sensing Research**, Bar Harbor, Maine, May 2006.

V. Manian, L. O. Jimenez and M. Velez-Reyes, "Statistical modeling for multispectral discrimination of benthic habitats." accepted for **SPIE Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery**, Orlando, 2006.

V. Manian, L. O. Jimenez and M. Velez-Reyes, "A comparison of statistical and multiresolution texture features for improving hyperspectral image classification." In **SPIE Intl Conf. Remote Sensing**, Proceedings SPIE, Belgium, Sept. 2005.

V. Manian and A. Ross, "Face detection using statistical and multi-resolution texture features." **Multimedia Cyberspace Journal**, Special Issue on Pattern Recognition and Bioinformatics, Vol. 3, No. 3, pp. 1-9, 2005.

V. Manian and M. Velez-Reyes, "A boosted learning algorithm for texture classification and object detection." In **SPIE Conf. Defense & Security**, Proceedings SPIE, Orlando, April 2005.

V. Manian and R. Vasquez, "Application of nonlinear texture dynamics for image classification." Proceedings In **SPIE Conf. Defense and Security**, Proceedings SPIE, Orlando, FL, April 2004.

V. Manian and R. Vasquez, "Texture discrimination based on neural dynamics of visual perception." In **IEEE Joint Intl. conf. Neural Networks**, Proceedings IEEE, Portland, Oregon, July 2003.

V. Manian and R. Vasquez, "Approaches to color and texture based image classification." **Journal of Optical Engineering**, SPIE, Vol. 41, No. 7, pp. 1480-1490, July 2002.

V. Manian, R. Vásquez, and P. Katiyar, "Texture classification using logical operators." **IEEE Trans. on image processing**, Vol. 9, No: 10, pp. 1693-1703, Oct. 2000.

V. Manian, Marcel Castro and R. Vasquez "Texture based algorithm for color image classification, , **Proceedings SPIE's AeroSense'2000**, Orlando, April 2000.

V. Manian and R. Vasquez, "Multiresolution edge detection algorithm applied to SAR images," **Proceedings of IEEE Intl. Conference IGARSS'99**, Hamburg, July 1999.

V. Manian, M. Ruiz and R. Vasquez, "The use of a robust toolbox for texture classification and segmentation, **Proceedings of SPIE AeroSense'99**, Orlando, FL, April' 1999.

V. Manian and R. Vásquez, "Scaled and rotated texture classification using a class of basis functions." **Journal of Pattern Recognition**, Vol. 31, No. 12, pp. 1937-1948, 1998.

V. Manian and R. Vasquez, "On the use of transform features for SAR image classification, **Proceedings of IEEE Intl. Conference IGARSS'98**, Seattle, July 1998.

V. Manian and R. Vasquez, "Texture discrimination in noise using wavelets," **Proceedings of SPIE Intl. Conference on AeroSense'98**, Orlando, FL, April 1998.

V. Manian and R. Vasquez, "A framework for SAR image classification: comparison of co-occurrence and a Gabor based method," **Proceedings IGARSS**, Singapore, Aug. 1997.

V. Manian and R. Vasquez, "A framework for object recognition in images using the short time Fourier transform," **Proceedings of SPIE's optical science, instrumentation and engineering**, Denver, August 1996.

## **Presentations**

V. Manian and A. Ross, "A texture based approach to face detection," *presented at Biometric Consortium*, Washington, Sept. 2004.

## **Research Support**

DoD grant W911NF-06-1-0008                      Velez-Reyes(PI)                      09/2005-09/2008  
Improving algorithms for target detection in hyperspectral infrared imagery.  
Role: Co-Investigator

NGA grant HM1582-06-1-2042                      Velez-Reyes (PI) 09/2006-09/2008  
A geometric approach for the analysis of hyperspectral imagery  
Role: Co-Investigator

## **Reviewer**

Intl. Journal of Remote Sensing

IEEE Trans. GRSS

IEEE Trans SMC.

## **Courses**

Pattern Recognition, Electric Circuits.

**Juan A. Martinez-Velasco, PhD**  
Universitat Politecnica de Catalunya  
Diagonal 647, 08028 Barcelona, Spain  
(34) 93 4016725 jamv@ieee.org

#### **PROFESSIONAL PREPARATION**

Ph.D.	IndE	1982	Universitat Politecnica de Catalunya - Spain
B.S.	IndE	1974	Universitat Politecnica de Catalunya - Spain

#### **APPOINTMENTS**

**Professor**, Full Professor at UPRM since July 2007; Associate Professor since January 1985; Assistant Professor since January 1982 until January 1985.

#### **PUBLICATIONS:**

##### **Related to the proposed project**

- 1 J.A. Martinez-Velasco (Ed.), *Computer Analysis of Power System Transients*, IEEE Press, ISBN 0-7803-2318-1, 1997.
- 2 A.M. Gole, J.A. Martinez-Velasco and A.J.F. Keri (Eds.), *Modeling and Analysis of System Transients Using Digital Programs*, IEEE PES Special Publication, TP-133-0, 1999.
- 3 J.A. Martinez and F. Gonzalez-Molina, "Surge protection of underground distribution cables", *IEEE Trans. on Power Delivery*, vol. 15, no. 2, pp. 756-763, April 2000.
- 4 J.A. Martinez and F. Castro-Aranda, "Lightning performance analysis of overhead transmission lines using the EMTP", *IEEE Trans. on Power Delivery*, vol. 20, no. 3, pp. 2200-2210, July 2005.
- 5 J.A. Martinez and F. González-Molina, "Statistical evaluation of lightning overvoltages on overhead distribution lines using neural networks", *IEEE Trans. on Power Delivery*, vol. 20, no. 3, pp. 2219-2226, July 2005.

##### **Other**

- 1 J.A. Martinez, B. Gustavsen and D. Durbak, "Parameter determination for modeling systems transients. Part I: Overhead lines", *IEEE Trans. on Power Delivery*, vol. 20, no. 3, pp. 2038-2044, July 2005.
- 2 J.A. Martinez, R. Walling, B. Mork, J. Martin-Arnedo and D. Durbak, "Parameter determination for modeling systems transients. Part III: Transformers", *IEEE Trans. on Power Delivery*, vol. 20, no. 3, pp. 2051-2062, July 2005.
- 3 J.A. Martinez and D. Durbak, "Parameter determination for modeling systems transients. Part V: Surge arresters", *IEEE Trans. on Power Delivery*, vol. 20, no. 3, pp. 2073-2078, July 2005.
- 4 J.A. Martinez and J. Martin-Arnedo, "Voltage sag studies in distribution networks. Part I: System modeling", *IEEE Trans. on Power Delivery*, vol. 21, no. 3, pp. 1670-1678, July 2006.
- 5 J.A. Martinez and J. Martin-Arnedo, "Voltage sag studies in distribution networks. Part II: Voltage sag assessment", *IEEE Trans. on Power Delivery*, vol. 21, no. 3, pp. 1679-1688, July 2006.

## **SYNERGISTIC ACTIVITIES:**

### **Chair of International Working Groups:**

1. Chair of IEEE TF on Very Fast Front Transients since August 1996 until January 1999.
2. Chair of the IEEE TF on Data for Modeling System Transients since January 1999.
3. Convener of the CIGRE TF on Voltage Dip Evaluation and Prediction Tools since August 2003.
4. Chair of the IEEE WG on Modeling and Analysis of System Transients using Digital Programs since June 2006.

### **Continuing Education. Organizer of Conferences and Courses:**

- 1 “Overvoltages and Insulation Coordination Studies”, Universitat Politècnica de Catalunya, November 13-15, 1997, Barcelona (Spain).
- 2 “Custom Power Technologies”, EES-UETP Course, June 15-18, 1998, Universitat Politècnica de Catalunya, Barcelona (Spain).
- 3 “Voltage Dips. Causes, Effects and Mitigation”, EES-UETP Course, June 18-19, 2001, Barcelona (Spain).
- 4 EEUG Meeting'97, November 9-11, 1997, Barcelona.
- 5 Workshop on Custom Power Technologies, March 22-23, 1999, Barcelona.

**Research:** Several research projects with Spanish utilities (ENDESA; Union Fenosa, Red Electrica) mostly on Power Systems Studies (Insulation Coordination, Transient Events, Contaminated Insulators).

**Other synergistic activities:** Associate Editor of the *IASTED International Journal of Power and Energy Systems*; Reviewer of *IEEE Trans. on Power Delivery*, *Int. J. of Electrical Power and Energy Systems* and *IET Generation, Transmission & Distribution*.

### **Awards:**

- 1 1999 IEEE PES Working Group Award for Technical Report, July 1999, for the set of papers on “Modelling and analysis of slow transients, Parts I, II, III”, Chairman: R. Iravani (University of Toronto, Canada).
- 2 2000 IEEE PES Working Group Award for Technical Report, May 2000, for the Special Publication on Modeling and Analysis of System Transients Using Digital Programs”, Chairman: A. Keri (American Electric Power, USA).
- 3 Certificate of Appreciation, IEEE PES Transmission and Distribution Committee, December 2003.
- 4 Significant Reviewer, IEEE Power Engineering Society, June 2006.

## **COLLABORATORS & OTHER AFFILIATIONS:**

### **Collaborators and Co-Editors**

Math Bollen, STRI, Sweden	Ferley Castro-Aranda, Univ. del Valle, Cali, Colombia
Dan Durbak, Siemens - PTI	Bjorn Gustavsen, SINTEF, Norway
Brian Johnson, Univ. of Idaho	Jean Mahseredjian, Ecole Pol. Montreal, Canada
Jovica Milanovic, Univ. of Manchester, UK	Bruce A. Mork, Michigan Tech
Efrain O’Neill-Carrillo, UPRM	Reigh Walling, General Electric

### **Thesis Advisor of**

Jacinto Martin-Arnedo, ITC2, Spain	Ferley Castro-Aranda, Univ. del Valle, Cali, Colombia
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**Efraín O'Neill-Carrillo, PhD, PE**

P.O. Box 5937  
Mayagüez, PR 00681-5937  
(787) 642-3705  
[oneill@ieee.org](mailto:oneill@ieee.org)

**Professional Preparation:**

Ph.D. Arizona State University, Tempe, Arizona, 1999  
M.S.E.E. Purdue University, West Lafayette, Indiana, 1995  
B.S.E.E. University of Puerto Rico, Mayagüez Campus, 1994

**Professional Experience:**

Electrical and Computer Engineering Department, University of Puerto Rico Mayagüez Campus

**Professor** July 2004-Present  
**Associate Professor** July 2002-June 2004  
**Assistant Professor** July 1999-June 2002

Visiting Researcher: Centre for Economic Renewable Power Delivery, University of Glasgow, Scotland, UK, Summer 2004.

Visiting Researcher: Puerto Rico Electric Power Authority, Summer 2002.

Electrical Engineer: TOR Engineering, Phoenix, Arizona, 1/98-7/98.

Electrical Engineering Intern. CPI del Caribe, Dorado, PR, 1/93-7/93.

**Books and Book Chapters:**

A.A. Irizarry-Rivera, M. Rodríguez-Martínez, B. Vélez, M. Vélez-Reyes, A.R. Ramirez-Orquin, E. O'Neill-Carrillo, and J.R. Cedeño, "Intelligent Power Routers: Distributed Coordination for Electric Energy Processing Networks." In, L. Mili and J. Momoh. Eds., *Electric Power Networks Efficiency and Security*, John Wiley (In Print).

E. O'Neill-Carrillo, Editor, *Proceedings of the Caribbean Colloquium on Power Quality*, June 2003.

**Recent Publications**

E. O'Neill-Carrillo, L. Seijo, E. D. Hirleman, F. Maldonado, F. Pla, "Mentoring Interdisciplinary Service Learning Projects," Accepted to the 37<sup>th</sup> *Frontiers in Education Conference (FIE 2007)*, October 2007, Milwaukee, WI.

J. Colucci, A. Irizarry, E. O'Neill-Carrillo "Sustainable Energy in Puerto Rico," *Proceedings of the ASME Sustainability '07 Conference*, June 2007, Long Beach, CA.

W. Frey, E. O'Neill-Carrillo, "Engineering Ethics in Puerto Rico," *Proceedings of the Annual Meeting of the Association for Professional and Practical Ethics*, February 2007, Cincinnati, OH.

A. A. Irizarry-Rivera, M. Rodríguez-Martínez, B. Vélez, M. Vélez-Reyes, A. Ramirez-Orquin, E. O'Neill-Carrillo and J. Cedeño "Intelligent Power Routers: A Distributed Coordination Approach for Electric Energy Processing Networks," *International Journal of Critical Infrastructures*, Special Issue, Jan. 2007.

E. O'Neill-Carrillo, A. Irizarry-Rivera, "Socially-Relevant Capstone Design Projects in Power Engineering," *Proceedings of the IEEE/PES Power Systems Conference and Exposition*, October 2006, Atlanta, GA.

L.O. Jiménez, E. O'Neill-Carrillo, W. Frey, R. Rodríguez-Solis, A. Irizarry-Rivera, S. Hunt, "A Learning Module of Social and Ethical Implications for ECE Capstone Design Courses," *Proceedings of the 36<sup>th</sup> Frontiers in Education Conference (FIE 2006)*, October 2006, San Diego, CA.

E. O'Neill-Carrillo, E. Marrero, A. Irizarry-Rivera, "Integrated Laboratory Experiences in Power Engineering Courses," *Proceedings of the International Conference on Engineering Education*, July 2006, San Juan, PR.

L.O. Jiménez, E. O'Neill-Carrillo, E. Marrero, "Creating Ethical Awareness in Electrical and Computer Engineering Senior Students: A Learning Module on Ethics," *Proceedings of the 35<sup>th</sup> Frontiers in Education Conference (FIE 2005)*, October 2005, Indianapolis, IN.

E. O'Neill-Carrillo, A. Irizarry-Rivera, J. Cruz-Emeric, "Curricular Revisions in Electrical Engineering at UPRM," *Proceedings of the 35<sup>th</sup> Frontiers in Education Conference (FIE 2005)*, October 2005, Indianapolis, IN.

M. Rodríguez-Fernández, E. O'Neill-Carrillo, A. Baretty, O. López, "Puerto Rico Electric Power Authority Power Quality Monitoring and Benchmarking Project," *Proceedings of the Power Quality Exhibition and Conference*, October 2005, Baltimore, MD.

G. A. Rivera-Rodríguez, E. O'Neill-Carrillo, "Economic Assessment of Distributed Generation Using Life Cycle Costs and Environmental Externalities," *Proceedings of the 37<sup>th</sup> North American Power Symposium*, Ames, IA, October 2005.

H. R. Zamot, E. O'Neill-Carrillo A. Irizarry-Rivera, "Analysis of Wind Projects Considering Public Perception and Environmental Impact," *Proceedings of the 37<sup>th</sup> North American Power Symposium*, Ames, IA, October 2005.

#### **Awards:**

2005 Senior Member of the Institute of Electrical and Electronics Engineers (IEEE)

2005 IEEE Walter Fee Outstanding Young Engineer Award, IEEE/PES

2004-2005 Outstanding Professor of Electrical and Computer Engineering, UPRM

2004, Early Promotion to Full Professor for Exceptional Merit, UPRM

2003 Electrical Engineer of the Year, PR Society of Professional Engineers and Land Surveyors

2001-2002 Outstanding Professor of Electrical and Computer Engineering, UPRM

2001 NSF Early Career Award for Scientists and Engineers

1998-1999, Regents Graduate Academic Scholarship, Arizona State University

#### **Current Professional Memberships and Affiliations:**

Professional Engineer License #14878, Puerto Rico Board of Engineering

Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR), PR Society of Professional Engineers and Land Surveyors

IEEE (Institute of Electrical & Electronics Engineers)

IEEE Power Engineering Society

IEEE Power Electronics Society

IEEE Industrial Electronics Society

IEEE Education Society

IEEE Society of Social Implications of Technology

American Society for Engineering Education (ASEE)

Tau Beta Pi, National Engineering Honor Society

**Professional Service Activities:**

- EAC Program Evaluator for Electrical Engineering, Accreditation Board for Engineering and Technology (ABET), elected by IEEE, 2006-current.
- Member of the CIAPR Committee to Evaluate Renewable Energy in Puerto Rico and implementation strategies. Since June 2007.
- Editor-in-Chief/President of the Board, *Dimension*, Professional Magazine of the CIAPR (PR Society of Professional Engineers and Land Surveyors), since 2006.
- Coordinator for Social, Ethical and Global Issues in Engineering, UPRM, since 2006.
- PR-LSAMP Engineering Mentoring Coordinator, UPRM, 2006-2007.
- Chair of the IEEE Western PR Joint Chapter of the Education Society/SSIT, 2006-Present.
- Organizer of the IEEE Western PR Joint Chapter of the Education Society/Society for Social Implications of Technology (SSIT), 2006.
- Creator and President of the Organizing Committee of the *First Experts' Summit – Electric Energy in Puerto Rico: Past, Present and Alternatives for the Future*, CIAPR, San Juan, PR, November 2005.
- Engineering Representative to the UPRM Institutional Review Board (IRB), 2006-2007.
- Adjunct Professor, Center for Professional Ethics, UPRM, since 2005.
- UPRM Representative, PRIDCO's Energy and Environment Alliance, January 2005-July 2005.
- Member of the Committee to Evaluate the Technical Administration of the Puerto Rico Electric System by the Puerto Rico Electric Power Authority during the Tropical Storm (TS) Jeanne. The official inquiry by the CIAPR about what caused a general electric blackout in the Island of Puerto Rico during the TS of September 15, 2004. Responsibilities included: analysis of technical evidence, as submitted by PREPA, of the power system state and behavior as TS Jeanne crossed over Puerto Rico, the formulation of an hypothesis to explain such behavior, and to judge the decisions made on the administration of the power system during the storm. September 2004 – April 2005.
- Chair of the IEEE Western PR Power Engineering Society Chapter, 2004-Present.
- Organizer of the IEEE Western PR Power Engineering Society Chapter, 2004.
- President of the Industry-Academe Committee of the PR Institute of Electrical Engineers, 2004-Present.
- Creator and President of the Executive Committee of the *First Industry-University Symposium on Electrical Engineering* (IUSEE 2003), November 2003.
- Adjunct Professor, Institute for Communities' Development, UPRM, since 2002.
- Associate Editor of the *IASTED International Journal of Power and Energy Systems*, 2001-2007.
- Secretary-Treasurer, *IEEE/PELS 7<sup>th</sup> Workshop on Computers in Power Electronics* (COMPEL), Mayagüez, PR, June 2002.
- Organizer, leader and presenter of continuing education conferences, short course and seminars for the IEEE, PES and the Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR - PR Society of Professional Engineers and Land Surveyors), reaching over 800 practicing engineers in Puerto Rico since 2002.
- Author and Contributor for *Tecnomundo*, official publication of the CIAPR, since 2002.
- Reviewer for
- ASEE Frontiers in Education Conference
  - IEEE Transactions on Education
  - IEEE Transactions on Power Systems
- Served in several National Science Foundation Proposal Review Panels

**Number of graduate students supervised in the past 5 years: 10**

## **Lionel R. Orama-Exclusa**

Department of Electrical and Computer Engineering University of Puerto Rico, Mayagüez Mayagüez, Puerto Rico 00681-9044 (787) 832-4040, x2138 lorama@ece.uprm.edu

### **EDUCATION**

**D.Eng.** Electric Power Engineering, Rensselaer Polytechnic Institute, October 1997. Dissertation: *Numerical Modeling of Circuit Breaker Arcs And Their Interaction With The Power System*  
Doctoral Committee: Sheppard J. Salon (Chair), Allan Greenwood, Mietek T. Glinkowski, Robert C. Degeneff, and Kenneth A. Connor.

**M.E.** Electric Power Engineering, Rensselaer Polytechnic Institute, May 1994. Master's Project: *Extraction of Model Parameters from Vacuum and SF6 Arcs' Oscillograms*

**B.S.** Electrical Engineering, Polytechnic University of Puerto Rico, *magna cum laude*, November 1992. Senior Project: *Circuit Breaker Duty Calculation*

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### **LICENSE**

Licensed Professional Engineer (P.E.) in the Commonwealth of Puerto Rico. License number 13841, expiration date June 2008.

### **RESEARCH INTERESTS**

Electrical discharges in vacuum and gases, vacuum switching technology, fields stress analysis in electric power devices, power systems transients, alternative energy sources, distributed generation, power systems protection.

### **RESEARCH PROJECTS**

*Student Developed DCAS Radar Network for NASA Satellites Validation.* Supported by a \$90,000 grant from the National Aeronautics and Space Administration (NASA)-IDEAS-ER Program, May 2005-April 2006.

*Strengthening Diversity Collaboration Trough a Student Led System Test Bed on the Island of Puerto Rico ERC for (CASA.* With Dr. Sandra Cruz Pol, Dr. Jose Colóm, Dr. Rafael Rodriguez Solís and Dr. Walter Diaz, supported by a \$100,000 grant from the National Science Foundation (NSF)-Supplement 2005.

*Collaborative Adaptive Sensing of the Athmosphere (CASA).* With Dr. Sandra Cruz Pol, Dr. Jose Colóm, Dr. Rafael Rodriguez Solís and Dr. Walter Diaz, supported by a \$4M grant from the National Science Foundation (NSF)-Engineering Research Centers (ERC) Program, Fall 2003-Spring 2008.

*Acquisition of Instrumentation for the Electric Energy Processing Systems Laboratory at UPRM.* With Dr. Efraín O'neill and Dr. Miguel Vélez, supported by a \$150,000.00 grant from the National Science Foundation (NSF)Major Research Instrumentation (MRI) Program, Spring 2002-Fall 2004.

*Grease Bio-diesel: Clean Energy for Puerto Rico.* Supported by a \$28,856 grant from the Department of Energy (DOE) through the Southern States Energy Board (SSEB), Fall 2001-Summer 2002.

*Integrating Laboratory Practices and Undergraduate Research to the Power Engineering Curriculum at UPRM.* With Dr. Efraín O'neill and Dr. Miguel Vélez, supported by a \$160,000.00 grant from the National Science Foundation (NSF)-Course Curriculum Laboratory Improvement (CCLI) Program, Fall 2001-Spring 2003.

*Grease Bio-diesel for Puerto Rico.* With Dr. José Colucci and Dr. Arturo Portnoy, supported by a \$224,000.00 grant from the Department of Energy (DOE), Fall 2000-Spring 2002.

*Used Cooking Oil.* With Dr. José Colucci and Dr. Arturo Portnoy, supported by Panzardi-ERM, Inc. with a



\$190,000.00 grant from the Puerto Rico Industrial Development Company (PRIDCO), Fall 2000-Spring 2002.

## RESEARCH MENTORING

*Testing and Output Optimization of PV Modules to Power an Off-the-Grid Radar Node.* Master Thesis by Carlos A. Giraldo, Spring 2006-present.

*Voltage Grading of Suspension Insulators Using Finite Element Analysis.* Master Thesis by Jesus Bedoya-Arango, Spring 2002-Summer 2004.

*Parameter Extraction Tool for High Pressure Gas Arc Models in High Voltage Circuit Breakers Simulations.* Master Thesis by Bienvenido Rodriguez-Medina, Fall 2001-Summer 2003.

*Antenna Redesign and Re-localization for the Lightning Network Detection.* Undergraduate research project, Fall 2003-Spring 2004.

*Probabilities of Lightning Strikes as a Function of Structure Elevation.* Undergraduate research project, Fall 2002-Spring 2003.

*Efficiency of a Solar Hydrogen Scaled System.* Undergraduate research project, Fall 2002-Spring 2003.

*Self supported motor/generator.* Undergraduate research project, Fall 2000.

*Medium voltage transmission line modeling for short line fault analysis.* Undergraduate research project, Fall 1999.

*Protective system failure of residential circuits.* Undergraduate research project, Spring 1999.

## PUBLICATIONS

Teaching Arc Dynamics During Current Interruption Of Vacuum Interrupters And SF6 Circuit Breakers Using TACS Routines Within ATP, submitted to the ASEE 2007 Annual Conference, Honolulu.

Student Developed Meteorological Radar Network for Western Puerto Rico, IEEE International Midwest Symposium on Circuits and Systems MWSCAS 2006, San Juan, August 2006.

Numerical Modeling of Vacuum Arc Dynamics at Current Zero Using ATP, International Conference on Power System Transients IPST 05, Montreal, June 2005.

El Método de Elemento Finito Aplicado a Aisladores de Suspensión, Technomundo, a publication of the CIAPR, Vol. 3, Num. 31, 2005 (in Spanish).

A DCAS Network for QPE on the Island of Puerto Rico, American Institute of Aeronautics and Astronautics, March 2004.

Arc Model Parameter Extraction Techniques using Nonlinear Least Squares, North American Power Symposium NAPS 2003, November 2003.

Numerical Arc Model Parameter Extraction for SF6 Circuit Breakers Simulation, International Conference on Power System Transients IPST 03, New Orleans, September 2003.

SF6 Arc Model: Nonlinear Equations and Parameter Fitting, Electrotechnology International Symposium 2002, San Juan, November 2002.

Increasing Retention Rates in Computer Science and Engineering with a Wireless Classroom at UPRM, International Conference on Engineering Education ICEE 02, Manchester, UK, August 18-21, 2002.

Breakdown Phenomena of a Vacuum Interrupter after Current Zero, International Conference on Power System Transients IPST 01, Brazil, July 2001.

## TEACHING EXPERIENCE

*Professor*, University of Puerto Rico, Mayagüez, January 1998 to present. Courses: Electrical Transients in Power Systems (graduate), Power Systems Protection (Protective Relaying), Power Systems Engineering Fundamentals, Fundamentals of Transformers and Electric Machinery, Electrical Distribution Systems Design, Numerical Methods for Engineers, Electrical Circuit Analysis, Engineering Mechanics; Statics & Dynamics, Algorithms and Computer

Programming. Classes taught in traditional and multimedia classrooms, and networked computer environment. Research is conducted in the areas electrical transients, atmospheric electricity, alternative energy sources and gaseous conductors.

Part-time Professor, Polytechnic University of Puerto Rico, Hato Rey, December 1997 to May 1998. Courses: Power System Analysis II, class in traditional classroom. Electro-mechanical Energy Conversion Laboratory, empirical laboratory work.

#### **ACADEMIC ADMINISTRATION EXPERIENCE**

Special Assistant to the Chancellor for Research Affairs, University of Puerto Rico, Mayagüez, October 2001 to October 2003.

Director, Title V Project, \$2,118,696 Grant from the U.S. Department of Education, University of Puerto Rico, Mayagüez, October 2001 to October 2003.

#### **OTHER ACADEMIC EXPERIENCE**

Consulting Board Member for Licensing of the Electrical Engineering Program at the Interamerican University of Puerto Rico, February 2004 to present.

Proposal Evaluator for the Puerto Rico Research and Commercialization Alliance, Communication and Information Technology Initiatives Program, October 2003 to October 2004.

#### **INDUSTRIAL EXPERIENCE**

Inspector of Electrical Distribution Systems, Puerto Rico Electric Power Authority, December 1991-December 1992. Inspection of electrical distribution systems of up to 38kV to comply with the NEC and PREPA's regulations.

Professional in Training, Puerto Rico Electric Power Authority, Summer 1990. Dispatch of hydroelectric units for emergency use, peak load analysis, transmission lines faults investigation. Training on the SCADA system. Assisting load shearing emergencies.

#### **DESIGN EXPERIENCE**

Méndez & Co. Facilities, Ponce, Puerto Rico. Under Development. Design includes all interior and exterior distribution system with 300KVA substation with Back-up power generation. Lighting desing was also developed.

Medical Offices, San German, Puerto Rico. Design includes all interior and exterior distribution system with 150KVA substation. Lighting desing was also developed.

Plaza Celebración de Eugenio Maria de Hostos, Mayagüez, Puerto Rico. Design includes all interior and exterior distribution system with 75KVA substation. Lighting desing was also developed.

Plaza de Joyuda, Cabo Rojo, Puerto Rico. Design includes exterior distribution system with primary distribution line relocation. Lighting desing was also developed.

Mayaguez Home for the Elderly, Mayagüez, Puerto Rico. Under development. Design includes design of a parallel 300KVA substation, for building expansion.

Ponce de León 245, San Juan, Puerto Rico. Design includes all interior and exterior distribution system with 150KVA substation, for new structure. Lighting design is also under development.

Boquerón Townhouses, Cabo Rojo, Puerto Rico. Under development. Design includes all aerial and underground primary distribution system, for new housing complex.

Buffalo's Café, Caguas, Puerto Rico. January 2001. Design includes all interior distribution system with restaurant grade kitchen. The distribution consists of a 480v, 200A supply, a main distribution for HVAC system and a step-down Dry Type Transformer for lighting and kitchen load.

#### **CONSULTING EXPERIENCE**

Consultant, expert witness, Mayagüez, Puerto Rico. March 2005 to present. Work with Enrique Alcaraz Michelli Law Offices, on a lawsuit regarding telephone line electrocution during lightning storms.

Consultant, expert witness, Mayagüez, Puerto Rico. January 2005 to present. Work with Surrillo Pumarada Law Offices, on a lawsuit regarding electrocution a teenager in contact with aerial distribution lines.

Consultant, San José, California, March 2004 to July 2004, on Vacuum Interrupters technology, application and research, Jennings Technology Co.

Consultant, expert witness, Hato Rey, Puerto Rico. January 2003 to present. Work with Mario Pabón & Associates, attorneys at law, on a lawsuit regarding electrocution of two children in contact with an electrified gate.

Consultant, expert witness, Hato Rey, Puerto Rico. December 2001 to present. Work with Moreda, Moreda & Associates, Law Offices, on a lawsuit regarding electrocution of a worker with aerial primary distribution lines.

## **OTHER PROFESSIONAL EXPERIENCE**

Member of the Governors' Energy Advising Committee, Commonwealth of Puerto Rico, July 2002 to 2004.

## **PROFESSIONAL DEVELOPMENT**

*Generación Eólica*, Electro-viernes, Colegio de Ingenieros y Agrimensores de Puerto Rico, mayo de 2006.

*Energía Eléctrica: Perspectivas Alternas*, Comité de Energía, Cámara de Comercio de Puerto Rico, febrero de 2006.

*Primera Cumbre de Expertos en Energía Eléctrica*, Colegio de Ingenieros y Agrimensores de Puerto Rico, noviembre de 2005.

*Sobrevoltajes y Caidas de Voltajes*, IEEE Distinguish Lecturer Series & Colegio de Ingenieros y Agrimensores de Puerto Rico, October 2005.

*Financiamiento de Proyectos de Eficiencia Energética*, Oficina de Asuntos de Energía, marzo de 2004.

*Ethics Across the Currículo Workshop*, SEED, Oficina del Decano de Ingeniería, diciembre de 2003.

*Diseño de Sistemas de Puesta a Tierra*, Colegio de Ingenieros y Agrimensores de Puerto Rico, mayo de 2003.

*Building Energy Management*, On-Line Course, Association of Energy Engineers, August 2002.

## **HONORS**

*Golden Key National Honor Society*, Honorary Member, 2006.

*Who's Who Among America's Teachers*, 2005 & 2006.

*Sigma Xi, The Scientific Research Society*, University of Puerto Rico, Mayagüez Campus, April 2002.

*Who's Who, Historical Society*, 2001-2002.

## **PROFESSIONAL ORGANIZATIONS**

Institute of Electrical and Electronic Engineers (IEEE)

Power Engineering Society (IEEE-PES)

Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR)

Instituto de Ingenieros Electricistas (IIE)

## Eduardo I. Ortiz Rivera

### (i) Professional Preparations:

Ph.D, Electrical Engineering, Michigan State University, East Lansing, MI 05/2006

MS, Electrical Engineering, Michigan State University, East Lansing, MI, 05/2002

BS, Electrical Engineering, University of Puerto Rico, Mayagüez, PR, 05/2000

### (ii) Appointments:

<b>08/2006 to present</b>	Assistant Professor, University of Puerto Rico-Mayagüez, PR
<b>05/2007 - 07/2007</b>	Research Assistant, Argonne National Laboratory, Argonne, IL
<b>08/2002 – 07/2006</b>	Research Assistant, Michigan State University, East Lansing, MI
<b>05/2002 - 07/2002</b>	Research Assistant, Fermi National Accelerator Laboratory, Batavia, IL
<b>08/2001 - 04/2002</b>	Teaching Assistant, Electrical and Computer Eng., MSU, East Lansing
<b>05/2001 - 7/2001</b>	Research Assistant, Fermi National Accelerator Laboratory, Batavia, IL
<b>08/2000 - 04/2001</b>	Teaching Assistant, Electrical and Computer Eng., MSU, East Lansing
<b>05/2000 - 07/2000</b>	Project Manager Assistant, Transmission Lines Division, Lord Electric Company, Rio Piedras, PR
<b>08/1999 – 04/2000</b>	Research Assistant, Tren Urbano, ATI, San Juan, PR

### (iii) Most Relevant Publications:

1. Ortiz-Rivera, Eduardo I. "Analytical Model for a Photovoltaic Module using the Electrical Characteristics provided by the Manufacturer Data Sheet" IEEE Trans. on Power Electronics. (Acc.)
2. Ortiz-Rivera, Eduardo I. "A Novel Method to Estimate the Maximum Power for a Photovoltaic Inverter System." IEEE Transactions on Power Electronics. (Accepted)
3. Ortiz-Rivera, Eduardo I.; Rodriguez, Luis; "The Z-Source Converter as an Introduction to Power Electronics and Undergraduate Research" Proceedings 2007 Frontiers in Education Conference, Milwaukee, WI, October, 10-13, 2007 (Accepted)
4. Ortiz-Rivera, Eduardo I.; Reyes-Hernandez, Angel L.; Febo, Rey A.; "Understanding the History of Fuel Cells" Proceedings 2007 IEEE Conference on the History of Electric Power, New Brunswick, New Jersey, August 3-5, 2007 (Accepted)
5. Ortiz-Rivera, Eduardo I.; "A MPPT Method Based on the Approximation of a PVM Model using Fractional Polynomials" 38<sup>th</sup> IEEE Power Electronics Specialists Conf., Orlando, FL, June 18-22, 2007. (Accepted)
6. Arias, Omar G.; Ortiz-Rivera, Eduardo I.; "Emulation of the Behavior of a Photovoltaic Module in SABER" Proceedings CPES General Meeting 2007, Blacksburg, Virginia, April 15, 2007
7. Rodriguez, Luis; Lugo, Salvador; Ortiz-Rivera, Eduardo I.; "Undergraduate Research: Introduction to Power Electronics Using The T-Filter and Z-Source Converter" Proceedings CPES General Meeting 2007, Blacksburg, Virginia, April 15, 2007
8. Ortiz-Rivera, Eduardo I. "Modeling and Analysis of Solar Distributed Generation". Ph.D. Dissertation, Michigan State University.
9. Ortiz-Rivera, Eduardo I. and Fang Z. Peng, "Algorithms to Estimate the Temperature and Effective Irradiance Level over a Photovoltaic Module using the Fixed Point Theorem.", 37<sup>th</sup> IEEE Conf. Power Electronics Specialists, Jeju, Korea, June 18-22, 2006.
10. Ortiz Rivera, E.I.; Peng, F.Z.; "Linear Reoriented Coordinates Method" IEEE International Conf. on Electro/Information Technology, East Lansing, Michigan, May 2006 Page(s):459 – 464
11. Peng, Fang Z., Alan Joseph, Jin Wang, Zhiguo Pan, Miaosen Shen, Lihua Chen, Eduardo I. Ortiz-Rivera and Yi Huang "Z-Source Inverter for Motor Drives.", IEEE Trans. on Power Electronics

Volume 20, Issue 4, July 2005 Page(s):857 – 863

12. Ortiz-Rivera, Eduardo I. and Fang Z. Peng, “Analytical Analysis for a Photovoltaic System.”, AIAA 3rd Int. Energy Conversion Engineering Conf., San Francisco, California, August 15-18, 2005
13. Ortiz-Rivera, Eduardo I., “A Non-Traditional Method to Approximate the Symbolic Inverse for Transcendental Functions” AIAA 3rd International Energy Conversion Engineering Conference, San Francisco, California, August 15-18, 2005
14. Ortiz-Rivera, Eduardo I. and Fang Z. Peng; “Analytical Model for a Photovoltaic Module using the Electrical Characteristics provided by the Manufacturer Data Sheet” 36<sup>th</sup> IEEE Conf. Power Electronics Specialists, June 12, 2005 Page(s):2087 – 2091
15. Ortiz-Rivera, Eduardo I. and Fang Z. Peng “A Novel Method to Estimate the Maximum Power for a Photovoltaic Inverter System.” The 35<sup>th</sup> IEEE Power Electronics Specialists Conference (PESC), Aachen, Germany, June 20-25, 2004
16. Ortiz-Rivera, Eduardo I. “Study of Power Quality: Problems in Commercial Buildings in Puerto Rico.” The 2<sup>nd</sup> IEEE International Conference on Utility Deregulation, Restructuring and Power Technologies, Honk Kong, China, April 8, 2004
17. Ortiz-Rivera, Eduardo I. “Dynamic Equations for Solar Distributed Generation.” Society of Hispanic Professional Engineers National Technical and Career Conference 2004, Chicago, Illinois, January 8, 2004

#### **(iv) Synergistic Activities**

- Member of the Center for Power Electronic Systems sponsored by NSF.
- Advisor for the University of Puerto Rico- Polytechnic University of Puerto Rico-Alternativa de Transporte Integrado Professional Development Program
- Paper Reviewer for the IEEE Transactions in Power Electronics.
- Paper Reviewer for the IASTED Transactions in Power Quality.
- Advised 10 undergraduate students on 6 different undergraduate research projects at UPRM.
- Photovoltaic, Wind Energy, Fuel Cells, Power Electronics, and Control researches.

#### **(v) Collaborators**

Dr. Ning, Xi, Dr. Piercy Pierre, Dr. Fang Z. Peng Michigan State University  
Dr. Efraín O’Neill, Dr. Miguel Velez, Dr. Miguel Figueroa and Dr. Erick Aponte, UPRM  
Dr. Claudio Rivetta, Stanford Linear Accelerator Laboratory  
Mr. Guenter Conzelmann, Argonne National Laboratory

#### **(vi) Advisors**

Dr. F. Z. Peng, Ph.D. Advisor, Michigan State University, East Lansing, MI  
Dr. Piercy Pierre, MS Academic Advisor, Michigan State University, East Lansing, MI

#### **(vii) Graduate Students Supervised (Since 2006)**

Omar Gil and Juan Arias at the University of Puerto Rico-Mayagüez.  
Irvin Balaguer at Michigan State University.

#### **(viii) Honors, Awards and Patents:**

- Graduate Assistance In Areas Of National Need Fellow (GAANN) Fellow, 2004
- Mathematical modeling of the Z-Source converter (2004), Chinese Academy of Science Institute of Automation, sponsored by the National Science Foundation, Beijing, China (EAPSI Program).
- National Consortium for Graduate Degrees for Minorities in Engineering and Science (GEM) Fellow, 2002
- Alfred P. Sloan Ph.D. Fellow, 2001

## **PALOMERA GARCÍA, ROGELIO**

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**Academic rank:** Professor

**Degrees with fields, institution, and date:**

BS	Electronics and Communications Engineering	University of Guadalajara, México	1971
MS	Electrical Engineering	University of Electrocommunications, Japan	1975
Ph.D.	Docteur es Sciences Techniques	Swiss Federal Institute of Technology	1979

**Faculty service at UPRM:**

Date of original appointment: 1985

Dates of advancement in rank:

Instructor:	
Assistant Professor:	1985 to 1986
Associate Professor:	1986 to 1992
Professor:	1992 to present
Total years of service:	22

**Areas of professional expertise:**

Integrated Circuits, Circuit Theory, Fuzzy Logic, Neural Networks, Linear algebra, Graph Theory

**Other related experience—academic or industrial:**

June 1975 -June 1979, Research assistant, Department of Electricity, Swiss Federal Institute of Technology, Lausanne, Switzerland.

November 1979 -August 1985, Titled Full time Scientist Researcher, Centro de Investigaci6n Cientifica y de Estudios Superiores de Ensenada, Ensenada, Baja California, Mexico

Invited Professor, San Diego State University, Department of Electrical Engineering, Fall 1984

Invited Researcher, University of Guadalajara, Mexico, January 1985 –July 1985.

Invited Summer Faculty Internships, OakRidge National Laboratory, Oak Ridge, TN, Summer: 1990, 1991

1992-1993, Researcher, Department of Electricity, Swiss Federal Institute of Technology, Lausanne, Switzerland

Summer Internships: Texas Instruments, Dallas. Summer 2000, 2001, 2003, 2007

**Consulting, patents:**

Consulting:

MicroTecnica, Torino, Italy, 1987-1988

Novatek, Puerto Rico, 1994

AMI Microsensor, 2002

**State(s) or Countries in which registered:**

Mexico

**Principal publications of last five years: (FY 1996-97 -- 2001-02)**

None

**Grants or externally funded project active during the last five years: (FY2002 - 2007)**

(Co-PI) Establishment of an Analog Oriented Program at UPRM, Texas Instruments (~500K, Aug 1999-June 2002)

(PI) Enhancement of Mixed Signal Program at UPRM, Texas Instruments ( 114K, Jan 2002-Dec 2002)

(PI) Continuation of Mixed Signal Program at UPRM, Texas Instruments ( 120K, Jan 2003-Dec 2003)

(PI) Continuation of Mixed Signal Program at UPRM, Texas Instruments ( 120K, Jan 2004-Dec 2004)

(PI) Continuation of Mixed Signal Program at UPRM, Texas Instruments ( 130K, Jan 2005-Dec 2005)

(PI) Continuation of Mixed Signal Program at UPRM, Texas Instruments ( 130K, Jan 2006-Dec 2006)

(PI) Continuation of Mixed Signal Program at UPRM, Texas Instruments ( 130K, Jan 2007-Dec 2007)

(CP-PI) Establishment of an Analog and Mixed Signal Testing Program with the Texas Instruments Testing Institute (40K, Jan. 2007 – Dec. 2007)

Active at Industrial Affiliate Program, with funded projects. (25 projects since 1995)

**Scientific and professional societies of which a member:**

Senior Member of the IEEE: (Circuits and Systems, Education, Fuzzy Systems, Social Implications of Technology, Professional Communication societies)

Chairman of the IEEE Circuits and Systems - Signal Processing Chapter of Western Puerto Rico Section

Member of the Institute of Electronics, Information and Communication Engineers, Japan.

**Honors and awards:**

Scholarship from the Japan Ministry of Education 1972-1975

National Institute of Scientific Researchers, Mexico, National Researcher Category II, 1985-1988

**Institutional and professional service in the last five years: (FY 2002 - 2007)**

Assistant to the Dean on International Relations

**Professional development activities in the last five years: (FY 2002 - 2007)**

General Co- Chair of the 49<sup>th</sup> IEEE International Midwest Symposium on Circuits and Systems 2006

Special Sessions Co-Chair of the 50<sup>th</sup> IEEE Midwest Symposium on Circuits and Systems 2007

**Community service activities: (FY 2002 - 2007)**

Coaching of the PR Mathematics Team for Iberoamerican Olympics of Mathematics, 1996, 1997.

## PARSIANI, HAMED

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[parsiani@ece.uprm.edu](mailto:parsiani@ece.uprm.edu)

Academic rank: *Professor*

### ***Degrees with fields, institution, and date:***

BS	Mathematics	Oregon State University	1970
BS	Electrical Engineering	Oregon State University	1971
MEE	Electrical Engineering	Texas A&M University	1973
Ph. D.	Electrical Engineering	Texas A&M University	1979

### ***Faculty service at UPRM:***

Total years of service: 21

### ***Areas of professional expertise:***

Remote Sensing, Image Processing, LIDAR, Communications, Microprocessors

### ***Most Recent Active Research Interests:***

- Development of Lidar system for advanced atmospheric research
- Aerosol Characterization using sunphotometer and Lidar over western region of PR
- Soil Type and Moisture Determination using Radar
- Vegetation Health Index determination using Radar
- Image Processing and classification of Radar images

### ***Grants or externally funded project active during the last seven years:***

**UPRM-Deputy-PI** of “Center of Remote Sensing & Technology”, NOAA-CREST research grant for \$2,500,000 per year for 2006-2011.

**PI** of “soil moisture algorithm development using Radar”, GSSI Inc. grant 2006-2007, \$36,000.00

**UPRM-Deputy-PI** of “Center of Remote Sensing & Technology”, CREST-NOAA research grant for \$2,500,000 per year for 2001-2006.

**Co-PI** of “Tropical Center for Earth and Space Studies”, NASA-URC II, Goddard Flight Center, NASA grant for \$4,999,513.00, with UPR matching fund for \$2,450,000.00, 2000-2005.

**Research collaborator**, PaSCOR-NASA grant, for \$3,163,167.00, with UPR matching fund for \$299,918.00, 1999-2004.

### **Journals & Proceedings Publications (2002 to present)**

1. Ana Picon, **Hamed Parsiani**, Ramon Vasquez, “Integrating Cross-Comparison Methodologies For The Retrieval of Cloud Top Heights Over The Caribbean”, **WSEAS Transactions on Signal Processing**, Issue 2, Vol. 2, Feb. 2006.
2. **Hamed Parsiani**, Enrico Mattei, “Soil Moisture Determination Based on Radar Response and



- Artificial Neural Networks”, **WSEAS Transactions on Signal Processing**, Issue 2, Vol. 1, Nov. 2005.
3. Ana Picon, Ramon Vasquez, Hamed Parsiani, “Cross Comparison of MODIS and MISR Cloud Top Height Retrieval Over The Caribbean”, WSEAS 2005 Proceedings, Nov. 2005, Italy.
  4. Hamed Parsiani, Enrico Mattei “Open Field Soil Moisture Measurements with Radar”, WSEAS 2005 Proceedings, Nov. 2005, Italy.
  5. Hamed Parsiani, Enrico Mattei, Allen Lizarraga, Mairim Ramos, “Soil Moisture Determination based on MCFD/NN-GUI Algorithm using Wideband Radar Images of Land”, Proceedings of IASTED SIP 2005, Aug. 15-17, 2005, Hawaii.
  6. Hamed Parsiani, Maritza Torres, Pedro Rodriguez, Material Characteristics in Fourier Domain (MCFD) formulation, a signature to determine soil type, moisture, and vegetation health, based on multilayer ground penetrating radar reflection”, Proceedings of IASTED SIP 2004, Aug. 23-25, 2004, Hawaii.
  7. Hamed Parsiani, Maritza Torres, “High-resolution vegetation index as measured by radar and its validation with spectrometer”, Proceedings of SPIE 2004, Gran Canaria, Spain, Sept. 13-16, 2004.
  8. Hamed Parsiani, Pedro Rodriguez, “Subsurface Material Type Determination from Ground Penetrating Radar Signatures”, Proceedings of SPIE 2004, Gran Canaria, Spain, Sept. 13-16, 2004.
  9. Maritza Torres, Hamed Parsiani, “ Non-linearity of Soil Dielectric as a Function of Radar Frequency and Soil Moisture Content”, CRC’2004 Proceedings, April 2, 2004, Mayaguez, P.R.
  10. Pedro Rodriguez, Hamed Parsiani, “Moisture Determination Based on Ground Penetrating Radar Measurements,” CRC’2004 Proceedings, April 2, 2004, Mayaguez, P.R.
  11. Hamed Parsiani, Leonid Tolstoy, “Application of Fourier Descriptors and Fuzzy Logic to Classification of Radar Subsurface Images”, proceedings of SPIE 2003, Barcelona, Spain, Sept. 8-12, 2003.
  12. Jorge L. Ortiz, Hamed Parsiani, Leonid Tolstoy “Application of Morphological Associative Memories and Fourier Descriptors for Classification of Noisy Subsurface Signatures”, Proceedings of SPIE 2003, Barcelona, Spain, Sept. 8-12, 2003.
  13. Eric Harmsen, Hamed Parsiani, “Evaluation of Several Dielectric Mixing Models for Estimating Soil Moisture Content”, Proceedings of ASAE’2003 Conference, Las Vegas, Nevada, July 26-30, 2003.
  14. Maritza Torres, Hamed Parsiani, “Improved Subsurface Radiation Pattern Determination of 1.5 GHz SIR-20 Bow-Tie Antenna”, NOAA-CREST/NASA Symposium 2003, Tallahassee, Fl, March 30-April 3, 2003.
  15. Victor Marrero, Hamed Parsiani, “Subsurface Unsupervised Cluster Determination”, NOAA-CREST/NASA Symposium 2003, Tallahassee, Fl, March 30-April 3, 2003.

16. Daniel Rodriguez, Richard Diaz, Hamed Parsiani, Eric Harmsen, “Validation of an Inverse Procedure for Estimating Soil Moisture Content using GPR”, NOAA-CREST/NASA Symposium 2003, Tallahassee, FL, March 30-April 3, 2003.
17. Hamed Parsiani, Leonid Tolstoy , “ Neural Network classification of the subsurface reflected waves and media velocity determination”, NOAA-CREST/NASA-EPSCoR Joint Symposium for Climate Studies 2003, University of Puerto Rico - Mayaguez Campus, January 10-11, 2003.
18. Eric Harmsen, Hamed Parsiani, “Inverse Procedure for Estimating Vertically Distributed Soil Hydraulic Parameters Using GPR”, NOAA-CREST/NASA-EPSCoR Joint Symposium for Climate Studies 2003, University of Puerto Rico - Mayaguez Campus, January 10-11, 2003.
19. Leonid Tolstoy , Hamed Parsiani, “Comparison of Neural Network Classification Methods Applied to Subsurface Radar Images Based on Single Echo and Hyperbolic Signature”, CRC’2003 Proceedings, Mayaguez, P.R
20. Leonid Tolstoy, Hamed Parsiani, Jorge Ortiz , “Application of Fourier Descriptors and Neural Network to Classification of Radar Subsurface Images”, SPIE Int. Conf. 2002 Proceedings, Sept. 23-27, 2002, Crete, Greece.
21. Leonid Tolstoy, Hamed Parsiani, “Application of Fourier Descriptors and Neural Network to Shape Recognition”, CRC’ 2002 Proceedings, Mayaguez, Puerto Rico, 2002.
22. Héctor Ortiz, Hamed Parsiani, “Simplified JPEG Compression of Radar Sub-Surface Images and the Application of Threshold Filtering.” Proceedings of CRC’ 2002, Mayaguez, PR, 2002.
23. S. Cruz-Pol, Velez-Reyes, M., Hunt, S., Parsiani, H., Colom-Ustaris, J., Jimenez, L.O., and Vasquez, R., “The Laboratory for Applied Remote Sensing and Image Processing at University of Puerto Rico at Mayaguez”, **IEEE Geoscience and Remote Sensing Newsletter**, January 2002.

***Scientific and professional societies of which a member:***

Institute of Electrical and Electronics Engineers, (Member)

***Honors and awards:***

Permanent member of the Eta Kappa Nu Honor Society, granted by Texas A&M University.

***Professional development activities in the last five years:***

Attended a course on “ Hyperspectral Imaging and Data Analysis,” Center for the Study of Earth from Space, University of Colorado Boulder, June, 2003.

Attended a course on “Ground Penetrating Radar”, at GSSI, Salem New Hampshire, Dec. 4,5, 2001,

Attended a course on “Multispectral Image Processing”, Robert A. Schowengerdt, Aerosense 1999,

## Domingo Rodriguez - BIOGRAPHICAL SKETCH

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**Name** (Last, First): *Rodríguez, Domingo*

### **Professional Preparation**

- *BSEE at the City University of New York, New York – June 1979*
- *MS at Union College, Schenectady, New York, June 1981*
- *Ph.D. at the City University of New York, New York, January 1988*

### **Appointments**

*Jan 1988 – July 1988*    *Post Doctoral Associate Center Large Scale Computation - CUNY*

*July 1988 – present*    *Professor at the University of Puerto Rico, Mayaguez Campus*

### **Publications**

#### *Recent Publications*

1. Y. Qian, K. Lu, D. Rodriguez, W. Rivera, M. Rodriguez “A Cross-layer Design Framework for Wireless Sensor Networks with Environmental Monitoring Applications,” Accepted for publication at *Journal of Communication Software and Systems*
2. R. Arce-Nazario, M. Jiménez, D. Rodriguez, “Algorithmic-level Exploration of Discrete Signal Transforms for Partitioning to Distributed Hardware Architectures,” Accepted for Publication, IET Journal of Computers & Digital Techniques.
3. Diaz-Perez, D. Rodriguez, “Cyclic Convolution Algorithm Formulations Using Polynomial Transform Theory,” Journal of Computers, Academic Publisher, Finland, 2007.
4. N. G. Santiago, D. T. Rover, D. Rodriguez, “A Statistical Approach for the Analysis of the Relation between Low-Level Performance Information, the Code, and the Environment,” *Journal of Information*, vol. 9, no. 3, pp. 503-518, May 2006.
5. Ramirez, D. Rodriguez, “Automated Hardware-in-the-Loop Modeling and Simulation in Active Sensor Imaging Using TI6713 DSP Units,” 2006 IEEE Midwest Symposium on Circuits and Systems, August 2006.

#### *Other Publications*

1. Rafael Arce Nazario, Manuel Jiménez, D. Rodriguez. “Partitioning Exploration for Automated Mapping of Discrete Cosine Transforms onto Distributed Hardware Architectures”. 50th IEEE Midwest Symposium on Circuits and Systems. August 2007.

2. Rafael Arce Nazario, Manuel Jiménez, Domingo Rodriguez. "High-level Partitioning of Discrete Signal Transforms for Multi-FPGA Architectures". 16th IEEE International Conference on Field Programmable Logic and Applications. August 2006. Madrid, Spain.
3. Rafael Arce Nazario, Manuel Jiménez, Domingo Rodriguez. "Functionally-aware Partitioning of Discrete Signal Transforms for Distributed Hardware Architectures". 49th IEEE Midwest Symposium on Circuits and Systems. August 2006.
4. A. H. Diaz-Perez, Domingo Rodriguez, "One Dimensional Cyclic Convolution Algorithms with Minimal Computational Complexity," IEEE ICASSP 2006, Toulouse, France, May 2006.
5. K. Lu, Y. Qian, D. Rodriguez, W. Rivera, M. Rodriguez, "Wireless Sensor Networks for Environmental Monitoring Applications: A Design Framework," IEEE Globecom 2007, Washington, DC.

### ***Synergistic Activities***

1. Director of the UPRM-ECE Institute for Computing and Informatics Studies, at the R&D Center.
2. Collaborated in the development and the establishment of the PhD in Computing and Information Sciences and Engineering at ECE-UPRM.
3. As a result of one-year sabbatical leave (July 2001-June 2002), wrote a book-draft entitled "Kronecker Computing Methods for Sensor Array Signal Algebras: An Algorithm Implementation Approach."
4. Short Courses Taught
  - a. *Advanced Signal Processing Algorithms and Hardware/Software Co-design*
  - b. *Multidimensional Signal Processing and HPC Implementations*
  - c. *Distributed Signal Processing and Active Sensor Array Imaging Techniques*
  - d. *Time-frequency Analysis and Holomorphic Information Processing*
  - e. *Kronecker Products Algebra Methods for Discrete Unitary Transforms*

### **Collaborators & Other Affiliations**

- Mandayam, Narayan – Rutgers University
- Paredes, Marlio – Turabo University
- Becerra-Fernandez, Irma – University of Puerto Rico
- Madey, Greg – Univ. of Notre Dame, IA.
- Prietula, Michael – Emory University

**Graduate Advisors: Richard Tolimieri and Louis Auslander**

## MANUEL RODRÍGUEZ-MARTÍNEZ

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### **Academic rank: Associate Professor**

#### **Degrees with fields, institution, and date:**

BS	Mathematics	University of Puerto Rico, Rio Piedras	1994
MS	Computer Science	University of Maryland, College Park	1996
Ph. D.	Computer Science	University of Maryland, College Park	2001

#### **Faculty service at UPRM:**

*Date of original appointment: July 2001 (Month, Year)*

*Dates of advancement in rank:*

Assistant Professor:	2001 to 2005
Associate Professor	2005 to Present
Total years of service:	6

#### **Areas of professional expertise:**

*Database Management Systems, Computer Networks*

#### **Industrial Experience:**

*Chief Technology Officer, Phidelix Technologies Corp, 2006-present*

#### **Consulting, patents:**

*Database Consultant for Polaroid Caribbean Corp., Summer of 1999.*

#### **Principal publications of last five years: (FY2002-2003- 2006-2007 )**

1. Kejie Lu, Yi Qian, Domingo Rodriguez, Wilson Rivera, Manuel Rodríguez, “Wireless Sensor Networks for Environmental Monitoring Applications: A Design Framework”, 2007 IEEE Globecom Conference, DC, Dec. 2007.
2. Elliot Vargas-Figueroa and Manuel Rodriguez , “Design and Implementation of the NetTraveler Middleware System based on Web Services”, submitted to IEEE Transactions on Knowledge and Data Engineering, May 2007
3. Fernando Maymi, Manuel Rodriguez, Paul Manz, Yi Qian, “A Distributed Architecture for Pervasive Shared Situational Awareness”, submitted to IEEE Internet Computing Magazine, April 2007.
4. Juan Correa and Manuel Rodriguez, “Design and Implementation of JSwitch: A Web-Based Transaction Coordination Framework “, 4<sup>th</sup> International Conference on Information Technology: New Generations, Las Vegas, NV, April 2-4, 2007.
5. Agustín A. Irizarry-Rivera , Manuel Rodríguez-Martínez , Bienvenido Vélez , Miguel Vélez-Reyes, Alberto R. Ramirez-Orquin, Efraín O’Neill-Carrillo, and José R. Cedeño, “INTELLIGENT POWER ROUTERS: A DISTRIBUTED COORDINATION APPROACH FOR ELECTRIC ENERGY PROCESSING NETWORKS”, to appear in special issue of International Journal on Critical Infrastructures on January 2008.
6. Elliot Vargas-Figueroa and Manuel Rodriguez , “Design and Implementation of the NetTraveler Middleware System based on Web Services”, in Proc. 2006 IEEE International Conference on Internet and Web Applications and Services, Guadalupe, France, February 23-25, 2006.
7. Edilberto Garcia and Manuel Rodríguez, “WAMDAS: A Web Service-Based Wireless Alarm Monitoring and DataAcquisition System for Pharmaceutical Plants”, in Proc. 2006 IEEE International Conference on Internet and Web Applications and Services, Guadalupe, France, February 23-25, 2006
8. Hillary Caituiro and Manuel Rodriguez , “NetTraveler: A Framework for Autonomic Web Services Collaboration, Orchestration and Choreography in E-Government Information Systems”, in Proc. 2004 IEEE International Conference on Web Services, San Diego, CA, July 6-9, 2004

9. Manuel Rodríguez-Martínez, Omar G. Rodríguez-Martínez, Maritere Martínez-Montes, Elfred Pagan, and Pedro I. Rivera-Vega, "Smart Mirrors: Peer-to-Peer Web Services for Publishing Electronic Documents", to appear in *Proc. 14<sup>th</sup> IEEE International Workshop on Research Issues on Data Engineering: Web Services for E-Commerce and E-Government*, Boston, MA, March 28-29, 2004.
10. Manuel Rodríguez-Martínez, Jose F. Ensenat, Elfred Pagan, and Juan G. Arbola, "Registration and Discovery of Services and Applications in the **NetTraveler** Integration System for Mobile Devices", to appear in *Proc. of 3<sup>rd</sup> IEEE ITCC Conference*, Las Vegas, NV, April 5-7, 2004.
11. Jose F. Enseñat, Manuel Rodriguez-Martinez, "Design of the Registration Server for the **NetTraveler** Middleware System", to appear in *7<sup>th</sup> International Conference on Internet and Multimedia Systems and Applications (IMSA 2003)*, Honolulu, Hawaii, USA.
12. Manuel Rodriguez-Martinez, Nick Roussopoulos, "Wide-Area Query Execution in MOCHA", *2002 IASTED Conference on Information and Knowledge Sharing (IKS 2002)*.

**Grants or externally funded project active during the last five years: (FY2002-2003- 2006-2007 )**

1. *PI for CAREER: NetTraveler – A Database Middleware System for Ubiquitous Data Access on Wide Area Networks, NSF CAREER Program, \$500K, 2005-2010.*
2. *Co-PI for IPRS- Intelligent Power Router, NSF EPNES Program, \$600K, 2002-2005.*
3. *Co-PI for UPRM eGovernment Project, NSF Digital Government Program, \$750K, 2003-2006.*
4. *Co-PI for WALSAIP Project, NSF MII Program, \$1.5M, 2004-2009.*
5. *Co-PI for Indusoft Project, Puerto Rico Industrial Development Company, \$1M, 2004-2007.*
6. *Co-PI for HP Digital Publishing Project, HP, \$400K, 2004-2006*
7. *PI for IBM SUR Grant, IBM, \$100K, 2005-2006*
8. *Co-PI for Dynamic Image Retrieval Project, NASA TCESS, \$50K,, 2003-2005.*

**Scientific and professional societies of which a member:**

1. *Association for Computer Machinery (ACM)*
2. *Special Interest Group on the Management of Data (SIGMOD)*

**Honors and awards:**

1. *2006 Distinguished Professor, Department of Electrical and Computer Engineering, University of Puerto Rico, Mayaguez.*
2. *2005 NSF CAREER AWARD for project "CARREER: NetTraveler – A Database Middleware System for Ubiquitous Data Access on Widea-Area Networks".*

**Institutional and professional service in the last five years: (FY2002-2003- 2006-2007 )**

1. *Member of the ICOM Computing Systems Committee*
2. *Member of the INEL/ICOM Graduate Committee*
3. *Member of the CISE Ph.D. Graduate Committee*
4. *Member of the Campus Senate Computing Ad Hoc Committee*
5. *Coordinator for the CISE Ph.D. Program*
6. *Member of NSF Panel on Cyber Infrastructure*
7. *Member of NSF Panel on IT SBIR Proposals*
8. *Member of NSF Panel on Minority Infrastructure and Instrumentation Proposals*
9. *Member of the Ad Hoc Committee for the Puerto Rico Higher Education Board regarding the IT B.S. degree of the National College of Business and Technology.*

**Professional development activities in the last five years: (FY2002-2003- 2006-2007 )\**

1. *Global Entrepreneurship: Strategy and Execution, Grupo Guayacan, Ritz Carlton Hotel, Casino and Spa, Carolina, PR, October 31<sup>st</sup>, 2007.*
2. *Puerto Rico Venture Forum and Enterprize Competition, Ritz Carlton Hotel, Casino and Spa, Carolina, PR, November 13, 2006.*

**Offered courses in the past two years (2005-2007)**

*ICOM 4048 Practical Exp in Com. Engineering, ICOM 5016 Database System, ICOM 6999 Master Thesis, ICOM 6005 Data Base System Design, ICOM 4998 Undergraduate Research*

**Community service activities: (FY2002-2003, 2006-2007 )**

*Palo Seco Sports Club, Board of Directors for the Caboqueron Condominium*

## Néstor J. Rodríguez

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### PROFESSIONAL PREPARATION:

BSEE, University of Puerto Rico, 1978  
MSEE, Ohio State University, 1981  
Ph.D., University of Wisconsin-Madison, 1988

### APPOINTMENTS:

1996 – present	Professor, University of Puerto Rico
1991 – 1996	Associate Professor, University of Puerto Rico
1988 – 1991	Assistant Professor, University of Puerto Rico

### PUBLICATIONS:

1. Jose Borges, Nestor Rodriguez and Carlos Perez, "Usability Issues in the Development of a User Interface for an Alerts and Reminders System for a Nursing Documentation Application" . HCI International 2007.
2. Nestor J. Rodriguez and Maria I. Diaz, "Word Processing in Spanish Using an English Keyboard: A Study of Spelling Errors". 2nd International Conference on Usability and Internationalization (UI 2007).
3. Néstor J. Rodríguez, José A. Borges, Gilberto Crespo, Carlos Pérez, Carlos Martínez, Celia R. Colón-Rivera, Aixa Ardín, A, "Usability Study of Nurses' Interaction with Tablet PC and PDA Nursing Documentation Applications. IASTED International Conference on Human Computer Interaction (IASTED-HCI 2007).
4. N. J. Rodriguez, J. A. Borges, Naomi Acosta, "A Study of Text and Numeric Input Modalities on PDAs", HCI International 2005.
5. N. J. Rodriguez, J. A. Borges, Y. Soler, V Murillo, D. Z., Sands, "A Usability Study of Physicians' Interaction with PDA and Laptop Applications to Access an Electronic Patient Record System," 17th. IEEE International Symposium on Computer-Based Medical Systems, 2004.
6. A. Cuaresma, N. J. Rodriguez, J. Arroyo, J. A. Borges, E. Moulrier, J. Yeckle, M. A. Rivas, "A Comparison Of A Rule Definition Language (Rdl) and the Java Object Oriented Language For Implementing A Distributed ," International Conference on Computer Science and its Applications (ICCSA-2003)
7. N. J. Rodriguez, J. A. Borges, Y. Soler, V Murillo, D. Z., Sands, T. Bourie and C. R. Colón-Rivera, "PDA vs. Laptop: A Comparison of Two Versions of a Nursing Documentation Application," 16th. IEEE International Symposium on Computer-Based Medical Systems, 2003.
8. Arroyo J., Borges. J., Rodríguez N., Moulrier E., Rivas M., Cuaresma A., Yeckle J., "An Event/Rule Framework (ERF) for specifying the Behavior of Distributed Systems", 3rd International Workshop on Software Engineering and Middleware, 2002, pp 59 – 71.
9. Rodriguez, N.J., Borges, J.A., Murillo, V., Sands, D.Z., and Ortiz, J.. A Usability Study of Physicians Interaction with a Paper-Based Patient Record System and a Graphical-Based Electronic Patient Record System,. Proc AMIA Symp 2002, November 2002.
10. Rodriguez, N.J., Murillo, V., Borges, J.A., Sands, D.Z., and Ortiz, J. A study of physicians' interaction with text-based and graphical-based electronic patient record systems. Proceedings of the 15th. IEEE International Symposium on Computer-Based Medical Systems, June, 2002.

### SYNERGISTIC ACTIVITIES:

1. Co- founder of the Computing Alliance for Hispanic-Serving Institutions (CAHSI)
2. Co-PI of four NSF-MII grants for increasing the participation of Hispanic in computing. Worked as project manager in two of these projects.



3. Collaborated with other three colleagues in the development and the establishment of the Ph.D. in Computing and Information Sciences and Engineering at UPRM.
4. Co-Chair of the last four Computing Research Conference at UPRM. This conference provides a forum for graduate and undergraduate students to present research work in different areas computing.
5. Collaborated in the development of the proposal for the establishment of the Computing Sciences and Engineering and the Software Engineering BS programs at UPRM.
6. Collaborated in the development of the proposal for the establishment of the Department of Computing and Information Sciences and Engineering in the Engineering School at UPRM.

#### **COLLABORATORS AND OTHER AFILIATIONS:**

##### **Collaborators:**

José A. Borges - ECE Department, University of Puerto Rico at Mayaguez  
Celia R. Colón - Nursing Department, University of Puerto Rico at Mayaguez  
Domingo Rodriguez - ECE Department, University of Puerto Rico at Mayaguez  
Ann Gates – University of Texas at El Paso  
John Fernandez – Texas A&M at Corpus Christy  
Richard Aló –University of Houston Downtown  
Moshen Beheshti – California State University at Dominguez Hill  
Malek Adjouadi – Florida International University  
Desh Ranjan – New Mexico State University  
Alex Ramirez - HACU

##### **Thesis Advisor:**

Isable Najera, UPRM  
Arianna Lopez, UPRM  
María Diaz, UPRM  
Gilberto Crespo, UPRM  
Carlos Pérez, UPRM  
Yajaira Soler, UPRM  
Viviam Murillo, UPRM  
Emily Angarita, UPRM  
Marjorie Zambrana, UPRM  
Leo Velez, UPRM  
Amarilis Cuaresma, UPRM  
Jaime Ramos, UPRM

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## Rafael A. Rodríguez Solís

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University of Puerto Rico  
Mayagüez, PR 00681-9042  
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Fax: (787) 831-7564  
e-mail: rarsolis@ieee.org

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### Summary

Dr. Rafael A. Rodríguez Solís received a BSEE and a BScPE from the University of Puerto Rico at Mayagüez in 1990. He also received a M.S. degree from University of Florida in 1993 and a Ph.D. from the Pennsylvania State University in 1997, both in Electrical Engineering. He is currently a Professor of Electrical and Computer Engineering at the University of Puerto Rico, the Director of the UPRM Radiation Laboratory and the UPRM Education Thrust Leader of the Center for Subsurface Sensing and Imaging Systems (CenSSIS). He received a NSF CAREER award in 2001 to work in the development of wideband slot-like antennas and worked in the development of tunable antennas with electroceramic materials with the NASA Tropical Center for Earth and Space Studies (TCESS) at UPRM. In addition, he is working in the development of low cost electronically scanned antenna alternatives for the Center for Adaptive Sensing of the Atmosphere (CASA). Dr. Rodríguez Solís was named Outstanding Professor in Electrical Engineering by the UPRM Engineering Faculty in 2001. Dr. Rodríguez Solís is a member of the IEEE Antennas and Propagation Society and the Microwave Theory and Techniques Society. His research interests include wideband microwave and millimeter-wave antennas, tunable and multiband antennas, wideband and tunable microwave circuits, and numerical methods in electromagnetics, with emphasis in the Finite Difference Time Domain Method for Electromagnetics.

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### Education

- Ph.D., Electrical Engineering** *The Pennsylvania State University, University Park.*  
12/97 Dissertation: "Analysis and Design of a Microwave 3-D Frequency Independent Phased Array Using Folded Slots." Designed, analyzed, built and tested antenna array prototypes from 2 to 12 GHz.
- M.S., Electrical Engineering** *University of Florida, Gainesville.*  
12/93 Thesis: "Improved Modeling of R.F. and Microwave BJTs and Circuit Simulation." Evaluated and improved new physics-based model for microwave bipolar transistors. Compared results with existing empirical model and measured data to demonstrate agreement.
- B.S., Electrical Engineering** *University of Puerto Rico, Mayagüez.*  
06/90 Magna Cum Laude. Specialization in Communications and Electronics.
- B.S., Computer Engineering** *University of Puerto Rico, Mayagüez.*  
06/90 Magna Cum Laude. Specialization in Hardware Systems.

---

### Experience

- Professor** *University of Puerto Rico, Mayagüez.*  
01/98 to present Research interests: Broadband microwave antennas and circuits, microwave/millimeter-wave antennas, numerical methods in electromagnetics.
- NSF CAREER 2001 award: "Wideband Slot-Like Antennas and Enhancement of Applied Electromagnetics Education at UPRM"
  - UPRM CenSSIS Education Thrust Leader
  - Researcher in TCESS
  - Researcher in CASA ERC
  - Researcher in PASSER program
  - Director of UPRM Radiation Laboratory

## Rafael A. Rodríguez Solís

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- Coordinator for the ECE Applied Electromagnetics Area, 2000-present
- ECE Graduate Committee, 2001-present
- School of Engineering Graduate Committee, 2001-2006
- UPRM Graduate Council, 2006-present
- Faculty advisor to student branch of UPRM IEEE Communications Society
- Graduated 9 M.S. students, advising 4 graduate students, member of graduate committee of 17 M.S. students, and advised 46 undergraduate students on 23 different research projects.
- Reviewer for IEEE Transactions on Antennas and Propagation Special Issue on Multifunction Antennas and Antenna Systems, Feb. 2006
- Panelist for the NSF-SBIR Program in 2003 and 2005
- Panelist for the NSF Graduate Research Fellowship Program in 2005

**Visiting Scientist** *BBN Technologies, Cambridge, MA.*  
*06/99 to 08/99* Consulted on antennas and R.F systems for wireless networks.

**Independent Consultant** *REMCOM, Inc., University Park, PA.*  
*08/97 to 12/97* Modeled, designed and fabricated microwave circuit and antennas. Validated and tested electromagnetic simulators.

**Instructor** *The Pennsylvania State University, University Park.*  
*06/97 to 08/97* Taught Engineering Electromagnetics course to Electrical Engineering juniors.

**Engr. Technical Associate** *BBN Systems and Technologies, Cambridge, MA.*  
*08/96 to 08/97* Evaluated and recommended wireless LAN adapters and developed Linux device drivers.

**Summer Intern** *BBN Corporation, Cambridge, MA.*  
*05/96 to 08/96* Integrated wireless IP-secure LAN using custom off the shelf components. Demonstrated integrated system to customers and upper management. Developed service offerings using the integrated system.

**Summer Staff** *MIT Lincoln Laboratory, Lexington, MA.*  
*06/95 to 08/95* Developed computer model of complex phased array antenna system to investigate effects in the radiation pattern of random failures and excitation errors.

**Graduate Assistant** *University of Florida, Gainesville.*  
*08/91 to 08/93* Conducted laboratory sessions of a Computer Architecture course and a Microprocessors course and worked on the improvement of a physics-based model for microwave BJTs.

**Engineer I** *Telefónica Larga Distancia, San Juan, Puerto Rico.*  
*05/90 to 08/91* Specified required test equipment for sites, developed synchronization plan for network and prepared bid specifications to purchase test equipment and network synchronization system.

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## Publications

- J. G. Colom, R. Medina, and **R. Rodríguez**, "Design of Tunable Amplifier using Ferroelectric Materials," *Integrated Ferroelectrics*, vol. 56, 2003, pp. 1097-1106.
- J. G. Colom, **R. A. Rodríguez-Solís**, J. Almodóvar, and M. Castañeda, "Design and Simulation of a Tunable Multilayer Lange Coupler," *Integrated Ferroelectrics*, vol. 42, 2002, pp. 313-321.
- J.K. Breakall and **R.A. Rodríguez Solís**, "A new design method for low sidelobe level log-periodic dipole antennas," *Applied Computational Electromagnetics Society Journal*, Nov. 1996, pp. 9-15.
- M. F. Serrano Guzman, I. Y. Padilla, R. Rodriguez, C. M. Rappaport, "Bimodal detection of underground detection in two dimensional systems," *Proceedings of the SPIE*, [6540-54]
- M.F. Serrano-Guzmán, I. Padilla, **R Rodríguez**, "Two-dimensional detection of underground contamination and buried objects using cross-well radar," *Proceedings of SPIE*, vol 6210, *Radar Sensor Technology X*, 62100R (May. 8, 2006).
- Amador-Perez, A.; **Rodríguez-Solís, R.A.**, "Analysis of a CPW Fed Annular Slot Ring Antenna using DOE," 2006 IEEE Antennas and Propagation Society International Symposium, Albuquerque, NM, July 2006, pp. 4301 - 4304.

- D. A. Del Río, **R. A. Rodríguez Solís**, D. S. Filipovic, "Ways to Improve the Radiation Pattern of a LPFSA," 2005 IEEE Antennas and Propagation International Symposium, Washington D.C., July 2005, vol. 1B, pp. 410 - 413.
- J. A. Torres-Rosario, S. Rondineu, **R. A. Rodríguez Solís**, S. Hunt, Z. Popovic, "Adaptive Discrete Lens Antenna Array for Direction of Arrival Detection," 2005 IEEE Antennas and Propagation International Symposium, Washington D.C., July 2005, vol. 4A, pp. 122 - 125.
- C. Jaramillo-Henao, **R. A. Rodríguez-Solís**, D. Rosario-Román, D. González-Barreto, "Analysis of Concentric Slot-Ring Antenna Arrays using DOE and FDA," 2004 IEEE Antennas and Propagation International Symposium, Monterey, CA, June 2004, vol. 1, pp. 1074 - 1077.
- Ileana Carrasquillo-Rivera, **Rafael A. Rodríguez Solís**, José G. Colom-Ustáriz, "Tunable and Dual-Band Rectangular Slot-Ring Antenna," 2004 IEEE Antennas and Propagation International Symposium, Monterey, CA, June 2004, vol. 4, pp. 4308 - 4311.
- J.L. Salazar-Cerreño and **R.A. Rodríguez Solís**, "Broadband Log-Periodic Normal Mode Helical Antenna," 2003 IEEE Antennas and Propagation International Symposium, Columbus, OH, June 2003, vol. 1, pp. 249-252.
- N.D. López-Rivera and **R.A. Rodríguez Solís**, "Input Impedance and Resonant Frequency Characterization of Folded Slot Antennas through DOE Techniques," 2003 IEEE Antennas and Propagation International Symposium, Columbus, OH, June 2003 vol. 2, pp. 545-548.
- S. Rodríguez-Acosta, **R.A. Rodríguez Solís**, and J.G. Colom Ustáriz, "Design and Characterization of a Tunable Aperture Coupled Microstrip Patch Antenna with Ferroelectric Films," 2003 IEEE Antennas and Propagation International Symposium, Columbus, OH, June 2003 vol. 4, pp. 536-539.
- A.M. Castro-Vilaró and **R.A. Rodríguez Solís**, "Tunable Folded Slot Antenna with Ferroelectric Material," 2003 IEEE Antennas and Propagation International Symposium, Columbus, OH, June 2003 vol. 2, pp 549-552.
- I. Carrasquillo-Rivera, Z. Popovic, and **R.A. Rodríguez Solís**, "Tunable Slot Antenna Using Varactors and Photodiodes," 2003 IEEE Antennas and Propagation International Symposium, Columbus, OH, June 2003 vol. 4, pp. 532-535.
- J. Colom-Ustáriz, **R. Rodríguez-Solís**, S. Vélez, and S. Rodríguez-Acosta, "Frequency Agile Microwave Components using Ferroelectric Materials," Proceedings of the SPIE 9th International Conference on Remote Sensing, Crete, Greece, vol. 4881, April 2003, pp. 280-286
- N.D. López-Rivera and **R.A. Rodríguez Solís**, "Impedance Matching Technique for Microwave Folded-Slot Antennas," 2002 IEEE Antennas and Propagation International Symposium, San Antonio, TX, June 2002, vol. III, pp. 450-453.
- **R.A. Rodríguez Solís**, Ana M. Medina, and Néstor López, "Microstrip Patch Antenna Encircled by a Trench," IEEE Antennas and Propagation International Symposium, Salt Lake City, UT, July 2000, pp. 1620-1623.
- S. McKnight, G. Tadmor, M. Ruane, **R. Rodríguez-Solís** and G. Saulnier, "Creating "High-Tech Tools & Toys Lab" Learning Environments at Four Universities," 32nd ASEE/IEEE Frontiers in Education Conference, Boston, MA, Nov. 2002, p. S3E-7.
- J. G. Colom and **R. Rodríguez-Solís**, "Introduction To Electrical Engineering: A New Freshman Course At UPR-Mayagüez," ASEE 2003 ASEE Annual Conference and Exposition Proceedings, June 2003, Nashville, TN.
- J.G. Colom Ustáriz, **R.A. Rodríguez Solís**, and R.J. Luebbers, "Undergraduate Research using the Finite Difference Time Domain Method for Electromagnetics," 2001 ASEE Annual Conference and Exposition Proceedings, June 2001, Albuquerque, NM.
- J.G. Colom Ustáriz, R.R. Barton, L.A. Carpenter, and **R.A. Rodríguez Solís**, "A Novel Graphical Technique for Selection of a Robust Design Point," 2001 ASEE Annual Conference and Exposition Proceedings, June 2001, Albuquerque, NM.

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## Presentations

- J.G. Colom Ustáriz, **R.A. Rodríguez Solís**, “Design and Simulation of a Tunable Ferroelectric Lange Coupler,” Ferroelectrics Workshop 2001, San Juan P.R.
- **R.A. Rodríguez Solís**, “Printed Antenna Research at the UPRM Radiation Laboratory,” Georgia Tech, Atlanta, GA, 2002.

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## Grants

*Wideband Slot-like Antennas and Enhancement of Applied Electromagnetics Education at UPRM.*

NSF ECS-0093650, \$584,346

*Wideband RF Front-end for Cross-well Radar Tomography Applications*

NSF Center for Subsurface Sensing and Imaging Systems, \$60,224

*Electroceramic Antennas and Devices*

NASA Tropical Center for Earth and Space Studies, \$174,975

*Acquisition of Microwave Instrumentation for the UPRM Radiation Laboratory.*

NSF ECS-9977178, \$677,104

*Partnership for Space Science Education and Research.*

NASA, \$794,993

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## Professional Courses

*Introduction to Networking and Wireless Networks*

CASA ERC, Mayagüez, PR, Jan. 2006

*Practical Design of Microstrip Arrays and Reflectarrays*

2003 IEEE Antennas and Propagation International Symposium, Columbus, OH.

*Adaptive Antennas: The Future of Mobile Communications*

2002 IEEE Antennas and Propagation International Symposium, San Antonio, TX.

*Smart Antennas for Wireless Systems*

2000 IEEE Antennas and Propagation International Symposium, Salt Lake City, UT.

*Microwave Antenna Measurements.*

California State University, Northridge, 1994.

*Digital Transmission Systems.*

Siemens Telecomunicazioni S.P.A., Santiago, Chile, 1991.

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## Honors

NSF CAREER Award (2001), Outstanding Electrical Engineering Professor (2001), GTE Fellow (1996-1997), Graduate Engineering Education Fellow (1993-1996), National Science Foundation Fellowship and Ford Foundation Fellowship Honorable Mentions (1993), Commonwealth of Puerto Rico Economic Development Administration Fellow (1991-1993), Tau Beta Pi Honor Society.

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## Professional Organizations

Member of the Microwave Theory and Techniques Society and the Antennas and Propagation Society of the Institute of Electrical and Electronic Engineers.

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## Languages

Fluent in Spanish and English

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## Other Interests

TaeKwonDo, cycling, and playing saxophone.

## **Biographical Sketch for José M. Rosado-Román**

### **Professional Preparation**

University of Puerto Rico, Mayagüez, Puerto Rico: Electrical Engineering, B.S. magna cum laude, 1989.  
Cornell University, Ithaca, New York: Electrical Engineering, M. Eng., 1990.  
Cornell University, Ithaca, New York: Electrical Engineering, Ph.D., 1999.

### **Appointments**

University of Puerto Rico, Mayagüez, Puerto Rico: Associate Professor of Electrical Engineering, 2005–present.  
University of Puerto Rico, Mayagüez, Puerto Rico: Assistant Professor of Electrical Engineering, 2000–2005.  
Arecibo Observatory, Arecibo, Puerto Rico: Visiting Research Associate, Summer 2003.  
University of Puerto Rico, Mayagüez, Puerto Rico: Assistant Professor of Physics, 1999–2000.  
Cornell University, Ithaca, New York: Laboratory Teaching Assistant for EE497 - RF Circuits during spring semesters, 1996,1998,1999.  
Cornell University, Sprat Hall, St. Croix, U.S. Virgin Islands: CUPRI radar operator, Summer 1992.  
Cornell University, Ithaca, New York: CUPRI radar technician, 1990–1991.  
University of Puerto Rico, Mayagüez, Puerto Rico: Instructor, Electric machines/transformers laboratory, Dept. of EE, 1988-1989.  
Department of Education, Quebradillas, Puerto Rico: Assistant Teacher, mathematics/spanish, summer 1985.

### **Professional Societies**

American Geophysical Union  
Institute of Electrical and Electronics Engineers  
American Society of Engineering Educators  
Phi Kappa Phi  
Tau Beta Pi

### **Awards and Honors**

2005 Granted tenure at University of Puerto Rico - Mayagüez  
2005 PI - NASA MUCERPI - PaSSER Project (Original PI: Rafael Fernández Sein)  
2004 Promotion to Associate Professor at University of Puerto Rico, Mayagüez  
2000 PI - Cornell Studies of the Ionosphere (Original PI: Mario Ierkic)  
1989 NASA Graduate Student Research Award: Underrepresented Minority Focus  
1989 BSEE Graduation: Magna Cum Laude  
1988 NSF Academic Achievement Award

### **Three Most Closely-Related Publications**

Seyler, C. E., J. M. Rosado-Román, D. T. Farley, (2004), A nonlocal theory of the gradient-drift instability in the ionospheric E-region plasma at mid-latitudes, *J. Atmos. Sol.-Terr. Phys.*, 66, 1627-1637, 2004.  
Rosado-Román, J.M., W. E. Swartz and D. T. Farley, (2004), Plasma instabilities observed in the E region over Arecibo and a proposed nonlocal theory, *J. Atmos. Sol.-Terr. Phys.*,66, 1593-1602.  
Rosado-Román, J.M., (1999), A Study of Coherent Scatter from Mid-Latitude Sporadic-E Layers, PhD Thesis, Cornell University.

### **One Other Publication**

O'Neill-Carrillo, E. , J. Arroyo, J. Rosado , J. Santiago , I. Jiménez, (2002), The Atmospheric Phenomena Laboratory: Connecting Electrical and Computer Engineering Through Undergraduate Research, *32nd ASEE/IEEE Frontiers in Education Conference-7803-7444-4/02/\$17.00*, Nov. 6-9, Boston, MA.

### **Five Synergistic Activities**

Developing undergraduate Certificate in Space Science and Technology at University of Puerto Rico.  
Participating in local Industrial Affiliates Program to stimulate interest in atmospheric research at University of Puerto Rico.  
Undergraduate research with the World Wide Lightning Locator Network.  
Promote science, math and engineering technology to cadets in the Civil Air Patrol as a squadron Aerospace Education Officer.  
Developing database structures for easy access of extremely large databases.

### **Collaborators and Co-Editors**

Dr. Daniel Altschuler (Arecibo Observatory, Arecibo, Puerto Rico, USA)  
Dr. Javier Arroyo (University of Puerto Rico, Mayagüez, Puerto Rico, USA)  
Dr. Mark Chang (University of Puerto Rico, Mayagüez, Puerto Rico, USA)  
Dr. Donald Farley (Cornell University, Ithaca, New York, USA)  
Dr. Félix Fernández (University of Puerto Rico, Mayagüez, Puerto Rico, USA)  
Prof. Rafael Fernandez-Sein (University of Puerto Rico, Mayagüez, Puerto Rico, USA)  
Dr. Sixto Gonzalez (Arecibo Observatory, Arecibo, Puerto Rico, USA)  
Dr. Warren Moos (Johns Hopkins University, Baltimore, Maryland, USA)  
Dr. Efraín O'Neill-Carrillo (University of Puerto Rico, Mayagüez, Puerto Rico, USA)  
Dr. Luis Quiñones (University of Puerto Rico, Mayagüez, Puerto Rico, USA)  
Dr. Rafael Rodríguez-Solís (University of Puerto Rico, Mayagüez, Puerto Rico, USA)  
Prof. Julio Santiago (University of Puerto Rico, Mayagüez, Puerto Rico, USA)  
Dr. Charles Seyler (Cornell University, Ithaca, New York, USA)  
Dr. Wesley Swartz (Cornell University, Ithaca, New York, USA)  
Dr. Julio Urbina (Penn State University, University Park, Pennsylvania, USA)

### **Graduate and Postdoctoral Advisors**

Dr. Michael Kelley (Cornell University, Ithaca, New York, USA)  
Dr. Donald Farley (Cornell University, Ithaca, New York, USA)

### **Current and Former Graduate and Postdoctoral Advisees**

Michael Rodríguez (ME Comp. Eng., University of Puerto Rico, Mayagüez, Puerto Rico, USA)

## BIOGRAPHICAL SKETCH

Nayda G. Santiago

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### PROFESSIONAL PREPARATION

<b>Ph.D.</b>	Electrical Engineering	Michigan State University	2003
<b>M.Eng.</b>	Electrical Engineering	Cornell University	1990
<b>B.S.</b>	Electrical Engineering	University of Puerto Rico, Mayaguez Campus	1989

### APPOINTMENTS

**2003-Present:** Assistant Professor, Electrical and Computer Engineering Department, University of Puerto Rico, Mayaguez Campus.

**2000-2003:** Instructor, Electrical and Computer Engineering Department, University of Puerto Rico, Mayaguez Campus.

**1997-2000:** Research Assistant, Department of Electrical and Computer Engineering, Michigan State University.

**Summer 1996:** Summer Intern, Cornell Theory Center, Cornell University

**1995-1996:** Teaching Assistant, Department of Electrical and Computer Engineering, Michigan State University.

**1990-1994:** Instructor, Electrical and Computer Engineering Department, University of Puerto Rico, Mayaguez Campus.

**1989 - 1990:** Research Assistant, School of Electrical and Computer Engineering, Cornell University

**1988-1989:** Lab Instructor, Electrical and Computer Engineering Department, University of Puerto Rico, Mayaguez Campus.

**Summer 1988:** Summer Intern, Department of Electrical Engineering, Texas A & M.

### PUBLICATIONS

#### Five publications most closely related to the proposal project

1. J. Morales, N. G. Santiago, A. Fernandez, "An FPGA implementation of image space reconstruction algorithm for hyperspectral imaging analysis." Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII", SPIE Symposium on Defense & Security 2007, April 9-13, 2007, Orlando, Florida USA.
2. J. Morales, N. Medero, N. Santiago and J. Sosa, "Hardware Implementation of Image Space Reconstruction Algorithm using FPGA", Proceedings of the 49<sup>th</sup> Midwest Symposium on Circuits and Systems, August 6-9, 2006, San Juan, PR.
3. M. Jimenez and N. Santiago, "The Supporting Role of CAD/CAM Tools in Undergraduate Research Education in Electrical and Computer Engineering", Proceedings 6<sup>th</sup> International Conference on Information Technology Based Higher Education and Training, ITHET 2005, July 7-9, 2005, Dominican Republic.
4. D. Rodriguez and N. Santiago, "Integrating Novel Methodologies, Tools, and IT Resources for Graduate Level Courses in High Performance Computing and Advanced Signal Processing Algorithms", Proceedings 6<sup>th</sup> International Conference on Information Technology Based Higher Education and Training, ITHET 2005, July 7-9, 2005, Dominican Republic.
5. Santiago, N.G.; Rover, D.T.; Rodriguez, D., "A statistical approach for the analysis of the relation between low-level performance information, the code, and the environment", The 4th Workshop on High Performance Scientific and Engineering Computing with Applications, HPSECA-02, Page(s): 282 -289.

#### Five other significant publications

1. G. A. Chaparro-Baquero, N. G. Santiago, W. Rivera, J. F. Vega-Riveros, "Measuring Quantitative Dependability Attributes in Digital Publishing using Petri Net Workflow Modeling", The 2nd IEEE International Symposium on Dependable, Autonomic and Secure Computing (DASC'06), Indianapolis, IN, Sept 2006.



2. R. Veguilla, Santiago, N.G. and D. Rodriguez, "Issues in Terrain Visualization for Environmental Monitoring Applications", Latinamerican And Caribbean Conference for Engineering and Technology, Laccei'06, Mayaguez, PR., Jun 21-23, 2006.
3. D. Rodriguez, N. G. Santiago, H. Nava, "High Performance SAR Raw Array Data Simulation Environment (SARADAS)," IEEE 5th European Conference on Synthetic Aperture Radar, EUSAR 2004, Germany, May 2004.
4. D. T. Rover, N. G. Santiago, M. Tsai, "Active Learning in an Electronic Design Automation Course", 1999 IEEE Computer Society International Conference on Microelectronic Systems Education, July 19-21, 1999, Arlington, VA, Page(s) 78 - 79.
5. M. A. Jimenez, N. G. Santiago, D. T. Rover, "Development of an FPGA-Based Scalable Floating Point Multiplier", 1998 Field Programmable Devices Workshop (FPD'98), Ecole Polytechnique de Montreal, Montreal Canada, Jun. 1998.

### **SYNERGISTIC ACTIVITIES**

1. Computing Alliance of Hispanic Serving Institutions, CAHSI, Intervention: Promoting undergraduate research and the affinity research group model among HSIs

### **COLLABORATORS AND OTHER AFFILIATIONS**

1. Graduate advisors
  - Dr. Diane Rover, PhD Dissertation
  - Dr. Michael Kelly, MEng Project
2. List of Current Collaborators
  - Domingo Rodriguez, Professor, Director WALSAIP Project, UPRM
  - Fernando Vega, Assistant Professor, ECE Department, UPRM
  - Miguel Velez, Professor, ECE Department, UPRM
  - Nestor Rodriguez, Professor, ECE Department, UPRM
  - Manuel Jimenez, Associate Professor, ECE Department, UPRM
  - Omayra Ducoudray, Assistant Professor, ECE Department, UPRM
  - Ana Nieves, Associate Professor, Psychology Department, UPRM
  - Eddie Marrero, Associate Professor, Psychology Department, UPRM
  - Kensall D. Wise, Professor of EE and CS, Univ of Michigan, Ann Arbor, Director, Center for Wireless Integrated MicroSystems an NSF Engineering Research Center
  - Anne Gates, Program Head, CS Department, University of Texas, El Paso, Director of Computing Alliance of Hispanic Serving Institutions
  - Malek Adjouadi, Associate Professor, Department of ECE, and Director, Center for Advanced Technology and Education (CATE), Florida International University
  - Moshen Beheshti, Chair, Computer Sciences Department, California State University Dominguez Hills
  - Richard Alo, Professor, Director of Center for Computational Science and Advanced Distributed Simulation, Department of Computer and Mathematical Sciences, University of Houston-Downtown
3. Graduate students currently under supervision
  - David Ortiz, MSEE
  - Ricardo Veguilla, MSCpE
4. Past Graduate Students
  - Gustavo Chaparro, MSCpE, July 2006
  - Javier Morales, MSEE, February 2007

## Biographical Sketch for JAIME SEGUEL

### Professional Preparation

- B.S. in Electronic Engineering, Catholic University of Valparaiso, Chile, 1972
- M.S. in Applied Mathematics, University of Santiago, Chile, 1982.
- Ph.D. in Mathematics (Theoretical Computer Science), City University of New York, 1987.

### Professional Appointments

- 1988 - present: Professor of Computer Science, University of Puerto Rico at Mayagüez.
- 1987 - 1988: Assistant Professor of Computer Science, Notre Dame College of Saint John's University of New York.
- 1981 – 1983: Assistant Professor, Northern University, Arica, Chile

### Publications (Selected)

1. D. Bollman, J. Seguel, J. Feo "A functional Approach to Radix-r FFTs" Journal of Parallel and Distributing Computing Practices, Vol 1, No. 1, pp 51-74, 1998.
2. J. Seguel, D. Bollman, J. Feo "A Framework for the Design and Implementation of FFT Permutation Algorithms" IEEE Transactions in Parallel and Distributed Systems, Vol. 11, No. 7, pp 625-635, 2000.
3. J. Seguel, D. Bollman, E.Orozco "A New Prime Edge-length Crystallographic FFT" Elsevier Lecture Notes in Computer, LNCS 2330, pp. 548-557, 2002.
4. J. Seguel "A Unified Treatment of Compact Symmetric FFT Code Generation" IEEE Transactions on Signal Processing, Vol. 50, No. 11, pp 2789-2797, 2002.
5. J. Seguel, D. Burbano "A Parallel Prime Edge-length Crystallographic FFT", Elsevier Lecture Notes of Computer Science, LNCS 2659, pp 602-611, 2003.
6. J. Seguel "Design and Implementation of a Parallel Prime Edge-length Symmetric FFT" Elsevier Lecture Notes in Computer Science, LNCS 2667, pp 1025-1034, 2003.
7. J. Seguel, D. Burbano "A Scalable Crystallographic FFT" Elsevier Lecture Notes in Computer Science, LNCS 2840, pp. 134-141, 2003.
8. J. Seguel, L. de Latorre "Scheduling Divisible Tasks Under Throughput Constraints", submitted to IEEE Transactions in Parallel and Distributed Systems

9. J. Seguel "A Highly Accurate FFT", submitted to IEEE Transactions in Signal Processing
10. J. Seguel, J. Ballesteros "Implementing Bioinformatics Algorithms on Heterogeneous Platforms", on preparation

### **Synergistic Activities**

1. Co-founder of the IBM sponsored LA Grid project, a multi-institution infrastructure for grid technology development and applications
2. Member of the Computer Science and Engineering Advisory Council, a consulting organization appointed by the UPRM Chancellor and formed by members of industry and academia
3. Member of the Computing and Information Technology cluster, an organization established by the government of Puerto Rico to advance the development of knowledge based economy on the Island.
4. Member of Committee for the creation of a Department of Computer Science and Engineering at the UPR-Mayaguez.

### **Collaborators and Other Affiliations**

#### Collaborators

1. Dr Liana Fong, Dr. Jean-Pierre Prost, IBM Research
2. Hugh Nicholas, Pittsburgh Supercomputing Center

Advisor: Dr. Louis Auslander (deceased)

Thesis Advisor (from 2001 – present)

1. Luis de la Torre, PhD Candidate in CISE, thesis title (tentative) "*Self-Adaptive Steady-state Workflow Scheduler*", expected graduation date: May 2008.
2. Jaime Ballesteros, PhD Candidate in CISE, thesis title (tentative) "*A Throughput Optimal and Self-adaptive Scheduler for Load-divisible Distributed Tasks*", expected graduation date: May 2008.
3. Iván David, MS in Computer Engineering, Thesis title "*Parallel Composite Edge-length Crystallographic FFT*", Graduated in May 2004
4. Daniel Burbano, MS in Computer Engineering, Thesis title "*Parallel Prime Edge-length Crystallographic FFTs*", Graduated in May 2003
5. Daniza Morales, MS in Computer Engineering, Thesis title "*Automatic Code Generation of Sine and Cosine Transforms*", Graduated in May 2002
6. Grenda Debró, MS in Computer Engineering, Thesis title "*Bit-reversal Permutation and Parallel Implementations*". Graduated in May 2001

## Nelson Sepulveda

### (a) *Professional Preparation*

University of Puerto Rico, Mayagüez Electrical Engineering B.Sc., 2001  
Michigan State University Electrical Engineering M.S., 2002  
Michigan State University Electrical Engineering Ph.D., 2005

### (b) *Appointments*

**01/2006 to present - Assistant Professor**, Department of Electrical and Computer Engineering,  
University of Puerto Rico, Mayaguez Campus  
**05/2006 – 08/2006 - Visiting Faculty Researcher**, Air Force Research Laboratories (SND-Division), Wright Patterson Air Force Base, Dayton OH  
**05/2005 – 12/2005 - Sandia National Laboratories MESA Fellow**, Sandia National Laboratories, Albuquerque, NM  
**01/2001 - 05/2005 - Teaching Assitant**, Department of Electrical and Computer Engineering, University of Puerto Rico, Mayaguez Campus  
**08/2000 - 12/2000 - Lab Instructuor**, Department of Electrical and Computer Engineering, University of Puerto Rico at Mayaguez  
**05/2000 - 08/2000 - Summer Intern**, College of Computing, Georgia Institute of Technology, Atlanta, GA

### (c) *5 Most Relevant Publications*

1. N. Sepúlveda, D.M. Aslam, J.P. Sullivan, "Polycrystalline diamond RF MEMS resonators with the highest quality factors" 19th International Conference on Micro Electro Mechanical Systems, 22-26 Jan. 2006, pp.238-241
2. N. Sepulveda, D.M. Aslam, J.P. Sullivan, "Polycrystalline Diamond MEMS Resonator Technology for Sensor Applications" *Diamond and Related Materials*, Volume 15, Issues 2-3, February-March 2006, Pages 398-403
3. N. Sepúlveda, D.M. Aslam, J.P. Sullivan, J.R. Wendt and B.B. McKenzie, "Polycrystalline Diamond Micromechanical Resonators with Submicrometer and Nanometer Dimensions" IEEE 1st International Conference on Nano/Micro Engineered and Molecular Systems, January, 2006, pp. 662-667
4. N. Sepulveda-Alancastro and D. M. Aslam, "Polycrystalline diamond technology for RF MEMS Resonators" *Microelectronic Engineering* 73-74, 435 (2004).
5. X. Zhu, N. Sepulveda, D.M. Aslam and J.P Sullivan "Diamond Thin Film Micro-package for MEMS Resonators" IEEE 1st International Conference on Nano/Micro Engineered and Molecular Systems, January, 2006. pp. 1280-1283

### (d) *Synergistic Activities*

- NSF Panelist of CAREER proposals, Division of Electrical, Communications and Cyber Systems, 2006

## **Nelson Sepulveda**

### **Page 2**

- “Polycrystalline Diamond Mechanical Resonators with submicrometer and nanometer dimensions” Presentation at Material Research Society Meeting Spring 2006, San Francisco, CA
- “Polycrystalline Diamond (Poly-C) MEMS Resonators” Seminar at University of Michigan, invited by the NSF-WIMS ERC on January 28th, 2005
- “Electrostatic and Piezoelectric Testing Methods for RF MEMS Resonators” Oral presentation at IEEE MWSCAS 2006 conference, San Juan, PR.

### **(e) Collaborators & Other Affiliations**

#### **• Collaborators :**

Air Force Research Laboratories, Dr. Rebecca Cortes  
Air Force Research Laboratories, Dr. John L. Ebel  
UPRM Professor, Physics Department, Dr. Felix Fernandez  
UPRM Professor, ECE Department, Dr. Rafael Rodriguez-Solis  
UPRM Assist. Professor, ME Department, Dr. Ruben E. Diaz  
UPRM Assist. Professor, MSE Department, Dr. Agnes Padovani  
Michigan State University, Professor Dr. Leo Kempel  
University of Michigan Professor, EECS Department, Dr. Michel Maharbiz  
Sandia National Laboratories, Dr. John P. Sullivan

#### **• Graduate and Postdoctoral Advisors.**

Dr. Dean Aslam, Michigan State University  
Dr. Leo Kempel, Michigan State University  
Dr. John P. Sullivan, Sandia National Laboratories

#### **• Thesis Advisor and Postgraduate-Scholar Sponsor.**

-Mr. Diego Aponte-Roa, Electrical and Computer Engineering Department UPR-Mayaguez (exp.grad. 2008).  
-Mrs. Maria F. Cordoba-Erazo, Electrical and Computer Engineering Department UPR-Mayaguez (exp. grad. 2008).

## **SERRANO RIVERA, GUILLERMO J.**

Email: [gserrano@ece.uprm.edu](mailto:gserrano@ece.uprm.edu)

Phone: (787) 832-4040 ext 3610-4006

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### *Academic Rank: Assistant Professor*

Institution: University of Puerto Rico, Mayagüez Campus

Department: Electrical and Computer Engineering

Date of original appointment: August 2007

### *Degrees Obtained:*

B.S.	Electrical Engineering	University of Puerto Rico, Mayagüez, PR	2001
M.S.	Electrical Engineering	Georgia Institute of Technology, Atlanta, GA	2003
Ph.D.	Electrical Engineering	Georgia Institute of Technology, Atlanta, GA	2007

### *Areas of Professional Expertise:*

Analog and mixed-signal circuit design

Sub-threshold circuit design

Floating-gate transistors

### *Work Experience:*

Graduate Research Assistant - 08/2001 - 06/2007

ECE Department at Georgia Institute of Technology, Atlanta, GA

Co-Op Student - 08/2005 - 12/2005

Power Management Products, Texas Instruments, Manchester, NH

### *Publications*

- **G. J. Serrano**, and P. Hasler, "A Precision Low TC Wide Range CMOS Current Reference," IEEE Journal of Solid-State Circuits, accepted.
- V. Srinivasan, **G. J. Serrano**, J. Gray and P. Hasler, "A precision CMOS Amplifier Using Floating-Gates for Offset Cancellation," IEEE Journal of Solid-State Circuits, vol. 42, num. 2, Feb. 2007, pp- 280-291.
- Bandyopadhyay, **G. J. Serrano** and P. Hasler, "Adaptive Algorithm Using Hot-Electron Injection for Programming Analog Computational Memory Elements Within 0.2% of Accuracy over 3.5 Decades," IEEE Journal of Solid-State Circuits, vol. 41, num. 9, Sept. 2006, pp- 2107-2114.
- R. Chawla, F. Adil, **G. J. Serrano** and P. Hasler, "Programmable Gm-C Filters using Floating-Gate Operational Transconductance Amplifiers," IEEE Transactions on Circuits and Systems, vol. 54, num 3, Mar. 2007, pp- 481-491.
- Srinivasan, **G. J. Serrano**, C. Twigg and P. Hasler, "A Compact Programmable CMOS Reference with 40uV Accuracy," IEEE Custom Integrated Circuits Conference, 2006.
- Srinivasan, **G. J. Serrano**, J. Gray and P. Hasler, "A precision CMOS amplifier using floating-gates for offset cancellation," IEEE Custom Integrated Circuits Conference, Sept. 2005, pp- 739-742.

- Bandyopadhyay, **G. J. Serrano** and P. Hasler, “Programming Analog Computational Memory Elements to 0.2% Accuracy over 3.5 decades using a Predictive Method,” IEEE International Symposium on Circuits and Systems, vol. 3, May. 2005, pp- 2148-2151.
- **G. J. Serrano** and P. Hasler, “A Floating-Gate DAC Array,” IEEE International Symposium on Circuits and Systems, May 2004, pp- 357-360.
- **G. J. Serrano**, P. D. Smith, et. al. “Automatic Rapid Programming of Large Arrays of Floating-gate Elements,” IEEE International Symposium on Circuits and Systems, May. 2004, pp-373-376.
- R. Chawla, **G. J. Serrano**, D. Allen and P. Hasler. “Programmable floating-gate second-order section for Gm-C filter applications,” IEEE Midwest Symposium on Circuits and Systems, Aug. 2005, pp-1649-1652.
- 

***Grants or Externally Funded Projects***

None

***Honors and awards:***

Best Student Paper Award at the 2005 IEEE Custom Integrated Circuits Conference  
 Presidential Fellowship at Georgia Institute of Technology

**Raúl E. Torres Muñiz**

Current Address:  
P.O. Box 1836  
Añasco, PR 00610-1836

Phone: (787)644-3869  
E-mail: rtorres@ece.uprm.edu  
Web Page: <http://ece.uprm.edu/~rtorres/raul.html>

**OBJECTIVE**

Present my qualifications as an Electrical Engineering professor and professional.

**EDUCATION**

**Doctor of Philosophy in Electrical Engineering:** University of Virginia, Charlottesville, VA *Dissertation Topic:* Biologically Inspired Architecture for Mobile Robot Navigation, *May 1998*

**Master of Science in Electrical Engineering:** University of Virginia, Charlottesville, VA *Master Thesis Title:* Mobile Robot Navigation with Vision-Based Neural Networks *Major:* Neural Networks applied to Robotics, *Minors:* Manufacturing Systems, and Image Processing, *May 1994*

**Bachelor of Science in Electrical Engineering:** University of Puerto Rico, Mayagüez, PR *Major:* Automatic Controls, *Minor:* Economics, *December 1991*

**EXPERIENCE**

University of Puerto Rico, Mayagüez Campus, P.O. Box 9042, Mayagüez, Puerto Rico 00681-9042: **Associate Director** for Accreditation and Graduate Studies of the Department of Electrical and Computer Engineering: *August 2005 to June 2007*

University of Puerto Rico, Mayagüez Campus, P.O. Box 9042, Mayagüez, Puerto Rico 00681-9042. Department of Electrical and Computer Engineering: **Associate Professor.** *July 1998 to Present*

<i>Main Courses</i>	<i>Other Activities</i>
<ul style="list-style-type: none"> <li>• <i>Robotics and Automation</i></li> <li>• <i>Intelligent Systems and Control</i></li> <li>• <i>Machine Vision</i></li> <li>• <i>Introduction to Control Systems</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Electronic Laboratories Coordinator</i></li> <li>• <i>Committee for ABET Accreditation</i></li> <li>• <i>Committee of Planning and Development</i></li> </ul>

The 49<sup>th</sup> IEEE Midwest Symposium on Circuits and Systems (MWSCAS 2006)

Volunteer as Track Chairperson and Review Committee Member for the Control Systems, Mechatronics & Robotics Track.

Volunteer as Session Chairperson for Neural Networks & Fuzzy Systems and Image Processing II Sessions.

*August 2006.*

University of Virginia, Charlottesville, VA

Department of Physics: *Production of electronic control boards to be used in nuclear reactor experiments.* Supervisor: Bill Stephens, *Summer 1996*

Honeywell Inc., 1985 Douglas Dr. N., Golden Valley, MN 55422-3992.

Home and Building Control Division: *New Product Development--design aid for damper actuators: Designing tests for new prototypes to ensure they meet their specifications.*

Supervisor: Larry Rodgers, *Summers of 1993 and 1992*

Puerto Rico Electric Power Authority (PREPA), P.O. Box 790, Mayagüez, Puerto Rico 00681. Mayagüez Regional Office: *Software development and computerize records. Introducing computer technology to personnel.* Supervisor: Gaspar Rodríguez, *Summer 1991*

University of Puerto Rico, Mayagüez Campus, P.O. Box 9042, Mayagüez, Puerto Rico 00681-9042. Department of Electrical Engineering: *Setting up experiments and searching for equipment for a new Control Laboratory.* Supervisor: Gerson Beauchamp, *October 1990 - May 1991*

Puerto Rico Electrical Power Authority, G.P.O. Box 4267 San Juan, PR 00936-4267 Electric System Training Center: *Microprocessor application design for training courses.* Supervisor: Carlos Taulet, *Summer 1990*

**PUBLICATIONS**

- Diaz, J., and Torres, R.E. , **“A fuzzy system approach for the classification of underwater AUV color images”**, *Image Processing: Algorithms and Systems V*: Electronic Imaging 2007 SPIE Proceedings Vol. 6497, January 2007.



- Diaz, J., and Torres, R.E. , “**Classification of Underwater Color Images with Applications in the Study of Deep Coral Reefs**”, The 49<sup>th</sup> IEEE Midwest Symposium on Circuits and Systems (MWSCAS), Vol. Image Processing II, August 2006.
- González Solano, N., Torres, R.E., “**Pattern Recognition and Text-Dependent Recognition for a Mobile Robot**”, The 49<sup>th</sup> IEEE Midwest Symposium on Circuits and Systems (MWSCAS), Vol. Neural Networks & Fuzzy Systems, August 2006.
- Torres Muñiz, R.E., “**Laboratorio de Medidas Eléctricas**”, Second Edition, Wiley & Son, December 2005. (ISBN 0-470-00915-2)
- Torres Muñiz, R.E., “**Laboratorio de Medidas Eléctricas**”, First Edition, Wiley & Son, November 2003. (ISBN 0-471-66987-3)
- Rivera F.J., Torres, R.E., and Jiménez, L.O., “**Hough transform for robust segmentation of underwater multispectral images**”, SPIE-The International Society for Optical Engineering Proceeding: *AeroSense 2003-Technologies and Systems for Defense & Security*, Orlando, 2003.
- Torres, R.E., “**Biologically based neural network for mobile robot navigation**”, Mobile Robots XIII, SPIE Proceedings, November 1998.”
- Iñigo, R.M. and Torres, R.E., “**Mobile robot navigation with vision-based neural networks**”, Mobile Robots IX, SPIE Proceedings Vol.2352, November 1994.”

## RESEARCH

- “**Medical Devices Research Group (MDRG).**” A group of professors from the College of Engineering at UPRM, each having an area of expertise related to the medical devices and biomedical engineering field. The mission of MDRG is to assist medical device companies located in Puerto Rico solve research and development problems related to manufacturing processes or to the development of new products and technologies.

<i>Project Title</i>	<i>Sponsor</i>
<i>“Development of Technologies for the Manufacture of Cardiac Pacing and Defibrillation Leads”, August 2003-December 2003</i>	Medtronic - Villalba
<i>“Development of Technologies for the Manufacture of Cardiac Pacing and Defibrillation Leads: Phase II”, January 2004 - August 2004</i>	Medtronic - Villalba

- “**Center for Subsurface Sensing and Imaging Systems (CenSSIS).**” Participant in the developing of a robust algorithm for objects segmentation and classification. The development focus in the identification of coral reefs. This research is sponsored by a NSF grant.
- “**Robotic Soccer.**” Multidisciplinary research to design a team of five robots that play autonomously controlled by a main computer. A vision system is used to identify the field, ball, foe robots and our own robots using color segmentation. Position and velocities calculated from the vision system are passed to an AI strategy module that plans the game moves. Finally the our own designed robots read a wireless signal and execute the commands. F-180 rules of the RoboCup organization are followed.
- Industrial Affiliates Program 2006: “**Plantain Processing Automation.**” A project of peeling plantain automatically for a agriculture production site in Puerto Rico.
- Industrial Affiliates Program 2003 - 2004: “**Assistance Technology for Handicap and Impaired People.**” The Program of Technological Assistance of Puerto Rico asked for the design of several devices to aid impaired and handicap people. Among these devices are a low cost robotic arm (below \$400) to be attached to wheelchair and mobile vehicles to guide blind people.
- Industrial Affiliates Program 2000 - 2001: “**Tele-operating the Khepera Mobile Robot through an eye-tracking device.**” A helmet with an infrared vision system and a head tracker (based in both magnetic sensors and external vision system) were used to determine the site where the operator was looking inside an remote image sent by the robot. The robot, then was commanded to go the site of interest.
- Industrial Affiliates Program 2000 - 2001: “**Design of a control system of a multi-legged mobile robot.**” A de-centralized controller was designed to handle low-level tasks such as walking, and high-level tasks like retrieving occluded objects.
- Industrial Affiliates Program 1999 - 2000: “**Assembly competition of mobile robots.**” Organizer of event and advisor of teams for a beacon-finding competition. Students built and compete for being the first in finding a hidden beam by the use of autonomous robots. This research was sponsored by Motorola.
- “**Assembly and Testing of the Talrik II Mobile Robot.**” Undergraduate research to expose students to the different parts of a mobile robot.

- **“Image Acquisition Device for the Human Eye.”** Undergraduate research that proposes alternatives for applications involving eye-related sciences.
- Industrial Affiliates Program 1998 - 1999: **“Study of noise readings in infrared sensors and their effect in the Khepera Miniature Mobile Robot’s performance.”** Designing digital filters that adjust themselves to work under different types of illumination.

## WORKSHOPS

- **Videometrics IX, Human Vision and Electronic Imaging XII, Image Processing: Algorithms and Systems V and Vision Geometry XV,** Sponsors: SPIE – International Society for Optical Engineering and IS&T – The Society for Image Science and Technology. Conference: Electronic Imaging 2007
- **ABET Accreditation Workshop,** Sponsor: System for the Evaluation of Education Office at UPRM, April 2006
- **Orientation on Institutionalizing Assessment in the Administrative / Service Units,** Sponsor: UPRM, April 2006
- **Organizational Savvy and Ethical Lobbying,** Sponsor: Texas Instrument, October 2006
- **Intellectual Property at the University of Puerto Rico and the Law of Ethics,** Sponsor: Center for Professional Enhancement at UPRM, May 2006
- **Assessment 101,** Sponsor: Center for Professional Enhancement at UPRM, March 2006
- **Building Surveys,** Sponsor: Center for Professional Enhancement at UPRM, September 2005
- **Design of WEB based courses using WEBCT,** Sponsor: “Instituto para el Desarrollo de la Enseñanza y el Aprendizaje en Línea (IDEAL)” at UPRM, May 2004
- **PowerPC and M-Core Seminar:** Sponsor: Motorola DNA Academy, August 2001
- **Learning Styles: Felder Model,** Sponsor: Center for Professional Enhancement, February 2001
- **ABET EC 2000 Workshop,** Sponsor: Engineering Dean Office at UPRM, September 2001
- **Ethics Across the Curriculum,** Sponsor: Engineering Dean Office at UPRM, April 2001
- **Engineering Ethics,** Sponsor: Department of Humanities at UPRM, October 2000
- **Microcontroller 68HC12 Family,** Sponsor: Motorola DNA Academy, Lecturer: Norbel Navarro, March 1999
- **Sensor Fusion and Decentralized Control in Robotic Systems,** Sponsor: SPIE – International Society for Optical Engineering, November 1998
- **Mobile Robots XIII and Intelligent Transportation Systems,** Sponsor: SPIE – International Society for Optical Engineering, November 1998
- **Preparing Syllabus,** Sponsor: Center for Professional Enhancement at UPRM, February 2001
- **Green Lights and Energy Star Buildings Workshop.** Sponsor: United States Environmental Protection Agency Lecturer: Alden Hathaway
- **Programmable Logic Controller (PLC) Seminar.** Sponsor: JR Electronics & Pneumatics, Ave. Campo Rico #829, Country Club, Rio Piedras, P.R. 00924 Lecturer: Carlos Rivera

## HONORS

- IEEE Senior Member
- NSF Ph.D. Fellow (1994-1997)
- GEM Fellow of the National Consortium for Graduate Degrees for Minorities in Engineering and Science (1992-1993).
- Dean's List (1989-1991)
- First Prize in the Calculus Bowl, celebrated in Cayey Campus, University of Puerto Rico (1988).
- Third Prize in the Second Iberoamerican Mathematics Bowl celebrated in Uruguay (1987).
- Honorable Mention in National Hispanic Scholar Awards Program Competition, College Board (1987).
- First Prize in the Science Fair of the District of San Juan, Department of Education, Commonwealth of Puerto Rico (1986).
- National Honor Society, Hortus Chapter (1986).

## PROJECTS AT GRADUATE SCHOOL

- Geometrical object recognition using neural networks for variable perspective, orientation, and translation.
- Extracting features from images for mobile robot navigation.
- Neural network training for answering mathematical aptitude tests.
- Cutting paper with laser technology.
- Manufacturing process simulations of industries.
- Robotic camera calibration for grasping geometrical objects.

# RAMÓN E. VÁSQUEZ ESPINOSA

Dean-College of Engineering  
University of Puerto Rico at Mayagüez  
T: (787) 265-3822 F: (787) 833-1190  
E: [reve@ece.uprm.edu](mailto:reve@ece.uprm.edu)

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## EDUCATION:

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**Ph.D.:** Louisiana State University, 1984  
**MSEE:** University of Puerto Rico at Mayagüez, 1979  
**BSEE:** University of Puerto Rico at Mayagüez, 1974, (**Magna Cum Laude**)

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## AREAS OF PROFESSIONAL EXPERTISE

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Remote Sensing, Computer Vision, Geographic Information Systems, Image Processing, Artificial Intelligence

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## APPOINTMENTS

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*Department of Electrical Engineering and Computers  
University of Puerto Rico at Mayagüez*

Professor: July 1992  
Associate Professor: July 1987  
Assistant Professor: July 1984  
Instructor: July 1975  
Teaching Assistant: August 1974  
**TOTAL UPRM SERVICE: 33 years**, (College of Engineering)

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## OTHER INSTITUTIONAL EXPERIENCE:

---

**Dean**-College of Engineering, University of Puerto Rico at Mayagüez, February 2000 to present

**Director**-Center for Research and Development at the University of Puerto Rico at Mayagüez, June 1999 to February 2000

**Associate Director**-Electrical and Computer Engineering, University of Puerto Rico at Mayagüez, March 1990 to June 1998

**Director**-Center for Computing Research and Development (CECORD), Electrical and Computer Engineering, University of Puerto Rico at Mayagüez, 1994 to June 1999

**Director**-Laboratory of Remote Sensing and Image Processing (LARSIP), Electrical and Computer Engineering, University of Puerto Rico at Mayagüez, 1989 to 1998

**Associate Dean of Academic Affairs**-College of Engineering, University of Puerto Rico at Mayagüez, June 1998 to June 1999

**Research Assistant**-Remote Sensing and Image Processing Center, Electrical and Computer Engineering, Louisiana State University, July 1980 to June 1984

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## BOOK CHAPTERS

---

"ABET's Engineering Criteria 2000: Our Efforts in a Nutshell", by A.D. Sharma, I. Davis, R. Vásquez, and L. Morell, **INEER Special Volume: INNOVATIONS 2004**, World Innovations in Engineering Education and Research (ISBN 0-9741252-1-0), Chapter 24.

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## SOME JOURNAL PUBLICATIONS

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"Texture based cloud detection in MODIS images", by V. Manian and R. Vásquez, **Journal of Optical Engineering**, SPIE Vol. 4882, Sept. 22-27, 2002

"Approaches to color and texture based image classification", V. Manian and R. Vásquez, **Journal of Optical Engineering**, SPIE, July 2002.

"The Laboratory for Applied Remote Sensing and Image Processing at University of Puerto Rico at Mayaguez", by S. Cruz-Pol, M Vélez-Reyes, S. Hunt, H. Parsiani, J. Colom-Ustaris, L.O. Jiménez, and R. Vasquez, **IEEE Geoscience and Remote Sensing Newsletter**, January 2002.

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## SOME RECENT CONFERENCE PROCEEDINGS

---

"Integrating Cross-Comparison Methodologies for Retrieval of Cloud Top Heights over the Caribbean", by A. Picón, H. Parsiani, and R. Vázquez, **WSEAS Transactions on Signal Processing**, Issue2, Vol. 2, Pages 265-270, February 2006.

"2005: Urban Heat Islands Developing in Coastal Tropical Cities" by J.E. González, J.C. Luvall, D. Rickman, D.E. Comarazamy, A.J. Picón, E.W. Harmsen, H. Parsiani, N. Ramírez, R. Vázquez, R. Williams, R. B. Waide, and C. A. Tepley, **EOS Transactions**, AGU, 86, 42, pp. 397 & 403.

"A Transfer Function Model to Estimate Soil Moisture", by N. Ramírez, R. Vázquez, H. Cruzado, and E. Harmsen, **Proceedings of Research & Education Advancements in Oceanic & Atmospheric Sciences**, New York, pp 175-180, October 21-23, 2004.

"A genetic algorithm for texture description and classification", by V. Manian and R. Vázquez, **Proceedings of AeroSense '02**, April 2002.

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## SOME RECENT PRESENTATIONS

---

"An Empirical Model to Estimate Soil Moisture over Vegetated Areas", by N. Ramírez, C. Calderón and R. Vázquez, **21th Conference on Hydrology, 87th Annual AMS Meeting**, San Antonio TX, January 14-19, 2007.

"Vertical Soil Moisture Profile Based on *In-Situ* and Satellite Observations", by N. Ramírez, C. Calderón and R. Vázquez, **The NOAA/EPP Fourth Education and Science Forum**, Tallahassee, FL, October 30-November 1, 2006.

"MODIS Land Surface Retrieval in San Juan, during the ATLAS Field Campaign" by A.J. Picón, R. Vázquez, J.E. González, J.C. Luvall and D. Rickman, **86th AMS Annual Meeting Combined Preprints**, Atlanta, GA, 29 January - 2 February 2006.

"Cross Comparison of MODIS and MISR Cloud Top Height Retrieval Over The Caribbean" by A. Picón, R. Vázquez and H. Parsiani, **WSEAS 2005 Conference**, November 2005, Italy.

"A Short- and Long-Term Memory Model to Estimate Soil Moisture", by N. Ramírez, R. Vázquez, H. Cruzado and E. Harmsen, **The 31th International Symposium on Remote Sensing of Environment 2005 "Global Monitoring for Sustainability and Security"**, Saint Petersburg Russia, June 20-24, 2005.

"Retrieval of Cloud Top Heights over the Caribbean" by A. Picón and R. Vázquez, **SPIE Remote Sensing of Clouds and the Atmosphere IX Conference**, Maspalomas, Gran Canaria, Spain, September 2004.

"Continuous Improvement Educational Initiative: A Campus-Wide Assessment Effort", by A.D. Sharma and R. Vázquez, **World Congress on Engineering & Technology Education - WCETE 2004** in Santos, Brazil, March 14-17, 2004; and also at the **ASEE Annual Meeting** in Salt Lake City, Utah, June 22-24, 2004.

"A study on cloud-top height retrieval by using MISR and MODIS data," by A. Picón and R. Vázquez, **IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2003)**, Toulouse, France, July 2003.

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## SOME RECENT GRANTS:

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"Center of Remote Sensing & Technology", CREST-NOAA, **\$2,500,000**/5 year, 2006-2011-Deputy-PI

"Statistical Techniques to Improve the Hydro-Estimator Rainfall Algorithm During Heavy Storms over Puerto Rico" Funded by NOAA/NWS, **\$100,000**, September 2006 to July 2008-Collaborator for Remote Sensing

"Soil Moisture Estimation and Validation a Hydro-Estimator" Funded by NOAA-REST, **\$270,000**, August 2003 to July 2006, PI

"National Aeronautical Space Administration: Experiments Program to Stimulate Competitive Research" NASA-EPSCOR, 1,125,000/ 5 year, 2002-2007-Co-PI

"Center of Remote Sensing & Technology", CREST-NOAA, **\$2,500,000**/5 year, 2001-2006-Deputy PI

"Tropical Center for Earth and Space Studies", NASA-URC II, Goddard Flight Center, NASA, **\$4,999,513.00**, UPR matching fund for **\$2,450,000**, 2000-2005-Co-PI

"PaSCOR-NASA" grant, **\$3,163,167.00**, UPR matching fund for **\$299,918**, 1999-2004-Research collaborator

"Partnership for Spatial Computational Research" (PaSCoR), NASA (PAIR), **\$2,301,289**, June 1998 to May 2003 – PI

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## OTHER SERVICE DUTIES

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- Chair, Co-Chair and/or committee member of numerous conferences such as ISWPC 2007, ICEE 2006, LACCEI 2006, MWSCAS 2006, ITHET 2005, ADMI 2005, FIE 1997 & 1999, and other
- Editor of the publication: "Innovations 2006", ISSN 1553-9911, ISBN 0-9741252-5-3
- President for Information, Association of Department of Computer Science and Engineer for Minority Institutions (ADMI), Washington, D.C., 1998-2001
- Vice-President IEEE Western Section, 1998-2001
- Vice-President of IEEE-CS Chapter, 1998-2001
- Peer Reviewer for various programs at NSF 1990-present
- Editor on Proceedings for ADMI Conferences on 1996, 1997, 1998 and 1999
- President of IEEE Western Section, 1997-98
- Vice-president for Information, Association of Department of Computer Science and Engineer for Minority Institutions (ADMI), Washington, D.C., 1992- 1998

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## CONSULTING

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- **President**, Consulting Board for the Accreditation of EDP College, Council of Higher Education, 1995-2002
- **President**, Consulting Board for the Accreditation of Interamerican University, Guayama Campus, Council of Higher Education, 1993-1995
- **President**, Consulting Board for the Accreditation of Polytechnic University, Council of Higher Education, 1992-1994
- **President** of the Review Committee for the MU-SPIN Program at Goddard Space Center NASA, 1992

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## PROFESSIONAL SOCIETIES

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- IEEE - Institute of Electrical and Electronics Engineers
- ASEE - American Society for Engineering Education
- SPIE - International Society for Optical Engineering
- ASPRS - American Society for Photogrammetry and Remote Sensing
- PRS - Pattern Recognition Society
- ACM - Association for Computing Machinery

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## HONORS AND DISTINCTIONS

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- Centennial Certificate, The American Society for Engineering Education, Best of Session Award for the Plenary Session on COASTAL MAPPING AND CHARTING entitled: "An Integrated Mapping and Databank System for Coastal Changes"
- Tau Beta Pi
- Eta Kappa Nu
- Who is Who Among Students in American Universities?
- Sigma Xi

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**MASTER STUDENTS SUPERVISED: 30 (1 student in progress)**

**PhD STUDENTS SUPERVISED: 4 (3 students in progress)**

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## VEGA-RIVEROS, J. FERNANDO

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**Academic rank: Professor**

**Degrees with fields, institution, and date:**

BS	Electrical Engineering	University Javeriana	1979
MS	Electrical Engineering	Syracuse University	1983
Ph. D.	Electrical Engineering	Syracuse University	1989

**Faculty service at UPRM:**

*Date of original appointment: July 2001*

*Dates of advancement in rank:*

Associate Professor:	2001 to 2006
Professor	2006 to Present
Total years of service:	5.5

**Areas of professional expertise:**

*Artificial Intelligence, knowledge-based systems*

**Other related experience—academic or industrial:**

*Communications Engineer ; Communications Division; Avianca Airlines ; Planning; design and support of communication systems. July 1979, December 1980. Colombia.*

*Communications Projects Coordinator; Communications Division; Avianca Airlines; coordination and management of communication projects. January 1981, July 1982. Colombia.*

*Postdoctoral Research Associate; Institute for Energy Research at Syracuse University; research on Artificial Intelligence Applications for Energy Management Systems. June 1989, June 1990. USA.*

*Professor; Department of Electronics Engineering; Javeriana University; October 1990, June 2001. Colombia.*

*Chairman Electronics Engineering Department; Javeriana University; May 1999, June 2001. Colombia.*

**Consulting, patents:**

*None*

**State(s) in which registered:**

*None*

**Principal publications of last four years: (FY 2002-2003 - 2006-2007)**

Jiménez, M., Santiago, N. G., Vega-Riveros, J. F., Rubert, C., Bonilla, G., Torres, I., Maldonado, C., Malavé, J., and R. Rosario. Integrating Fundamental and Advanced Concepts in a Rounded Capstone Design Experience in Computer Engineering. Abstract accepted. Paper submitted for publication at the Frontiers in Education Conference. Milwaukee, Wisconsin, October 10-13, 2007.

Jiménez, M., Santiago, N., Pomales, C., Nieves, A., López, V. and J. F. Vega-Riveros. An Analysis of Behavior Patterns in *Generation Y* Engineering Students and their Implications in the Teaching-Learning Process. Accepted for publication at the 2007 ASEE Annual Conference and Exposition. Honolulu, Hawaii, June 24-27, 2007.

Chaparro-Baquero, G. A., N. G. Santiago, W. Rivera and J. F. Vega-Riveros. Measuring quantitatively dependability attributes in digital publishing using Petri Net workflow modeling. Accepted for publication in the 2<sup>nd</sup> *IEEE International Symposium on Dependable, Autonomic and Secure Computing DASC'06*. Indianapolis, IN, USA, Sep 29-Oct 1, 2006. Pp. 119-126. Full paper review.

Carvajal, J. P and J. F. Vega Riveros. An information theory approach to measuring semantic similarity among multiple ontologies of the same domain. Submitted to 26<sup>th</sup> Puerto Rico Interdisciplinary Scientific Meeting (Prism). University of Puerto Rico, Cayey. March 11, 2006. Abstract review.

Jaimes, L. G. and Vega Riveros, J. F. Técnicas de recuperación de información. *XXI Seminario Interuniversitario De Investigación en ciencias Matemáticas SIDIM 2006*. Universidad del Turabo, Gurabo, Puerto Rico. February 24-25, 2006. Abstract review.

Vega-Riveros, J. Fernando and Hector J. Santos Villalobos, Graphic design principles for automated document segmentation and understanding. *SPIE Electronic Imaging 2006 EI 2006 – Document Recognition and Retrieval XIII*, San Jose, California, January 15-19, 2006. Abbreviated paper review.

Vega-Riveros, J. Fernando and Hector J. Santos Villalobos, A Hybrid Intelligence Approach to Artifact Recognition in Digital Publishing. *SPIE Electronic Imaging 2006 EI 2006 - Digital Publishing I*, San Jose, California, January 15-19, 2006. Extended abstract review.

Dinos, J. L. and Vega Riveros, J.F. A document ontology and agent-based RDF metadata retrieval. *Semantic Web Personalization Workshop*. San José, California, USA. July 25, 2004. pp 13-17. Full paper review.

Dinos, J. L. and Vega Riveros, J.F. Architecture of a system for document retrieval using semantic metadata. *Computing Research Conference CRC 2004*. University of Puerto Rico, Mayagüez. April 2, 2004. Full paper review.

Millan, M.G.; Kamer S. and J. F. Vega. Towards the development of a learning management system: a case study of students' use of information. University of Puerto Rico, Mayagüez, April 6, 2003. Full paper review.

**Grants or externally funded project active during the last four years:  
(FY 2002-2003 - 2006-2007)**

Principal Investigator. "Autonomous Document Analysis Expert". HP Corporate philanthropy. PI Jan Allebach, Purdue University. Other Co-PI, Joao Batista Souza de Oliveira, Pontifical Catholic University of Rio Grande do Sul, Brasil. January 2007-January 2008.

Co-Principal Investigator. "Digita Publishing Mashup Site". HP Corporate philanthropy. PI Malu Roldan, San Jose State University. Other Co-PI, Frank Cost, Rochester Institute of Technology, Andre Santanche, Universidade Salvador (UNIFACS), Brazil. January 2007-January 2008.

Altova Education-Training Partners Program. Software License Gift of Altova XML Suite for 30 users.

Principal Investigator. "High-quality web-based digital publishing service for higher education. July 2005-July 2006.

Co-Principal Investigator. "A Research program on Digital Publishing". Hewlett Packard Puerto Rico. Collaboration with Hewlett Packard Labs and Purdue University. March 1, 2004 – February 28, 2005. PI Wilson Rivera. Other CoPIs: Nayda Santiago, Manuel Rodríguez and Jaime Seguel from UPRM; and Jan Allebach from Purdue University

Co-Principal Investigator. "Artifact Recognition in Digital Publishing". Project which is part of the research program on Digital Publishing. March 1, 2004 – February 28, 2005.

Co-Principal Investigator. "Workflow Management in Digital Publishing". Project which is part of the research program on Digital Publishing. March 1, 2004 – February 28, 2005.

Principal Investigator. "Development of a Knowledge Management System for Learning and Teaching in Higher Education". IAP, September 2003 – September 2004.

**Scientific and professional societies of which a member:**

*Institute of Electrical and Electronics Engineers, (Member)*

**Honors and awards:**

*"Mención de Honor" from Vicerectoría Académica (Mention of Honor, Academic Vicerector), Pontificia Universidad Javeriana (Javeriana University). Awarded for the research project "Tecnologías de Información y Educación" (Education and Information Technologies), Oct 8 1999.*

*Diamond Award; 2nd Asia-Pacific Forum on Engineering and Technology Education. To the best Forum Paper. Sydney, Australia, July 4-7 1999.*

*Gold Award; 1st Asia-Pacific Forum on Engineering and Technology Education, To the third best Forum Paper. Melbourne, Australia, July 6-9 1999.*

*Fellow; Parallel Architectures Center at Syracuse University, June-Aug 1987.*

**Institutional and professional service in the last four years: (FY 2002-2003 - 2006-2007)**

Associate Director for Academic Affairs, Dept. of Electrical and Computer Engineering, January 2002 – August 2004.

Coordinator for Accreditation and Continuous Quality Improvement for the Computer Engineering program, Dept. of Electrical and Computer Engineering, January 2005 – present.

**Professional development activities in the last four years: (FY 2002-2003 - 2006-2007)**

Founding member and UPRM representative in Digital Publishing University Research Community (Chameleon Federation), led by HP Labs.

**Offered courses in the past two years (2005-2007)**

*ICOM 4998 Undergraduate Research, ICOM 5015 Artificial Intelligence, ICOM 5047 Computer Engineering Design, ICOM 6215 Expert Systems, ICOM 6995 Independent Studies in Computer Engineering, ICOM 6999 Master Thesis, INEL 6995 Special Topics in Electrical Engineering, CIIC 8997 Independent Stud , CIIC 9995 Doctoral Dissertation.*

**Community service activities: (FY 2002-2003 - 2006-2007)**

President of Parents and Teachers Association, Immaculate Conception Academy – Elementary School level, Mayagüez, FY 2004-05

Vicepresident of Parents and Teachers Association, Immaculate Conception Academy – High School level, Mayagüez, FY 2005-06



**Dr. Miguel Vélez-Reyes, Professor**  
Electrical and Computer Engineering Department  
University of Puerto Rico at Mayagüez  
Ph. 787-832-2825, FAX 787-832-2485  
E-mail: mvelez@ece.uprm.edu

**Professional Preparation:**

Ph.D.	Massachusetts Institute of Technology, September 1992
Electrical Engineer	Massachusetts Institute of Technology, June 1988
S.M.E.E.	Massachusetts Institute of Technology, June 1988
B.S.E.E.	University of Puerto Rico Mayagüez Campus, June 1985

**Appointments:**

**Department of Electrical and Computer Engineering,  
University of Puerto Rico Mayagüez Campus,**

**Professor**

Mayagüez, P.R.

July 2000-Present

**Associate Professor**

July 1995-June 2000

**Assistant Professor**

July 1992-June 1995

**United States Air Force Research Laboratories**, Hanscom Air Force Base, Boston, MA, Summer 2002.

**NASA Goddard Space Flight Center**, Greenbelt, MD. Summer 1997.

**United States Air Force Phillips Laboratory**, Hanscom Air Force Base, Boston, MA, Summer 1996.

**Books and Book Chapters:**

S. Rosario-Torres, M. Vélez-Reyes, L.O. Jiménez-Rodríguez, and S. Hunt, "The MATLAB Hyperspectral Image Analysis Toolbox." Accepted for publication in R. Rajesh, editor, **Introduction to Advanced Scientific Softwares and Toolboxes**, International Association of Engineers Press, 2007.

M. Vélez-Reyes, W. Rivera-Gallego, and L.O. Jiménez-Rodríguez, "A Solutionware for Hyperspectral Image Processing and Analysis." To appear in A.J. Plaza and C.I. Chang, editors, **High-Performance Computing in Remote Sensing**, Chapman & Hall/CRC Press, September 2007.

A.A. Irizarry-Rivera, M. Rodríguez-Martínez, B. Vélez, M. Vélez-Reyes, A.R. Ramirez-Orquin, E. O'Neill-Carrillo, and J.R. Cedeño, "Intelligent Power Routers: Distributed Coordination for Electric Energy Processing Networks." In, L. Mili and J. Momoh. Eds., **Electric Power Networks Efficiency and Security**, John Wiley (In Print).

C.R. Bostater, Jr., X. Neyt, S.P. Mertikas, M. Vélez-Reyes, Editors, **Proceedings of SPIE: Remote Sensing of the Ocean, Sea Ice, and Large Water Regions 2006**, Vol. 6360, Oct. 6, 2006.

M. Velez-Reyes, Editor, **Proceedings IEEE Workshop on Computer Applications in Power Electronics**, June 2002.

**5 Recent Journal Publications**

J.M. Duarte-Carvajalino, P. Castillo, and M. Vélez-Reyes, "Comparative Study of Semi-implicit Schemes for Nonlinear Diffusion in Hyperspectral Imagery." In **IEEE Transactions on Image Processing**, Vol. 16, No.5, May 2007.

L.O. Jiménez-Rodríguez, E. Arzuaga-Cruz, and M. Vélez-Reyes, "Unsupervised Feature Extraction Techniques for Hyperspectral Data and its Effects on Supervised and Unsupervised Classification." In **IEEE Transactions on Geosciences and Remote Sensing**, Vol. 45, no. 2, February 2007, page(s):469 – 483.

A.A. Irizarry-Rivera, M. Rodríguez-Martínez, B. Vélez, M. Vélez-Reyes, A.R. Ramirez-Orquin, E. O'Neill-Carrillo, J.R. Cedeño, "Intelligent power routers: A distributed coordination approach for electric energy processing networks." In **International Journal of Critical Infrastructures**, Vol. 3, Nos. 1/2, 2007, pp 20-57.

N. Dukhan, P.D. Quiñones-Ramos, E. Cruz-Ruiz, M. Vélez-Reyes, E.P. Scott, "One-dimensional heat transfer analysis in open-cell 10-ppi metal foam." In **International Journal of Heat and Mass Transfer**, Vol. 48, pp. 5112–5120, December 2005.

M. Hernández-Mora, J.E. González, M. Vélez-Reyes, J.M. Ortiz, Y.P. Pang, and E. Scott, "Dynamic reduced electrothermal model for integrated power electronic modules (IPEM)". **Journal of Electronic Packaging**. Volume 126, Issue 4, pp. 477-490. December 2004

J.M. Duarte-Carvajalino, P. Castillo, and M. Vélez-Reyes, “Comparative Study of Semi-implicit Schemes for Nonlinear Diffusion in Hyperspectral Imagery.” In **IEEE Transactions on Image Processing**, Vol. 16, No.5, May 2007.

### **5 Recent Conference Proceedings**

J.G. Gómez-Gualdrón, M.Vélez-Reyes and L.J. Collazo, “Self-Reconfigurable Electric Power Distribution System using Multi-Agent Systems.” In **Proceedings of the IEEE Electric Ship Technologies Symposium (ESTS 2007)**, Arlington, VA, May 21 to 23, 2007.

J.M. Duarte-Carvajalino, G. Sapiro, M. Vélez-Reyes, and P. Castillo, “Fast Multi-Scale Regularization and Segmentation of Hyperspectral Imagery via Anisotropic Diffusion and Algebraic Multigrid Solvers.” In **Proceedings of SPIE: Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII**, Vol. 6565, May 2007.

Y.M. Masalmah, and M. Vélez-Reyes, “The Impact of Initialization Procedures on Unsupervised Unmixing of Hyperspectral Imagery using the Constrained Positive Matrix.” In **Proceedings of SPIE: Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII**, Vol. 6565, May 2007.

S. Rosario-Torres, M. Vélez-Reyes, S.D. Hunt and L.O. Jiménez, “New Developments and Application of the UPRM MATLAB Hyperspectral Image Analysis Toolbox.” In **Proceedings of SPIE: Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII**, Vol. 6565, May 2007.

M. Vélez-Reyes, S. Rosario-Torres, J. Goodman, E. M. Alvira-Concepción, and A. Castrodad-Carrau, “Hyperspectral image unmixing over Benthic habitats.” In **Proceedings of SPIE: Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII**, Vol. 6565, May 2007.

### **Current Grants:**

PI in **A Geometrical Approach for the Analysis of Hyperspectral Imagery**, 2006 National Geospatial-Intelligence Agency Historically Black Colleges & Universities and Minority Institutions (HBCU-MI) Research Initiatives Broad Agency Announcement (BAA) HM1582-06-BAA-0005, \$140,000. August 1, 2006 to July 31, 2008.

PI in **Improving Algorithms for Target Detection in Hyperspectral Infrared Imagery**, 2005 DoD Instrumentation and Research Support Program for Hispanic-Serving Institutions, \$485,057. November 15, 2005 to November 14, 2008.

Co-PI in **Center for Subsurface Sensing and Imaging Systems**. A consortium between Northeastern University (lead institution), Boston University, Renselear Politecn Institute, and the University of Puerto Rico Mayagüez Campus. NSF Engineering Research Centers Program. August 2000 to July 2005. UPRM Component \$3.75M

UPRM Project Director in **Center for Power Electronic Systems**. A consortium between Virginia Institute of Technology and State University (Lead Institution), University of Wisconsin, Renselear Politecn Institute, North Carolina A&T, and the University of Puerto Rico Mayagüez Campus. NSF Engineering Research Centers Program. August 1998 to July 2003. UPRM Component \$1.0M

### **Awards:**

2006 Inducted in the Puerto Rico Academy of Arts and Sciences

1997 NSF Presidential Early Career Award for Scientists and Engineers.

2000 Senior Member of the Institute of Electrical and Electronics Engineers (IEEE)

1999 IEEE Walter Fee Outstanding Young Engineer Award, IEEE.

1997-98 Distinguished Professor, UPRM ECE Department.

1998 Distinguished Professor, of the Puerto Rico Professional Engineers and Land Surveyors Association Mayagüez Chapter.

### **Current Professional Memberships and Affiliations:**

Licensed Engineer in Puerto Rico since 1996

Colegio de Ingenieros y Agrimensores de Puerto Rico

Institute for Electrical and Electronics Engineers (IEEE)

President IEEE Puerto Rico Western Chapter April 1998-2000

Vice-President IEEE Puerto Rico Western Chapter from January 1995 to April 1998

American Society for Engineering Education

SPIE – The International Society for Optical Engineering

**Academic Service Activities:**

Program Evaluator for Electrical Engineering, Accreditation Board for Engineering and Technology (ABET), elected by IEEE, 2003-current.

Co-Chair, SPIE Remote Sensing of the Ocean, Sea Ice, and Large Water Regions 2006, 11-16 September 2006, Stockholm, Sweden.

Program Committee Member, SPIE Conference on Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imager, 2004-present.

Chairman, 2002 IEEE Workshop on Computers in Power Electronics

Associate Editor, IEEE Transactions on Power Electronics Special Issue on Digital Control, 2002

Region 9 Representative, IEEE Power Electronics Society Administrative Committee. 2000-2003

Member, IEEE Power Electronics Society Committee on Modeling and Simulation.

Program Committee Member, IEEE Applied Power Electronics Conference, 2000, 2001, 2002.

Reviewer for

Annual Meeting of the IEEE Industry Applications Society

ASEE Frontiers in Education Conference, San Juan, PR

IEEE Applied Power Electronics Conference

IEEE Power Electronic Specialists Conference

IEEE International Electric Machines and Motor Drives Conference

IEEE Transactions on Industry Applications

IEEE Transactions on Power Electronics

IEEE Transactions on Education

IEEE Transactions on Power Systems

IEEE Transactions on Geoscience and Remote Sensing

IEEE Transactions on Control Technology

International Journal of Critical Infrastructures (2005)

Served in several National Science Foundation Proposal Review Panels

**Number of graduate students supervised in the past 5 years: 20**

## **VENKATESAN, KRISHNASWAMI**

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**Academic rank:** Professor

**Degrees with fields, institution, and date:**

BS	Electrical Engineering	University of Jabalpur, India	1962
MS	Electrical Engineering	University of Roorkee, now Indian Institute of Technology (IIT-Roorkee)	1966
Ph. D.	Electrical Engineering	University of Roorkee, (IIT-Roorkee), India	1974

**Faculty service at UPRM:**

*Date of original appointment: January 1983*

*Dates of advancement in rank:*

Associate Professor:	1983 to 1987
Professor:	1987 onwards
Total years of service:	24 years

**Areas of professional expertise:**

*Electrical Machines, Power Electronics, and Electrical Drives*

**Other related experience—academic or industrial.**

*1962 – 1963 Bhilai Steel Project, Bhilai, India, Engineer,*

*1963 – 1966 Govt of India, Senior Fellowship under Tech Teacher Training Program*

*1966 – 1973 University of Roorkee, Roorkee, India, -- Lecturer in Electrical Engineering*

*1973 – 1980 University of Roorkee, Roorkee, India -- Reader in Electrical Engineering,*

*1980 – 1983 Concordia University, Montreal, Canada -- Post Doctoral Research Associate,*

**Consulting, patents**

*Aug 1989- Oct 1991: Digital Equipment Corporation, Puerto Rico Design and development of bi-directional D.C-to-D.C converters.*

**State(s) in which registered**

*Puerto Rico*

**Principal publications of last four years: (FY 2002-2003 - 2006-2007)**

**1.L.Arnedo and K.Venkatesan,'P-Spice modeling of an induction motor drive system for high frequency studies',(Conference record) IEEE conference on computer applications in Power Electronics, June 2002**

**2. L.Arnedo and K.Venkatesan,'High frequency induction motor model for EMI and over-voltage studies', Journal of Electric Power Components and Systems(USA), 31, 2003, Pages 1047-1061.**

**3. L.Arnedo and K.Venkatesan,'EMI and over-voltage mitigation studies in an induction motor drive system',(Conference record) IEEE International conference on Power Electronics and Drives, Madison, June 2003**

**4.Angel Rivera, Julian Ramirez and K.Venkatesan,'Photovoltaic powered single phase induction motor drive with maximum power tracker', (conference record) Center for Power Electronic systems conference , Virginia Tech, April 2005**

**5.Enrique Carrillo and K.Venkatesan,' Modeling and Simulation of a permanent magnet synchronous motor drive system', CPES conference, Virginia Tech, April 2006**

**Grants or externally funded project active during the last four years: (FY 2002-2003 - 2006-2007)**

**CPES funding for graduate and Undergraduate research**

**Scientific and professional societies of which a member:**

*Institute of Electrical and Electronics Engineers, Senior Member*

*Colegio de Ingenieros y Agrimensores, Member*

**Honors and awards:**

*May 1988, Distinguished Professor Award, Faculty of Engg, UPR, Mayaguez*

Aug 1994, *Who is Who among America's Teachers*

Dec 1978, *Khosla Research Award, Univ of Roorkee, India*

Nov 1978, *Paper prize award, Institution of Engineers (India) for a paper published in Journal of Instn of Engrs (India), Elect Div.*

Jan 1980 *Paper prize award from Institution of Engineers (India) for a paper published in Journal of Instn of Engrs (India), Elect Div.*

***Institutional and professional service in the last four years: (FY 2002-2003 - 2006-2007)***

***Supervision and development of Power Electronics Laboratory at this institution***

***Professional development activities in the last four years: (FY 2002-2003 - 2006-2007)***

***Offered Courses in the past two years (2005-2007)***

*INEL 4405 Electrical Machines, INEL 6995 Independent Studies in electrical Engineering, INEL 6046 Master Thesis, INEL 5496 Design Power Electronic systems, INEL 5408 Electrical Motors Control, INEL 4416 Power Electronic, INEL 6046 Master Thesis,*

***Community service activities: (FY 2002-2003 - 2006-2007)***

None

