

# Ronald F. DeMara

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## I. Technical Interests

Computer Architecture with emphasis on Evolvable Hardware and Distributed Architectures for Intelligent Systems

## II. Education

- Doctor of Philosophy – Computer Engineering  
University of Southern California – December, 1992  
Dissertation: *Parallelism, Design, and Performance of a Marker-Propagation Reasoning Architecture*
- Master of Science – Electrical Engineering  
University of Maryland, College Park – May, 1989  
Emphasis: Digital Computer Systems
- Bachelor of Science – Electrical Engineering with High Honors  
Lehigh University – May, 1987  
Minor: Science, Technology, and Society

## III. Professional Experience

### 1993 – present: University of Central Florida – Orlando, Florida

*School of Electrical Engineering and Computer Science*

- Professor: 2006 – present
- Associate Professor: 1999 – 2005
- Assistant Professor: 1993 – 1998
- Joint Appointment, Computer Science Program: 2004 – present
- Program Coordinator, Computer Engineering Program: 1994 – 1995

Taught 13 courses, developed 6 new courses, and served as Program Coordinator. Principal Investigator (PI) or co-PI for research totaling \$5.1M awarded of which roughly 80% was from Federally-sponsored projects including the *National Science Foundation, NASA, U.S. Army / Navy / Air Force, Defense Modeling and Simulation Office, DARPA, and National Security Agency*. Directed 20 Masters students and 10 Ph.D. students whom have completed thesis or dissertation. Six of these graduates have secured full-time faculty positions in academic programs at accredited universities.

Performed program administration in Computer Engineering at the undergraduate and graduate levels, laboratory enhancement within the department and the college, and academic committee service at the department-level through the university-level. Conducted accreditation activities and strategic planning for the Computer Engineering program. Active in junior faculty mentoring and program development including chairing several faculty recruiting committees resulting in the hiring of ten tenure-track faculty and three lecturers. Service in professional societies through peer review of approximately 30 different technical journal and conference venues, member rank elevation committees, and as a faculty advisor to student groups.

Served as member of the University Graduate Council and the Faculty Senate. Served on Editorial Boards of three journals. Held officer positions in Southeast Section of American Society for Engineering Education. Hold a joint appointment in the Computer Science program for coursework and doctoral advising.

Received the *Outstanding Engineering Educator Award (IEEE Southeastern US Region level and Florida Council level)*, *Research Initiation Award (University-level)*, *Distinguished Research Lecturer Award (College of Engineering)*, *Advisor of the Year Award (College of Engineering)*, *Excellence in Graduate Teaching Award (ECE Department)*, twice received the *Researcher of the Year Award (ECE Department)*, and received the *State of Florida University System's Teaching Initiative Award (State-level/University-level)* three times.

### **2002: NASA Ames Research Laboratory – Mountain View, CA (UCF Sabbatical Year)**

*Visiting Research Scientist*, Evolvable Hardware Program

Conducted research in Autonomous FPGA Repair techniques. Developed evolutionary computation approaches using Genetic Algorithms to regain lost functionality due to stuck-at-faults and other permanent failures in Xilinx SRAM FPGA platforms. Contributed to three conference papers on the topic, including technical approach, experimental system, and research results.

### **1989 – 1992: University of Southern California – Los Angeles, California**

*Research Assistant III*, Department of Electrical Engineering-Systems

Conducted research in High Performance Computer Architectures for Knowledge Processing applications. Developed the SNAP-1 Multiprocessor, a 144-CPU DSP system for real-time speaker-independent continuous speech processing, including processor configuration, interconnection network, and performance monitoring strategy. Research in performance modeling and assessment of hybrid SIMD/MIMD architectures.

### **1986 – 1989: IBM Corporation – Manassas, Virginia**

*Associate Engineer*, Federal and Complex Systems Division

Specification, design, and capacity analysis of telecommunication systems. Responsibilities included performance modeling using SIMSCRIPT/NETWORK-II.5, processor selection, connection topology, redundancy/availability analysis, and technical proposal development. Lead systems architect for fly-by-wire Automated Inventory Management system. Site representative to IBM division-level steering committee on systems engineering workstation environments.

## IV. Teaching Activities

### A. Courses Taught

Taught courses in lecture, recitation, and seminar-style formats at Undergraduate (EEL3xxx/4xxx) and Graduate (EEL5xxx/6xxx) levels with [class size] as listed:

1. EEL3801: *Introduction to Computer Engineering with Laboratory* [60]
  - C++, Assembly Language, Program Design
2. EEL4767: *Computer System Design I with Laboratory* [40]
  - Computer Organization, Microprocessor Systems
3. EEL4768: *Computer System Design II with Laboratory* [30]
  - Computer Architecture, Data Path Design
4. EEL4851: *Engineering Data Structures with Laboratory* [50]
  - Data Structures and Algorithms in C++ and now Java
5. EEL4882: *Engineering Systems Software* [30]
  - Operating Systems Concepts, Process Scheduling, Resource Management
  - offered in live-only and live-with-web-based formats
6. EEL4817: *Machine Learning I* [15]
  - Decision Trees, Evolvable Hardware, Neural Networks
  - Team taught with 3 faculty: taught module on Evolvable Hardware
7. EEL4818: *Machine Learning II* [10]
  - Honors course for undergraduates developing Machine Learning projects
  - Team taught with 3 faculty: supervised autonomous FPGA projects
8. EEL5708: *High Performance Computer Architecture* [40]
  - Pipelining/Branch Prediction, Superscalar Architecture, Cache Design
  - offered in live-only and live-with-remote-video plus web-based formats
9. EEL6707: *Parallel Processing* [20]
  - Distributed/Shared Memory, Interconnection Networks, Data Transformations
  - offered in live-only and live-with-remote-video plus web-based formats
10. EEL6763a: *Current Topics - Scalable Shared-Memory Architectures* [20]
  - Data Consistency, Cache Coherence, Profiling and Metrics
  - offered in live-with-remote-video format
11. EEL6763b: *Current Topics - Clockless Processor Design* [20]
  - Asynchronous ALU Design, Fine-grained and Coarse-grained Dataflow
12. EEL6763c: *Current Topics - Autonomously Reconfigurable and Evolvable Hardware* [20]
  - FPGA-based Intrinsic/Extrinsic Evolution, Autonomous Regeneration
  - offered in live-with-remote-video plus web-based format
13. EEL6769: *Parallel Knowledge Processing* [15]
  - Marker-propagation Architectures, Classifier Systems, Genetic Algorithms

Revised material, supervised, and/or substitute-taught three additional courses:

14. EEL3342: *Digital Logic Design with Laboratory* [60]
  - Boolean Logic, Combinational and Sequential Circuits
15. EEL4781: *Computer Networks* [30]
  - Protocols, Routing Algorithms, OSI Model, Flow Control
16. EEL5762: *Computer Systems Performance Analysis* [20]
  - Stochastic Modeling, Discrete Event Simul., Appl. to Networks/ Multiprocessors

## B. Curriculum Enhancement

- Course Development:
  - University Catalog additions: EEL4882, EEL5708, EEL5762, EEL6707, EEL6763, and EEL6769 as sole developer; EEL4817 and EEL4818 as co-developer.
  - Curriculum development to support new Bachelors degree program in Information Technology
  - Innovations with Internet-based video streaming and adoption of online courseware
- Laboratory Development:
  - Obtained \$520,150 in laboratory infrastructure grants as PI or Co-PI. Resources include network servers, workstations, 8-way shared-memory multiprocessor, scopes, and analyzers
  - Founder and Director: Computer Architecture Lab
  - Co-developed or renovated: Microprocessor Lab, Open Computing Lab, Intelligent Systems Lab, and VLSI Lab
  - Directed integration of National Instrument's Labview PC-based virtual instrumentation breadboard environment into 2 undergraduate laboratories: EEL3342 and EEL4767
  - Mentoring of student assistants for laboratory manual revision and web-based hosting
- Assessment and Accreditation:
  - Accreditation Coordinator for Accreditation Board for Engineering and Technology (ABET) for Computer Engineering program
  - Initiated the Southern Association of Colleges and Schools (SACS) Outcomes Assessment methods in UCF Computer Engineering program and maintained Evaluation Matrices
  - ABET lab coordinator and course custodian
- Co-PI of NSF Combined Research Curriculum Development (CRCD) grant:
  - Title: *Machine Learning Advances for Engineering Education*
  - Amount: \$416,851 plus \$165,077 additional university match for a total of \$581,928
  - Duration: June 2002 – August 2007
  - Co-developed Machine Learning modules that have been taught them to 243 students in 8 undergraduate classes.
  - Modules motivate students to take senior-level course sequence entitled *Machine Learning I* and *II* that have been taught to 34 students.
  - Project has produced approximately 20 undergraduate research projects, three Masters with thesis, 1 Ph.D., 14 conference papers (8 technically-oriented venues and 6 educationally-oriented venues), and 3 journal papers. A Springer Verlag *Lecture Notes in Computer Science* book has been approved.

## C. Ph.D. Students Completed

Completed 10 Ph.D. students as Dissertation Chair and Advisor:

- 6 now hold, or are currently pursuing, university faculty positions (4 are now tenured)
  - average time-to-degree was 4 years
1. K. Zhang, Ph.D. *A Competitive Reconfiguration Approach to Autonomous Fault Handling Genetic Algorithms*, Doctor of Philosophy, Computer Engineering, University of Central Florida, August, 2008.

- Dr. Zhang is currently a research scientist with Foxconn Electronics in Fort Lauderdale, FL.
- 2. C. A. Sharma, Ph.D. Candidate, Topic: *Sustainable Fault-Handling of Reconfigurable Logic using Throughput-Driven Assessment*, Doctor of Philosophy, Computer Engineering, University of Central Florida, August, 2008.
  - Dr. Sharma is currently a research support staff member in UCF Department of Physics.
- 3. H. Tan, *A Multi-layer Field Programmable Gate Array Framework Supporting Autonomous Partial Runtime Reconfiguration*, Doctor of Philosophy, Computer Engineering, University of Central Florida, December, 2007.
  - Dr. Tan is now a research scientist at a FPGA startup company in Fort Lauderdale, FL.
- 4. H. A. Bahr, *Bandwidth Reduction Techniques for Embedded Simulation Using Concurrent Behavior Models*, Doctor of Philosophy, Computer Engineering, University of Central Florida, December, 2004.
  - Dr. Bahr is an Assistant Professor at Tarleton State University / TAMU Central Texas.
- 5. J. J. Vargas, *Data Transmission Scheduling for Distributed Simulation Using Packet Alloying*, Doctor of Philosophy, Computer Engineering, University of Central Florida, December, 2004.
  - Dr. Vargas is currently a tenured faculty member at the University of Costa Rica.
- 6. A. J. Rocke, *Mitigation of Network Tampering Through Dynamic Dispatch of Mobile Agents*, Doctor of Philosophy, Computer Engineering, University of Central Florida, August, 2004.
  - Dr. Rocke formed and operated his own network consulting company.
- 7. S. C. Smith, *Gate and Throughput Optimization of NULL Convention Digital Circuits*, Doctor of Philosophy, Computer Engineering, University of Central Florida, May, 2001.
  - Dr. Smith is currently an Associate Professor at the University of Arkansas (now tenured).
- 8. Y. Tseng, *High Performance Termination Detection Techniques Supporting Multithreaded Execution*, Doctor of Philosophy, Computer Engineering, University of Central Florida, December, 2000.
  - Dr. Tseng is currently an Assistant Professor at Florida A&M University.
- 9. Y. Ma, *Localized Adaptive Networks for Hybrid Symbolic and Subsymbolic Processing*, Doctor of Philosophy, Computer Engineering, University of Central Florida, August, 2000.
  - Dr. Ma formed and operated his own computing consulting company.
- 10. B. S. Motlagh, *A Concurrent-Read Exclusive-Write Architecture for Scalable Shared-Memory Multiprocessing*, Doctor of Philosophy, Computer Engineering, University of Central Florida, May, 1997.
  - Dr. Motlagh is currently Associate Professor at Univ. of Central Florida (now tenured).

#### **D. M.S. Thesis Students Completed**

Completed 20 M.S. students as Thesis Chair and Advisor:

- 12 hired by industry including AT&T, IBM, Lockheed, Motorola, Oracle, General Motors, and Siemens

- 4 joined/operate technology start-up companies
  - 2 have since pursued a doctorate (including one abroad who is now a tenured ECE dept. chair)
1. M. Parris, *Optimizing Dynamic Logic Realizations For Partial Reconfiguration Of Field Programmable Gate Arrays*, Master of Science, Computer Engineering, University of Central Florida, Passed thesis defense in July 2008; graduation expected in May 2009.
    - Graduate is currently employed by NASA Kennedy Space Center.
  2. R. Dookhoo, *Automated Construction and Testing of Dialog Scripts*, Master of Science, Computer Science, University of Central Florida, December, 2008.
    - Graduate is pursuing employment in industry at a software consulting company.
  3. G. Wang, *Mobile Agent File Integrity Analyzer*, Master of Science, Computer Engineering, University of Central Florida, May, 2001.
    - Graduate operates his own software consulting company.
  4. D. Lin, *Identification of Similar, Conflicting, and Redundant Entries in Distributed Databases*, Master of Science, Computer Engineering, University of Central Florida, May, 2001.
    - Graduate hired by technology start-up company in San Jose, California.
  5. L. Wang, *Automated Generation of XML Schemas using a Transportation Interchange Language*, Master of Science, Computer Engineering, University of Central Florida, May, 2001.
    - Graduate hired by Oracle Corporation in Orlando, Florida.
  6. B. Kapoor, *Remote Misuse Detection Using Mobile Agents and Relational Database Query Techniques*, Master of Science, Computer Engineering, University of Central Florida, May, 2000.
    - Graduate hired by Motorola Corporation in Minneapolis, Minnesota.
  7. Y. Zhu, *Decentralized Control Schemes for Coordinating Distributed Processing Activities of Mobile Software Agents*, Master of Science, Computer Engineering, University of Central Florida, May, 2000.
    - Graduate hired by technology start-up company in Santa Clara, California.
  8. J. Lu, *Time-Type Mobile Agent Protocols for Distributed Detection of Network Intrusions*, Master of Science, Computer Engineering, University of Central Florida, May, 2000.
    - Graduate hired by TCI Corporation in Danbury, Connecticut.
  9. J. C. Leon-Barth, *Forced-Miss Data Referencing Methods for Benchmarking Multiprocessor Memory Hierarchies*, Master of Science, Computer Engineering, University of Central Florida, August, 1998.
    - Graduate hired by IBM Corporation in Atlanta, Georgia.
  10. D. Hammer, *High Performance Multiprocessing with Read-time Resolution Data Coherent Strategies*, Master of Science, Computer Engineering, University of Central Florida, August, 1996.
    - Graduate hired by embedded microprocessor applications firm in Buffalo, New York.

11. P. J. Wilder, *N-ary Cube Interconnection using Multiport Memories*, Master of Science, Computer Engineering, University of Central Florida, May, 1996.
  - Graduate hired as Assistant Professor of Engineering Technology at Univ. of Southern Mississippi in Gautier, Mississippi. Now ECE chair at Indiana Institute of Technology.
12. B. Rosada, *Concurrent Read Replicated Multiprocessor Systems*, Master of Science, Computer Engineering, University of Central Florida, December, 1995.
  - Graduate hired as lecturer in Dominican Academy in Brooklyn, New York.
13. H. Zhu, *Rate-Adaptive Source Quench Schemes in Congestion Avoidance Techniques – Performance Bound and Simulation Evaluation*, Master of Science, Computer Engineering, University of Central Florida, December, 1995.
  - Graduate hired by technology start-up company in San Jose, California.
14. S. Sripathi, *High Performance Classifier Systems on SIMD Architectures*, Master of Science, Computer Engineering, University of Central Florida, December, 1995.
  - Graduate hired by Siemens Corporation in St. Paul, Minnesota.
15. K. Drake, *Time and Space Efficient Multiprocessor Synchronization and Quiescence Detection*, Master of Science, Computer Engineering, University of Central Florida, May, 1995.
  - Graduate employed at Lockheed Martin Information Systems in Orlando, Florida.
16. S. E. Crawford, *Cache Coherence Strategies for Multiported Shared-Memory Architectures*, Master of Science, Computer Engineering, University of Central Florida, December, 1994.
  - Graduate hired by General Motors in Detroit, Michigan.
17. H. A. Bahr, *Distribution-Adaptive Priority Queue Scheduling Algorithms for Discrete Event Simulation*, Master of Science, Computer Engineering, University of Central Florida, December, 1994.
  - Graduate was employed at STRICOM in Orlando, Florida.
18. R. A. Cagle, *Content Addressable Memory with Built-in Marker-Passing Functions*, Master of Science, Computer Engineering, University of Central Florida, May, 1994.
  - Graduate hired by network technology firm in Dallas, Texas.
19. R. N. Mercer, *Incremental Boolean Logic Techniques for Nanometer-Scale Computing Devices*, Master of Science, Computer Engineering, University of Central Florida, May, 1994.
  - Graduate hired by Oracle Corporation in Orlando, Florida.
20. N. Shah, *Rate-Adaptive Source Quench Congestion Avoidance Technique for TCP and UDP Protocols*, Master of Science, Computer Engineering, University of Central Florida, May, 1994.
  - Graduate hired by AT&T in Boston, Massachusetts.

### E. Honors Thesis Students Completed

Completed two undergraduate Honors Thesis students who have pursued graduate degrees:

1. C. K. Milliord, *Voting Schemes to Enhance the Performance of Evolutionary Repair in Reconfigurable Logic Devices*, Honors Thesis, Bachelor of Science, Computer Engineering, University of Central Florida, May, 2005.
  - Student entered graduate program at Columbia University.
2. K. Carter, *An AI Performance Benchmark for the n-Cube-2*, Honors Thesis, Bachelor of Science, Computer Engineering, University of Central Florida, Fall, 1993.
  - Student entered graduate program at Georgia Institute of Technology.

### F. Undergraduate Research Exchange Students

1. N. Oreifej, *FPGA Fault Recovery Simulation Environment*, Undergraduate Exchange Research Project, Training completed September, 2005.
  - Graduate employed by Oracle Corporation.

### G. Funded Graduate Project Supervision

1. G. R. Harris, M.S. Thesis student, Topic: *Self-timed Architecture for Masked Successive Approximation Analog-to-Digital Conversion*. Graduated May, 2006. Funded 20 hours per week Research Assistantship.
2. M. Haendel, M.S. Thesis student, Topic: *Dynamic Reconfiguration of Field Programmable Gate Arrays under JTAG Control*. Graduated in December, 2005. Funded 10 hours per week Research Assistantship.
3. A. Thakkar, Graduate Research Project: *Dynamic Partial Reconfiguration of FPGAs using JTAG APIs*. Graduated in September, 2005. Funded 10 hours per week Research Assistantship.

### H. Students Under Advisement

Currently advising 5 students as Dissertation chair, 2 as M.S. Thesis chair, and 1 National Merit Scholar:

1. S. Hillis, Ph.D. student, Topic: *Sustainable Field Programmable Gate Array Repair using Roving Redundancy*, passed Ph.D. Qualifying Exam on November 20, 2003. Graduation anticipated in May, 2010. Employee of Sparta, Inc. and part-time student.
2. J. C. Leon-Barth, Ph.D. student, Topic: *Distributed Simulation Fidelity Optimization in the Presence of Communication Latency*, passed Ph.D. Qualifying Exam in May, 2006. Graduation anticipated in May, 2010. Funded 20 hours per week Research Assistantship.
3. R. Oreifej, Ph.D. student, Topic: *Area Reclamation and Defragmentation Techniques for SRAM-based Reconfigurable Devices*, passed Ph.D. Qualifying Exam in November, 2006. Graduation anticipated in May, 2010.
4. G. Bedette, Ph.D. student, Topic: *Design Diversity for Evolvable Hardware Regeneration*, taking Ph.D. Qualifying Exam in August, 2009. Graduation anticipated in May, 2009.
5. R. Haddad, Ph.D. student, Topic: *Genetic Operators using Partial Reconfig*, taking Ph.D. Qualifying Exam in December, 2010. Graduation anticipated in May, 2009.

6. M. Parris, M.S. student, Topic: *Genetic Operators for Evolvable Hardware using Partial Runtime Reconfiguration*, Graduation anticipated in May, 2009.
7. C. Stricklan, M.S. student, Topic: to be determined, Graduation anticipated in August, 2011.
8. B. Egbert, National Merit Scholar, Burnett Honors College Scholars Program. Graduation expected in May, 2009.

**I. Dissertation and Thesis Committee Membership**

Ph.D. Dissertation Committees – number served as committee member: 24 students  
 Masters Thesis Committees – number served as committee member: 36 students

**J. Workshops Conducted**

*Local and Wide Area Network Technology*

Location: Philadelphia, PA and Tampa, FL  
 Enrollment: 20-30 students  
 Duration: 8 hours

*Systems Engineering Specification Development*

Location: IBM Corporation, Federal and Complex Systems Division, Bethesda, Maryland  
 Enrollment: 12-15 students  
 Duration: 20 hours over 3 days

**K. Independent Study Supervision**

Number supervised at Graduate-Level: 47 enrollments (at 3 credit hours each)  
 Number supervised at Undergraduate-Level: 2 enrollments (at 1 credit hour each)

**L. Teaching Evaluations**

Averages for Course Evaluations at UCF during 1993 – 1996

Course Evaluation Question	R. F. DeMara	ECE Dept.	College
Stimulate interest	4.61	4.23	4.10
Concern for interest	4.71	4.30	4.20
Ability to communicate	4.61	4.28	4.17
Opportunity for questions	4.76	4.50	4.45
Organization	3.90	4.16	4.14
Presentation of material	4.19	4.20	4.15
Encourage critical thinking	4.61	4.29	4.23
Relevant assignments	4.90	4.72	4.59
Instructor prepared	4.53	4.70	4.57
Instructor available	4.63	4.55	4.47
Timely returns	4.87	4.47	4.49
Met and held classes	5.00	4.82	4.76
<i>Average</i>	<i>4.61</i>	<i>4.43</i>	<i>4.36</i>

Scale: "Excellent"=5, "Very Good"=4, "Good"=3, "Fair"=2, "Poor"=1

Averages for Course Evaluations at UCF during 1997 - 2004

Course Evaluation Question	R. F. DeMara	ECE Dept. *	College*
Feedback on performance	3.28	2.76	2.88
Instructor interest in learning	3.51	3.15	3.14
Use of time	3.18	3.10	2.98

Organization	3.31	3.07	3.02
Continuity	3.36	3.15	3.08
Pace	3.10	2.75	2.79
Assessment of progress	3.31	2.76	2.81
Materials used	2.78	2.43	2.53
Description of objectives	3.34	2.83	2.87
Communication of ideas	3.43	2.91	2.92
Expectations for performance	3.16	2.90	2.88
Available to assist	3.61	3.21	3.01
Respect and concern	3.67	3.28	3.24
Stimulation of interest	3.31	2.96	2.95
Facilitation of learning	3.30	2.89	2.87
<i>Overall assessment of instructor</i>	<i>3.58</i>	<i>3.16</i>	<i>3.11</i>
<i>Average</i>	<i>3.27</i>	<i>2.95</i>	<i>2.94</i>

Scale: "Excellent"=4, "Very Good"=3, "Good"=2, "Fair"=1, "Poor"=0  
 \*4-year average available for ECE Dept. and College

Teaching Evaluation Feedback from Free Response Section of course evaluation forms:

- "Best instructor I've had at UCF. Grading/assignments relevant to topics. Presentation of material good. Instructor's knowledge: great. Class assignments always returned in a short amount of time."
- "Competent, really knowledgeable about a lot of topics. Genuine interest in subject matter. Encourages class to ask questions."
- "[I liked most about this course:] DeMara's concern for our interests and understanding."
- "Dr. DeMara cares about his students: how well we understood the material, having handouts available, etc."
- "Best part of this course was the instructor's enthusiasm and first-hand experience he provided."
- "Excellent instructor: ranks in the top 3 professors during my 3 years at UCF."
- "[I liked most about this course:] Organization, daily outline of where we were, what we were doing, where we were going."
- "He was interested that you learn the material, not just make the grade."
- "One of the best instructors: took subject that was difficult to understand and make(s) it understandable."
- "[I liked most about this course:] The instructor. A great teacher with a definite passion for the material. He inspired us and piqued our interests. Showed tremendous concern for students' needs."

## V. Research Activities

### A. Funded Projects

Funding, match, and cost share as PI or co-PI: \$5,088,511

- Federally-Sponsored Projects: \$4,043,034 (79.4%)
- R. F. DeMara's credit share: \$2,800,698 (55.0%)
- Renewals from Existing Sponsors or Spin-offs: 20 of 30 (66.7%)
- Project Continuation Annual Renewals successfully obtained: 17 of 17 (100%)

1. R. F. DeMara, *Soar-Longevity: A Sustainable Autonomic Architecture for Organically Reconfigurable Computing Systems*, Defense Advanced Research Projects Agency (DARPA) SBIR Phase I subcontract, January 2008 – August 2008, \$32,851. DeMara share: \$32,851.
2. A. J. Gonzalez and R. F. DeMara, *Collaborative Research: Towards Lifelike Computer Interfaces that Learn*, National Science Foundation (NSF), February 2007 – January 2010, including 4 REU supplements, \$584,343 plus \$43,208 university match for a total of \$627,551. DeMara share: \$317,776.
3. R. F. DeMara, *FPGA Dynamic Reconfiguration Resource Management*, U. S. Air Force SBIR Phase II subcontract, August 2006 – July 2008, \$198,903 awarded but redirected.
4. R. F. DeMara, *Adaptive Device Fault Occlusion through Competitive Runtime Reconfiguration*, National Aeronautics and Space Administration (NASA), October 2004 – September 2007, \$356,000 awarded (modified to \$300,000) plus \$84,337 university match and \$58,532 cost share for a total of \$525,538 (modified to \$469,538). DeMara share: \$469,538.
5. M. Georgiopoulos, R. F. DeMara, A. J. Gonzalez, M. Kysilka, M. Mollaghasemi, E. Gelenbe, and A. Wu, *Machine Learning Advances for Engineering Education*, National Science Foundation (NSF), June 2002 – August 2007, \$428,851 plus \$165,077 university match for a total of \$593,928. DeMara share: \$83,149.
6. R. F. DeMara, *Distributed Simulation Fidelity Optimization in the Presence of Communication Latency*, U.S. Army Research, Development, and Engineering Command (RDECOM), January 2005 – February 2006, \$100,000 plus \$5,000 university match and \$3,600 cost share for a total of \$108,600. DeMara share: \$108,600.
7. R. F. DeMara, *Multi-layer Runtime Reconfiguration Architecture supporting FPGA Defragmentation*, U. S. Air Force SBIR Phase I subcontract, September 2005 – December 2005, \$16,178. DeMara share: \$16,178.
8. R. F. DeMara, A. J. Gonzalez, and M. Georgiopoulos, *Bandwidth and Latency Implications of Integrated Training and Tactical Communication Networks*, U.S. Army Research, Development, and Engineering Command (RDECOM), May 2002 – September 2004, \$268,491 plus \$28,700 university match and \$21,600 cost share for a total of \$318,591. DeMara share: \$254,873.
9. A. J. Gonzalez, M. Georgiopoulos, and R. F. DeMara, *Learning Robotic Behaviors from Observation of Human Performance*, U.S. Army Simulation Training and Instrumentation Command (STRICOM), May 2002 – April 2003, \$110,000. DeMara share: \$27,500.

10. J. S. Yuan and R. F. DeMara, *Application-Specific IC Design Using Asynchronous Methodologies*, Theseus Logic, Inc., September 1999 – December 2002, \$270,000 plus \$240,000 state match and \$72,000 cost share for a total of \$582,000. DeMara share: \$291,000.
11. R. F. DeMara, *Active Computer Defense using Autonomous Agents*, National Security Agency (NSA) subcontract, August 1999 – December 2002, \$147,382 plus \$6,500 department match for a total of \$153,882. DeMara share: \$153,882.
12. A. J. Gonzalez, R. F. DeMara, and M. Georgiopoulos, *Automated Model Development Techniques for Human Behavior Models*, Defense Modeling and Simulation Office (DMSO), May 2001 – August 2002, \$98,510 plus \$9,834 university match for a total of \$108,344. DeMara share: \$27,086.
13. A. J. Gonzalez, M. Georgiopoulos, and R. F. DeMara, *An Advanced Representational Paradigm for Human Behavior Modeling in Computer Generated Forces*, U.S. Army STRICOM and Defense Modeling and Simulation Office (DMSO), March 2001 – August 2002, \$198,889 plus \$15,323 university match for a total of \$214,212. DeMara share: \$53,553.
14. K. Reynolds, M. Georgiopoulos, R. F. DeMara, R. Eaglin, A. J. Gonzalez, and C. Watkins, *Florida Department of Law Enforcement Drug Enforcement Distributed Database System*, State of Florida, April 2000 – April 2001, \$250,000 plus \$55,400 university cost share for a total of \$305,400. DeMara share: \$62,500.
15. A. J. Gonzalez, M. Georgiopoulos, and R. F. DeMara, *Context-Based Representation of Intelligent Behavior in Degraded Systems Simulation*, Naval Air Warfare Center Training Systems Division (NAWCTSD), March 2000 – September 2000, \$49,960. DeMara share: \$7,494.
16. A. J. Gonzalez, R. F. DeMara, and M. Georgiopoulos, *Research Collaboration on Human Behavioral Modeling Techniques for Computer Generated Simulation Entities*, Mitsubishi Research Institute, August 1999 – August 2000, \$29,269. DeMara share: \$7,317.
17. R. F. DeMara, M. Georgiopoulos, and A. J. Gonzalez, *Intelligent Data-Mining of Advanced Training Management and Support Systems*, Lockheed Martin Information Systems, August 1999 – May 2000, \$38,000 in cost share. DeMara share: \$34,200.
18. J. S. Yuan, R. F. DeMara, and Z. Qu, *Interdisciplinary Research in Computer Architecture, ASIC, and Microelectronics Testing and Characterization*, Theseus Logic and UCF Presidential Research Infrastructure Initiative, January, 2000, \$116,000. DeMara share: \$38,667.
19. R. F. DeMara and P. McCauley-Bell, *Tethered Agent System for Distributed Intrusion Detection*, Lockheed Martin Information Systems, January 1999 – December 1999, \$35,000 plus \$35,000 state match for a total of \$70,000. DeMara share: \$70,000.
20. R. F. DeMara, *Software Mechanism for Efficient Barrier Synchronization*, UCF Office of Research, July 1998 – June 1999, \$7,485. DeMara share: \$7,485.
21. R. F. DeMara, R. Eaglin, and M. Y. Wu, *Media Hawk Processor System*, New Equipment Grant, Concurrent Computer Corporation, Inc., August, 1998, \$110,000. DeMara share: \$110,000.
22. A. J. Gonzalez, R. F. DeMara, and M. Georgiopoulos, *Vehicle Model Generation and Optimization for Embedded Simulation*, Naval Air Warfare Center Training Systems Division (NAWCTSD), January 1998 – December 2001, \$402,496. DeMara share: \$132,823.

23. R. F. DeMara and B. Petrasko, *Concurrency Strategies for High-Level Simulation Architecture*, Lockheed Martin Information Systems, January 1996 – April 1996, \$10,000. DeMara share: \$5,000.
24. R. F. DeMara, *Nighthawk Multiprocessor System*, New Equipment Grant, Harris Computer Systems / Concurrent Computer Systems Corporation, Inc., January, 1996, \$275,000. DeMara share: \$275,000.
25. R. F. DeMara, *Interprocessor Bandwidth Capacities of Hierarchical Multiprocessor Memory Systems*, Harris Computer Systems / Concurrent Computer Systems Corporation, Inc., June 1995 – December 1996, \$46,473. DeMara share: \$46,473.
26. R. F. DeMara and B. Petrasko, *X-terminal Workstations*, New Equipment Grant, NCR Corporation, September, 1994, \$6,000. DeMara share: \$3,000.
27. R. F. DeMara, *Distributed Interactive Simulation of Computer Generated Forces*, Institute for Simulation and Training, May 1993 – December 1993, \$18,700. DeMara share: \$18,700.
28. R. F. DeMara, *Engineering Infrastructure-Engineering Station Development*, State of Florida, September, 1994, January, 1993, \$13,150 including \$5,000 department match. DeMara share: \$13,150.

## B. Books

1. R. F. DeMara (Ed.), *Advances in Evolvable Hardware*, Springer-Verlag Publishers, Heidelberg, Germany, approx. 300 pages, under contract to complete by August, 2009.
2. T. Plaks (Ed.), and R. DeMara, M. Gokhale, S. Guccione, C. Patterson, M. Platzner, G. Smit, and M. Wirthlin, (Assoc. Eds.), *Proceedings of the Seventh International Conference on Engineering of Reconfigurable Systems and Algorithms*, Las Vegas, Nevada, U.S.A., June 25 – 28, 2007, CSREA Press, 321 pages, ISBN 1-60132-026-4, 2007.
3. T. Plaks (Ed.), and R. DeMara, M. Gokhale, S. Guccione, C. Patterson, M. Platzner, G. Smit, and M. Wirthlin, (Assoc. Eds.), *Proceedings of the Sixth International Conference on Engineering of Reconfigurable Systems and Algorithms*, Las Vegas, Nevada, U.S.A., June 26 – 29, 2006, CSREA Press, 272 pages, ISBN 1-60132-011-6, 2006.
4. T. Plaks (Ed.), and R. DeMara, M. Gokhale, S. Guccione, M. Platzner, G. Smit, and M. Wirthlin, (Assoc. Eds.), *Proceedings of the Fifth International Conference on Engineering of Reconfigurable Systems and Algorithms*, Las Vegas, Nevada, U.S.A., June 27 – 30, 2005, CSREA Press, 264 pages, ISBN 1-932415-74-2, 2005.

## C. Book Chapters

1. J. Castro, J. Secretan, M. Georgiopoulos, R. F. DeMara, G. Anagnostopoulos, and A. Gonzalez, “Pipelining Fuzzy ARTMAP without Match-Tracking,” in *Intelligent Engineering Systems through Artificial Neural Networks*, Vol. 14, ASME Press, 2004, ISBN: 0-791-80228-0, pp. 100 – 106.
2. J. D. Lohn, G. Larchev, and R. F. DeMara, “A Genetic Representation for Evolutionary Fault Recovery in Virtex FPGAs,” in *Lecture Notes in Computer Science*, Vol. 2606, Springer-Verlag Publishers, 2003, ISBN: 3-540-00730, pp. 47 – 56.

3. A. E. Henninger, A. J. Gonzalez, M. Georgiopoulos, and R. F. DeMara, "A Connectionist-Symbolic Approach to Modeling Agents: Neural Networks Grouped by Contexts," in *Lecture Notes in Computer Science*, Vol. 2116, Springer-Verlag Publishers, 2001, ISBN: 3-540-42379-6, pp. 198 – 209.
4. R. F. DeMara, Contributor, *Comprehensive Dictionary of Electrical Engineering*, P. A. Laplante, Editor-in-chief, IEEE Press, 1999, ISBN: 0-8493-3128-5.
5. S. H. Chung, D. I. Moldovan, and R. F. DeMara, "Massively Parallel Speech Understanding," in *Massively Parallel Artificial Intelligence*, MIT Press, 1993, J. A. Hendler and H. Kitano, Ed., ISBN: 0-262-61102-3, pp. 138 – 170.
6. R. F. DeMara, "Content and Format Standards for System Engineering Design Guidance Documents," in *IBM FSD Systems Engineering Standards Manual*, IBM Corporate Practice CP-2507-014, December 1988, pp. 1 – 18.

#### D. Journal Articles

1. J. Huang, M. Parris, J. Lee, and R. F. DeMara, "Scalable FPGA-based Architecture for DCT Computation Using Dynamic Partial Reconfiguration," accepted to *ACM Transactions on Embedded Computing Systems*.
2. W. Kuang, P. Zhao, J. S. Yuan, R. F. DeMara, "Design of Asynchronous Circuits for High Soft Error Tolerance in Deep Submicron CMOS Circuits," accepted to *IEEE Transactions on VLSI Systems*.
3. M. Georgiopoulos, R. F. DeMara, A. J. Gonzalez, A. S. Wu, M. Mollaghasemi, E. Gelenbe, M. Kysilka, J. Secretan, C. A. Sharma, and A. J. Alnsour, "A Sustainable Model for Integrating Current Topics in Machine Learning Research into the Undergraduate Curriculum," accepted to *IEEE Transactions on Education*.
4. R. F. DeMara, K. Zhang, and C. A. Sharma "Autonomic Fault-Handling and Refurbishment Using Throughput-Driven Assessment," accepted with revision to *Applied Soft Computing*.
5. C. Leon-Barth and R. F. DeMara, "Network Communication Effects Simulator Evaluation Scenarios for JTRS and WIN-T," *MSIAC Modeling and Simulation Journal*, Vol. 2, No. 10, July, 2008, pp. 11 – 20.
6. H. Tan and R. F. DeMara, "A Multi-layer FPGA Framework Supporting Autonomous Partial Runtime Reconfiguration," *IEEE Transactions on VLSI Systems*, Vol. 16, No. 5, May, 2008, pp. 504 – 516.
7. R. F. DeMara, Y. Tseng, and A. Ejnoui, "Tiered Algorithm for Distributed Process Termination Detection," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 18, No. 11, November, 2007, pp. 1529 – 1538.
8. A. J. Roche, R. F. DeMara, and S. Y. Foo, "Evaluation of Distributed File Integrity Analyzers in the Presence of Tampering," *International Journal of Network Security*, Vol. 5, No. 1, July, 2007, pp. 21 – 31.
9. A. J. Gonzalez, M. Georgiopoulos, and R. F. DeMara, "Using Context-based Neural Networks to Maintain Coherence among Entities' States," accepted to *Journal of Defense Modeling and Simulation*, Vol. 4, No. 2, April, 2007, pp. 1 – 26.

10. T. Kocak, G. R. Harris, R. F. DeMara, "Self-timed Architecture for Masked Successive Approximation Analog-to-Digital Conversion," *Journal of Circuits, Systems, and Computers*, Vol. 16, No. 1, February, 2007, pp. 1 – 14.
11. A. J. Rocke and R. F. DeMara, "A Centralized Control and Dynamic Dispatch Architecture for File Integrity Analysis," *Journal of Systemics, Cybernetics and Informatics*, Vol. 4, No. 6, January, 2007, pp. 1 – 7.
12. J. Castro, J. Secretan, M. Georgiopoulos, R. F. DeMara, G. Anagnostopoulos, and A. J. Gonzalez, "Pipelining of Fuzzy-ARTMAP without Match-Tracking: Correctness, Performance Bound, and Beowulf Evaluation," *Neural Networks*, Vol. 20, No. 1, January, 2007, pp. 109 – 128.
13. R. F. DeMara, Y. Tseng, K. Drake, and A. Ejnoui, "Capability Classes of Barrier Synchronization Techniques," *International Journal of Computers and Applications*, Vol. 28, No. 4, December, 2006, pp. 342 – 349.
14. C. Leon-Barth, R. F. DeMara, and H. Marshall, "Communication Modeling of Training and Simulation Traffic in a Tactical Internet," *MSIAC Modeling and Simulation Journal*, Vol. 1, No. 3, August, 2006, pp. 1 – 7.
15. J. Di, J. S. Yuan, and R. F. DeMara, "Improving Power-awareness of Pipelined Array Multipliers using 2-Dimensional Pipeline Gating and its Application to FIR Design," *Integration, The VLSI Journal*, Vol. 39, No. 2, March, 2006, pp. 90 – 112.
16. A. J. Rocke and R. F. DeMara, "Mitigation of Insider Risks using Distributed Agent Detection, Filtering, and Signaling," *International Journal of Network Security*, Vol. 2, No. 2, March, 2006, pp. 141 – 149.
17. H. Fernlund, A. J. Gonzalez, R. F. DeMara, and M. Georgiopoulos, "Learning Tactical Human Behavior through Observation of a Human Actor," *IEEE Transactions on Systems, Man and Cybernetics: Part B - Cybernetics*, Vol. 36, No. 1, February, 2006, pp. 128 – 140.
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19. J. Castro, M. Georgiopoulos, J. Secretan, R. F. DeMara, G. Anagnostopoulos, and A. J. Gonzalez, "Parallelization of Fuzzy ARTMAP to Improve its Convergence Speed: The Network Partitioning approach and the Data Partitioning approach," *Nonlinear Analysis: Theory, Methods, and Applications*, Vol. 63, No. 5 – 7, November – December, 2005, pp. 877 – 889.
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22. J. Vargas, R. F. DeMara, A. J. Gonzalez, M. Georgiopoulos, and H. Marshall, "PDU Bundling and Replication for Reduction of Distributed Simulation Communication Traffic," *Journal of Defense Modeling and Simulation*, Vol. 1, No. 3, August, 2004, pp. 171 – 183.

23. A. J. Gonzalez, W. J. Gerber, R. F. DeMara, and M. Georgiopoulos, "Context-driven Near-term Intention Recognition," *Journal of Defense Modeling and Simulation*, Vol. 1, No. 3, August, 2004, pp. 153 – 170.
24. D. S. Carstens, P. McCauley-Bell, L. C. Malone, and R. F. DeMara, "Evaluation of the Human Impact of Password Authentication Practices on Information Security," *Informing Science Journal*, Vol. 7, No. 1, August, 2004, pp. 67 – 85.
25. S. C. Smith, R. F. DeMara, J. S. Yuan, D. Ferguson, and D. Lamb, "Optimization of NULL Convention Self-timed Circuits," *Integration, The VLSI Journal*, Vol. 37, No. 3, August, 2004, pp. 135 – 165.
26. H. A. Bahr and R. F. DeMara, "Smart Priority Queue Algorithms for Self-optimizing Event Storage," *Simulation Modeling Practice and Theory*, Vol. 12, No. 1, April, 2004, pp. 15 – 40.
27. R. F. DeMara and A. J. Rocke, "Mitigation of Network Tampering Using Dynamic Dispatch of Mobile Agents," *Computers and Security*, Vol. 23, No. 1, February, 2004, pp. 31 – 42.
28. Y. Tseng, R. F. DeMara, and P. Wilder, "Distributed-Sum Termination Detection Supporting Multithreaded Execution," *Parallel Computing*, Vol. 29, No. 7, July, 2003, pp. 953 – 968.
29. W. Kuang, J. S. Yuan, R. F. DeMara, M. Hagedorn, and K. Fant, "Performance Analysis and Optimization of NCL Self-timed Rings," *IEE Proceedings on Circuits, Devices, and Systems*, Vol. 150, No. 3, June, 2003, pp. 167 – 172.
30. R. C. Watkins, K. M. Reynolds, R. F. DeMara, M. Georgiopoulos, A. J. Gonzalez, and R. Eaglin, "Exploring Data Mining Technologies as Tools to Investigate Money Laundering," *Journal of Policing Practice and Research: An International Journal*, Vol. 4, No. 2, January, 2003, pp. 163 – 178.
31. S. C. Smith, R. F. DeMara, J. S. Yuan, M. Hagedorn, and D. Ferguson, "NULL Convention Multiply and Accumulate Unit with Conditional Rounding, Scaling, and Saturation," *Journal of Systems Architecture*, Vol. 47, No. 12, June, 2002, pp. 977 – 998.
32. R. F. DeMara and P. J. Wilder, "A Taxonomy of High Performance Computer Architectures for Uniform Treatment of Multiprocessor Designs," *Computers in Education Journal*, Vol. XI, No. 4, October – December, 2001, pp. 45 – 52.
33. S. C. Smith, R. F. DeMara, J. S. Yuan, M. Hagedorn, and D. Ferguson, "Delay-Insensitive Gate-level Pipelining," *Integration, The VLSI Journal*, Vol. 30, No. 2, November, 2001, pp. 103 – 131.
34. B. S. Motlagh and R. F. DeMara, "Performance of Scalable Shared-Memory Architectures," *Journal of Systems, Circuits, and Computers*, Vol. 10, No. 1, February, 2000, pp. 1 – 20.
35. P. J. Wilder and R. F. DeMara, "Microprocessor-based Parallel Architectures Using Multiport-Memory Interconnection Networks," *Journal of Engineering Technology*, Vol. 16, No. 1, March, 1999, pp. 24 – 31.
36. R. F. DeMara, R. N. Mercer, and M. Ebel, "Helical Latch for Scalable Boolean Logic Operations," *Nanotechnology*, Vol. 5, No. 3, July, 1994, pp. 137 – 156.
37. S. H. Chung, D. I. Moldovan, and R. F. DeMara, "A Parallel Computational Model for Integrated Speech and Natural Language Understanding," *IEEE Transactions on Computers*, Vol. 42, No. 10, October, 1993, pp. 1171 – 1183.

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## E. Conference Proceedings

1. D. Workman, R. F. DeMara, K. Sundaram, D. Turgut, I. Batarseh, and S. Bethel, "Preparing for the Accreditation Visit," presented at *ABET Best Assessment Processes Symposium*, Indianapolis, IN, U.S.A., April 3 – 4, 2009.
2. V. Hung, A. Gonzalez, and R. F. DeMara, "Towards a Context-Based Dialog Management Layer for Expert Systems," in *Proceedings of the International Conference on Information, Process, and Knowledge Management (eKNOW'09)*, Cancun, Mexico, February 2 – 7, 2009.
3. R. F. DeMara, A. J. Gonzalez, S. Jones, A. Johnson, J. Leigh, V. Hung, C. Leon-Barth, R. A. Dookhoo, L. Renambot, S. Lee, and G. Carlson, "Towards Interactive Training with an Avatar-based Human-Computer Interface", in *Proceedings of the 2008 Interservice/Industry Training Systems and Education Conference (IITSEC'08)*, Orlando, FL, U.S.A., December 1 – 4, 2008.
4. A. Sarvi, C. A. Sharma, R. F. DeMara, "BIST-Based Group Testing For Diagnosis of Embedded FPGA Cores," in *Proceedings of the International Conference on Embedded Systems and Applications (ESA'08)*, Las Vegas, Nevada, U.S.A., July 14 – 17, 2008.
5. J. Huang, M. Parris, J. Lee, and R. F. DeMara, "Scalable FPGA Architecture for DCT Computation using Dynamic Partial Reconfiguration," in *Proceedings of the International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA '07)*, Las Vegas, Nevada, U.S.A., July 14 – 17, 2008.
6. K. Zhang, R. F. DeMara, and J. Alghazo, "FPGA Self-Repair using an Organic Embedded System Architecture," in *Proceedings of the International Workshop on Dependable Circuits Design*, Buenos Aires, Argentina, December 6 – 7, 2007.
7. R. S. Oreifej, R. N. Al-Haddad, H. Tan, R. F. DeMara, "Layered Approach To Intrinsic Evolvable Hardware Using Direct Bitstream Manipulation Of Virtex II Pro Device," in *Proceedings of the 17th International Conference On Field Programmable Logic And Applications (FPL'07)*, Amsterdam, Netherlands, August 27 – 29, 2007. Acceptance rate 21%. Selected as best paper of track and nominated for best of conference.
8. R. N. Al-Haddad, C. A. Sharma, R. F. DeMara, "Performance Evaluation of Two Allocation Schemes for Combinatorial Group Testing Fault Isolation," in *Proceedings of the International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA '07)*, Las Vegas, Nevada, U.S.A., June 25 – 28, 2007.
9. K. Zhang, G. Bedette, R. F. DeMara, "Triple Modular Redundancy with Standby (TMRSB) Supporting Dynamic Resource Reconfiguration," in *Proceedings of IEEE AUTOTESTCON Conference 2006*, September 18 – 21, 2006.
10. R. S. Oreifej, C. A. Sharma, R. F. DeMara, "Expediting GA-Based Evolution Using Group Testing Techniques for Reconfigurable Hardware," in *Proceedings of the IEEE International Conference on Reconfigurable Computing and FPGAs (Reconfig'06)*, pp. 106 – 113, San Luis Potosi, Mexico, September 20 – 22, 2006.
11. H. Tan, R. F. DeMara, "A Physical Resource Management Approach to Minimizing FPGA Partial Reconfiguration Overhead," in *Proceedings of the IEEE International Conference on*

- Reconfigurable Computing and FPGAs (Reconfig'06)*, pp. 86 – 90, San Luis Potosi, Mexico, September 20 – 22, 2006.
12. H. Tan, R. F. DeMara, A. J. Thakkar, A. Ejnoui and J. D. Sattler, "Complexity and Performance Evaluation of Two Partial Reconfiguration Interfaces on FPGAs: a Case Study," in *Proceedings of the International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA'06)*, Las Vegas, Nevada, U.S.A, June 26 – 29, 2006.
  13. M. Georgiopoulos, E. Gelenbe, R. F. DeMara, A. J. Gonzalez, M. Kysilka, M. Mollaghasemi,, A. S. Wu, G. Anagnostopoulos, I. Russell, J. Secretan, "Assessing and Evaluating CRCDC Experiences at the University of Central Florida: An NSF Project," in *Proceedings of the 2006 American Society for Engineering Education Annual Conference and Exposition (ASEE'06)*, Chicago, Illinois, U.S.A., June 18 – 21, 2006.
  14. J. D. Sattler, M. Leftwich, R. F. DeMara, H. Tan, and A. Ejnoui, "Partial Reconfiguration of FPGAs with Software and Hardware Anti-Tamper Considerations," in *Proceedings of the 2006 DoD Anti-Tamper Conference (AT'06)*, Dayton, Ohio, U.S.A., April 25-27, 2006.
  15. C. A. Sharma and R. F. DeMara, "A Combinatorial Group Testing Method for FPGA Fault Location," accepted to *International Conference on Advances in Computer Science and Technology (ACST'06)*, Puerto Vallarta, Mexico, January 23 – 25, 2006.
  16. C. J. Milliord, C. A. Sharma, R. F. DeMara, "Dynamic Voting Schemes to Enhance Evolutionary Repair in Reconfigurable Logic Devices," in *Proceedings of the International Conference on Reconfigurable Computing and FPGAs (Reconfig'05)*, pp. 8.1.1 – 8.1.6, Puebla City, Mexico, September 28 – 30, 2005.
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  20. H. Tan and R. F. DeMara, "A Device-Controlled Dynamic Configuration Framework Supporting Heterogeneous Resource Management," in *Proceedings of the International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA'05)*, pp. 251 – 254, Las Vegas, Nevada, U.S.A, June 27 – 30, 2005.
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  39. Y. Tseng and R. F. DeMara, "Communication Pattern based Methodology for Performance Analysis of Termination Detection Schemes," in *Proceedings of the Ninth International Conference on Parallel and Distributed Systems (ICPADS'02)*, pp. 535 – 541, Chungli Taoyuan, Taiwan, December 17 – 20, 2002.
  40. J. D. Lohn, G. Larchev, and R. F. DeMara, "A Co-evolutionary Genetic Algorithm for Autonomous Fault-Handling in FPGAs," in *Proceedings of the Sixth International Conference on Military and Aerospace Programmable Logic Devices (MAPLD-2002)*, pp. E4: 1 – 8, Laurel, Maryland, U.S.A., September 10 – 12, 2002.
  41. A. E. Henninger, A. J. Gonzalez, M. Georgiopoulos, and R. F. DeMara, "A Connectionist-Symbolic Approach to Modeling Agents: Neural Networks Grouped by Contexts," in *Proceedings of the Third International and Interdisciplinary Conference on Modeling and Using Context (CONTEXT'01)*, pp. 198 – 209, Dundee Scotland, July 26 – 29, 2001.
  42. A. E. Henninger, A. J. Gonzalez, M. Georgiopoulos, and R. F. DeMara, "Developing and Validating Human Behavioral Models through Learning By Observation," in *Proceedings of the 2001 World Multiconference on Systemics, Cybernetics and Informatics: Concepts and Applications – Part III*, Orlando, FL, U.S.A., July 22 – 25, 2001.
  43. S. C. Smith, R. F. DeMara, J. S. Yuan, M. Hagedorn, and D. Ferguson, "Speedup of Delay-Insensitive Digital Systems Using NULL Cycle Reduction," in *Proceedings of the 2001 International Workshop on Logic and Synthesis (IWLS'01)*, pp. 185 – 189, Granlibakken, California, U.S.A., June 12 – 15, 2001.

44. A. E. Henninger, A. J. Gonzalez, M. Georgiopoulos, and R. F. DeMara, "The Limitations of Static Performance Metrics for Dynamic Tasks Learned Through Observation," in *Proceedings of the Tenth Conference on Computer Generated Forces and Behavioral Representation (CGF-BR'01)*, pp. 147 – 154, Norfolk, Virginia, U.S.A., May 14 – 17, 2001.
45. A. E. Henninger, A. J. Gonzalez, M. Georgiopoulos, and R. F. DeMara, "Human Performance Models for Embedded Training: A Novel Approach to Entity State Synchronization," in *Proceedings of the 2001 Advanced Simulation Technology Conference (ASTC-2001) – Symposium on Military, Government, and Aerospace Simulation*, Seattle, Washington, U.S.A., April 22 – 26, 2001.
46. A. E. Henninger, A. J. Gonzalez, W. Gerber, M. Georgiopoulos, and R. F. DeMara, "On the Fidelity of SAFs: Can Performance Data Help?" in *Proceedings of the 2000 Interservice/Industry Training, Simulation and Education Conference (IITSEC-2000)*, pp. 147 – 154, Orlando, Florida, U.S.A., November 27 – 30, 2000.
47. A. Gallagher, A. J. Gonzalez, and R. F. DeMara, "Modeling Platform Behaviors Under Degraded States Using Context-Based Reasoning," in *Proceedings of the 2000 Interservice/Industry Training, Simulation and Education Conference (IITSEC-2000)*, pp. 917 – 927, Orlando, Florida, U.S.A., November 27 – 30, 2000.
48. W. Kuang, J. S. Yuan, R. F. DeMara, D. Ferguson, and M. Hagedorn, "A Delay-insensitive FIR Filter for DSP Applications," in *Proceedings of the Ninth Annual NASA Symposium on VLSI Design*, pp. 2.2.1 – 2.2.7, Albuquerque, New Mexico, U.S.A., November 8 – 9, 2000.
49. N. Weng, J. S. Yuan, R. F. DeMara, D. Ferguson, and M. Hagedorn, "Glitch Power Reduction for Low Power IC Design," in *Proceedings of the Ninth Annual NASA Symposium on VLSI Design*, pp. 7.5.1 – 7.5.7, Albuquerque, New Mexico, U.S.A., November 8 – 9, 2000.
50. A. E. Henninger, A. J. Gonzalez and M. Georgiopoulos, and R. F. DeMara, "Modeling Semi-Automated Forces with Neural Networks: Performance Improvement through a Modular Approach," in *Proceedings of the Ninth Conference on Computer Generated Forces and Behavioral Representation (CGF-BR'00)*, pp. 28: 1 – 8, Orlando, Florida, U.S.A., May 16 – 18, 2000.
51. B. S. Motlagh and R. F. DeMara, "A Scalable Replicated Concurrent-Read Architecture," in *Proceedings of the Fourteenth International Symposium on Computer and Information Sciences (ISCIS'99)*, Izmir, Turkey, October 18 – 20, 1999.
52. R. F. DeMara and P. J. Wilder, "A Taxonomy of High Performance Computer Architectures for Uniform Treatment of Multiprocessor Designs," in *Proceedings of the 1999 American Association for Engineering Education Southeastern (ASEE-SE'99) Conference*, Clemson, North Carolina, U.S.A., April 11 – 13, 1999.
53. A. E. Henninger, W. Gerber, R. F. DeMara, M. Georgiopoulos, and A. J. Gonzalez, "Behavior Modeling Framework for Embedded Simulation," in *Proceedings of the 1998 Interservice/Industry Training, Simulation and Education Conference (IITSEC'98)*, pp. 655 – 662, Orlando, Florida, U.S.A., November 30 – December 3, 1998.
54. Y. Ma and R. F. DeMara, "Localized Self-Contained Adaptive Networks for Hybrid-Symbolic Reasoning," in *Proceedings of the Fourth Joint Conference on Information Sciences (JCIS'98)*, pp. 81 – 86, Research Triangle Park, North Carolina, U.S.A., October 24 – 28, 1998.

55. R. F. DeMara, H. Zhu, and M. Poston, "Design and Analysis of Rate-Adaptive Source Quench Congestion Avoidance Techniques," in *Proceedings of the 1998 International Symposium on Information Theory and Applications (ISITA'98)*, pp. 572 – 575, Mexico City, Mexico, October 14 – 16, 1998.
56. A. J. Gonzalez, M. Georgiopoulos, R. F. DeMara, A. Henninger, and W. Gerber, "Automating the CGF Model Development and Refinement Process by Observing Expert Behavior in a Simulation," in *Proceedings of the Seventh Conference on Computer Generated Forces (CGF'98)*, pp. 251 – 256, Orlando, Florida, U.S.A., May 12 – 14, 1998.
57. B. S. Motlagh and R. F. DeMara, "Memory Latency in Distributed Shared-Memory Multiprocessors," in *Proceedings of the 1998 IEEE Southeastcon Conference (Southeastcon'98)*, pp. 134 – 137, Orlando, Florida, U.S.A., April 24 – 26, 1998.
58. P. J. Wilder, R. F. DeMara, and M. Costello, "Formal Student Presentations: Two views on One Methodology," in *Proceedings of the 1998 American Association for Engineering Education Southeast Section (ASEE-SE'98) Conference*, pp. 198 – 201, Orlando, Florida, U.S.A., April 5 – 7, 1998.
59. A. J. Gonzalez, R. F. DeMara, and M. Georgiopoulos, "Vehicle Model Generation and Optimization for Embedded Simulation," in *Proceedings of the 1998 Spring Simulation Interoperability Workshop (SIW'98)*, pp. 248: 1 – 6, Orlando, Florida, U.S.A., March 9 – 13, 1998.
60. H. Bahr, R. F. DeMara, and M. Georgiopoulos, "Integer-Encoded Massively Parallel Processing of Fast-Learning ARTMAP Networks," in *Proceedings of the 1997 SPIE AeroSense Symposium (AeroSense'97)*, pp. 678 – 689, Orlando, Florida, U.S.A., April 21 – 24, 1997.
61. H. Bahr and R. F. DeMara, "A Concurrent Model Approach to Scaleable Distributed Interactive Simulation," in *Proceedings of the Fifteenth Workshop on the Interoperability of Distributed Interactive Simulation*, pp. 215 – 222, Orlando, Florida, U.S.A., September 16 – 20, 1996.
62. S. E. Crawford and R. F. DeMara, "Cache Coherence in Multiport Memory Architecture," in *Proceedings of the Second International Conference on Massively Parallel Computing Systems (MPCS'95)*, pp. 632 – 642, Ischia, Italy, May 2 – 6, 1995.
63. R. F. DeMara, B. S. Motlagh, E. Lin, and S. Kuo, "Barrier Synchronization Techniques for Distributed Process Creation," in *Proceedings of the Eighth International Symposium on Parallel Processing (IPPS'94)*, pp. 597 – 603, Cancun, Mexico, April 26 – 29, 1994.
64. R. N. Mercer, M. Ebel, and R. F. DeMara, "Pipelined Architecture for Computational Nanotechnology," in *Proceedings of the 1994 IEEE Southcon Conference (Southcon'94)*, pp. 314 – 319, Orlando, Florida, U.S.A., March 29 – 31, 1994.
65. R. A. Cagle, R. B. Holl, and R. F. DeMara, "Multifunction Content Addressable Memory for Parallel Speech Understanding," in *Proceedings of the 1994 IEEE Southcon Conference (Southcon'94)*, pp. 320 – 325, Orlando, Florida, U.S.A., March 29 – 31, 1994.
66. R. Mercer, M. Ebel, and R. F. DeMara, "Helical Boolean Logic Elements," in *Proceedings of the Third Foresight Conference on Molecular Nanotechnology*, Palo Alto, California, U.S.A., October 14 – 16, 1993.

67. J. D. Roberts, R. F. DeMara, G. Ellis, R. Hughey, R. Levinson, and C. Noshpitz, "AHP: Advanced Hardware for PEIRCE," in *Proceedings of the Second International Workshop on PEIRCE*, pp. 26 – 29, Quebec, Canada, August 7, 1993.
68. S. H. Chung, R. F. DeMara, and D. I. Moldovan, "PASS: A Parallel Speech Understanding System," in *Proceedings of the Ninth IEEE Conference on AI for Applications (CAIA-93)*, pp. 136 – 142, Orlando, Florida, U.S.A., March 1 – 5, 1993.
69. R. F. DeMara and H. Kitano, "Benchmarking Performance of Massively Parallel AI Architectures," in *Proceedings of the Fourth Symposium on the Frontiers of Massively Parallel Computation*, pp. 517 – 520, McLean, Virginia, U.S.A., October 19 – 21, 1992.
70. R. F. DeMara and D. I. Moldovan, "Marker-Passing on a Parallel Knowledge Processing Testbed," in *Proceedings of the First International Conference on Parallel and Distributed Information Systems (PDIS'91)*, pp. 180, Miami Beach, Florida, U.S.A., December 4 – 6, 1991.
71. R. F. DeMara and H. Kitano, "PACE Benchmark Set," in *Proceedings of the 1991 International Joint Conference on Artificial Intelligence (IJCAI'91) – Workshop on Parallel Processing for AI*, pp. 517 – 520, Sydney, Australia, August 24 – 25, 1991.
72. R. F. DeMara and D. I. Moldovan, "Performance Indices for Parallel Marker-Propagation," in *Proceedings of the 1991 International Conference on Parallel Processing (ICPP-91)*, pp. 658 – 659, St. Charles, Illinois, U.S.A., August 12 – 16, 1991.
73. R. F. DeMara and D. I. Moldovan, "A DSP Architecture for Parallel AI Processing," in *Proceedings of the 1991 TMS320 Educators Conference*, Houston, Texas, U.S.A., July 31 – August 2, 1991.
74. R. F. DeMara and D. I. Moldovan, "The SNAP-1 Parallel AI Prototype," in *Proceedings of the Eighteenth Annual International Symposium on Computer Architecture (ISCA'91)*, pp. 2 – 11, Toronto, Ontario, Canada, May 27 – 30, 1991. Also appears in *Computer Architecture News*, Vol. 19, No. 3, pp. 2 – 11, May, 1991.
75. R. F. DeMara and D. I. Moldovan, "Design of a Clustered Multiprocessor for Real-time Natural Language Understanding," in *Proceedings of the Fifth International Parallel Processing Symposium (IPPS'91)*, pp. 270 – 277, Anaheim, California, U.S.A., April 30 – May 2, 1991.
76. R. F. DeMara, "Performance Evaluation of Marker-Propagation Parallel Processing Systems," in *Proceedings of the First Workshop on Abstract Machine Models for Highly Parallel Computers*, pp. 77 – 82, Leeds, United Kingdom, March 25 – 27, 1991.

## F. Articles Undergoing Review

1. H. A. Bahr and R. F. DeMara, "Data Bandwidth Reduction for Embedded Simulation using Concurrent Behavior Models," submitted to *Simulation*, revision pending.
2. R. F. DeMara, K. Zhang, C. A. Sharma, "Consensus-Based Evolvable Hardware for Sustainable Fault Handling," revision pending to *IEEE Transactions on Evolutionary Computation*.
3. C. A. Sharma, A. Sarvi, R.F. DeMara, "Automated BIST-Based Diagnostics and Group Testing Algorithms for Rapid Localization of Faults in FPGAs," in preparation for submission to the *Journal of Electronic Testing*.

4. C. A. Sharma, R. F. DeMara, A. Sarvi, “Group Testing-Based Self-Healing Reconfigurable Logic,” in preparation for submission to *ACM Transactions on Autonomous and Adaptive Systems*.
5. K. Zhang, R. F. DeMara, J. Alghazo, “Outlier-Driven Fault Identification and Recovery for Organic Reconfigurable Architectures,” in preparation for submission to *ACM Transactions on Autonomous and Adaptive Systems*.

## G. Literature Citations

Excluding self-citations, my publications have been cited in premier journals including:

- *IEEE Transactions on Parallel and Distributed Systems*
- *IEEE Transactions on Very-Large Scale Integration Systems*
- *IEEE Transactions on Circuits and Systems I: Regular Papers*
- *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*
- *IEE Proceedings - Computers and Digital Techniques*
- *IEE Proceedings - Circuits, Devices, and Systems*
- *Journal of Parallel and Distributed Computing*
- *Journal of Supercomputing*
- *Networks*
- *Parallel Computing*
- *Journal of Systems Architecture*
- *Theoretical Computer Science*

in addition to other journals, conference proceedings, workshops, and several books.

## H. Patents, Invention Disclosures, and Licenses

1. United States Patent #7,389,460, *Runtime-Competitive Fault Handling for Reconfigurable Logic Devices*, Inventor: R. F. DeMara (Orlando, FL, US), Assignee: University of Central Florida Research Foundation, Inc. (Orlando, FL, US), June 17, 2008.
2. R. F. DeMara and H. Tan, “Multi-layer Runtime Reconfiguration Architecture for FPGA Resource Management,” FPGA circuit environment licensed by University of Central Florida Research Foundation to Space Photonics, Inc., Fayetteville, Arkansas, U.S.A, on September 2, 2005.
3. R. F. DeMara, “Discrepancy Mirror for Self-Checking Fault Detection,” Invention Disclosure, University of Central Florida, February 9, 2005. Merged with invention disclosure leading to United States Patent #7,389,460.
4. R. F. DeMara and H. Tan, “Multi-layer Runtime Reconfiguration Architecture,” U.S. Federal Software Copyright registered by University of Central Florida on August 30, 2005.
5. R. F. DeMara, “Replicated Global Image Memory System,” Invention Disclosure, approved for Patent Application by University of Central Florida Patent Review Committee, 1999.

## I. Research Laboratory Leadership

- Founder and Director:
  - *Computer Architecture Laboratory* – University of Central Florida  
Involves 7 faculty and 13 graduate students, <http://cal.ucf.edu>

- Co-Founder and Co-Director:
  - *Intelligent Systems Laboratory* – University of Central Florida  
Involves 5 faculty and 14 graduate/honors students, <http://isl.ucf.edu>
  - *VLSI Laboratory* – University of Central Florida  
Involves 5 faculty and 5 graduate students, <http://ece.ucf.edu/vlsi>

#### **J. Post-Doctoral Supervision**

- Dr. Jafaar Alghazo, Post-Doctoral Researcher from Southern Illinois University, Carbondale, Illinois, U.S.A., at UCF Campus during 2007 – 2008 academic year.
- Dr. Ayman Alnsour, Post-Doctoral Researcher from Al-Isra University, Amman, Jordan, at UCF Campus during 2007 – 2008 academic year.

## VI. Professional Service

### A. International

- Associate Editor – *IEEE Transactions on VLSI Systems* 2004 – 2007  
(completed 51 manuscripts including coordination of 163 reviewers)
- Editorial Board – *Microprocessors and Microsystems*: 2006 – 2008
- Associate Editor – *Journal of Circuits, Systems, and Computers*: 2004 – 2006
- Conference Keynote Speaker at the *IEEE International Conference on Reconfigurable Computing and FPGAs*, San Luis Potosi, Mexico, September 20 – 22, 2006.
- Steering Committee – *International Conference on Engr. of Reconfigurable Systems and Algorithms*: 2005, 2006, 2007
- Executive Committee – *International Conference on Engr. of Reconfigurable Systems and Algorithms*: 2008
- Program Committees:
  - *International Conference on Field Programmable Logic and Applications*: 2008
  - *Genetic and Evolutionary Computation Conference*: 2008, 2009
  - *NASA/DoD Conference on Evolvable Hardware*: 2005, 2006, 2007, 2008
  - *International Conference on Evolvable Systems*: 2008
  - *International Conf. on Parallel and Distributed Proc. Techniques and Appl.* 2004, 2005
  - *IEEE World Conference on Intelligent Computation*
- Discussion Panelist – *IEEE Conference on AI for Applications*, 1993
- Technical Paper Reviewer/Referee for the following Journals:  
(multiple years of service: 1990 – present)
  - *IEEE Transactions on Parallel and Distributed Systems*
  - *IEEE Transactions on VLSI Systems*
  - *IEEE Transactions on Evolutionary Computation*
  - *IEEE Transactions on Circuits and Systems*
  - *IEEE Transactions on Neural Networks*
  - *IEEE Transactions on Computers*
  - *Journal of Parallel and Distributed Computing*
  - *Journal of Autonomous and Multi-Agent Systems*
  - *Journal of Simulation Modeling Practice and Theory*
  - *Journal of Defense Modeling and Simulation*
  - *Journal of Supercomputing*
  - *Microprocessors and Microsystems*
  - *Integration, The VLSI Journal*
  - *ACM Transactions on Design Automation of Electronic Systems*
- Technical Paper Reviewer/Referee for the following Conferences, Workshops, and Symposia:  
(multiple years of service: 1990 – present)
  - *International Symposium on High Performance Computer Architecture (ISHPCA)*
  - *International Conference on Parallel Processing (ICPP)*

- *International Conference on Parallel and Distributed Computer Systems (ICPDS)*
  - *International Parallel (and Distributed) Processing Symposium (IPDPS)*
  - *International Joint Conference on Artificial Intelligence (IJCAI)*
  - *International Symposium on Computer and Information Sciences (ISCIS)*
  - *International Symposium on Circuits and Systems (ISCS)*
  - *International Symposium on Low Power Electronics and Design (ISPLED)*
  - *International Conference on Engr. of Reconfigurable Systems and Alg. (ERSA)*
  - *NASA/DoD Conference on Evolvable Hardware (EH)*
  - *European Design and Test Conference (EDTC)*
  - *SPIE Aerosense Symposium (Aerosense)*
  - *Hawaii International Conference on Systems Sciences (HICSS)*
  - *International Conference on Field Programmable Logic and Applications (FPL)*
  - *Genetic and Evolutionary Computation Conference (GECCO)*
  - *International Conference on Evolvable Systems (ICES)*
- Conference Technical Session Chair and/or Organizer:
    - “Runtime Resource Management of Reconfigurable Hardware”– *International Conf. on Engineering of Reconfigurable Systems and Algorithms, 2007*
    - “Runtime Reconfiguration Resource Management”– *International Conf. on Engineering of Reconfigurable Systems and Algorithms, 2006*
    - “Distributed and Heterogeneous Reconfigurable Systems”– *International Conference on Advances in Computer Science and Technology, 2006*
    - “Computer Architecture”– *International Conference on Advances in Computer Science and Technology, 2006*
    - “Adaptive Self-Repair of Reconfigurable Devices” – *NASA/DoD Conference on Evolvable Hardware, 2005*
    - “Device & Circuit Design” – *International Conference on VLSI, 2004*
    - “System/Network-on-a-Chip” – *International Conference on VLSI, 2004*
    - “Logic Design” (with H. Michel) – *International Conference on VLSI, 2004*
  - Panelist: IEEE Member Rank Elevation Panel – consisting of IEEE Senior Members and Fellows whom determine increases to Senior Member rank among IEEE applicants, 2005

## **B. National and Regional**

- Proposal/Award Reviewer:
  - National Science Foundation
    - *Computer and Information Science and Engineering (CISE) Division*
    - *U.S.-Argentina Collaborative Research*
    - *Computer Systems Research panel invitee*
  - American Society for Engineering Education, Southeast Section
    - Referee for *Outstanding Researcher Award*
- President: Computer and Technology Division – ASEE Southeast Section: 1999 – 2000
- Vice President: Computer and Technology Division – ASEE Southeast Section: 1998 – 1999

- Technical Program Committee:
  - *IEEE Southcon / Southeastcon Conference*: 1994, 1998
  - *ASEE Southeastern Conference*: 1998, 1999
- Conference Technical Session Chair/Organizer:
  - “Parallel Processing Architectures” – *IEEE Southcon Conference*: 1994, 1998
  - “Computing in Education” – *IEEE Southcon / Southeastcon Conference*: 1998, 1994
- Technical Paper Reviewer/Referee for Conferences:
  - *IEEE Southcon / Southeastcon*
  - *ASEE Southeastern Conference*
- External Promotion and Tenure Evaluator:
  - *Dept. of Electrical and Computer Engineering, The College of New Jersey*: 2007 – 2008
  - *Dept. of Electrical and Computer Engineering, SUNY Stony Brook*: 2005 – 2006
  - *Dept. of Electrical and Computer Engineering, University of Arkansas*: 2004 – 2005
- Textbook Reviewer:
  - McGraw-Hill Publishers: Higher Education Division
  - CRC Press
  - Wiley & Sons (invited for 2 different texts)

### C. University-Level

- University Promotion and Tenure Committee: 2007 – 2008, 2008 – 2009
- Graduate Council: 2004 – 2005
- Faculty Senate: 2005 – 2006, 2004 – 2005
- Commencement Marshall: 2003, 1997, 1994
- Faculty Advisor to IEEE Student Organization: 1995 – 1996, 1994 – 1995, 1993 – 1994

### D. College-Level

- Teaching Award Criteria Committee: 2007 – 2008, 2003 – 2004, 1999 – 2000
- Accreditation Committee: 2006 – 2007, 2007 – 2008
- Engineering Graduate Council: 2004 – 2005
- In-House Grant Selection Committee: 2004 – 2005, 2003 – 2004
- Research Council: 2003 – 2004
- Teaching Award Selection Committee: 2000 – 2001, 1997 – 1998
- Research Award Selection Committee: 2004 – 2005
- Computing Resources Committee: 2000 – 2001, 1999 – 2000, 1997 – 1998, 1995 – 1996, 1994 – 1995
- Dean’s Advisory Board: 1994 – 1995

### E. Department-Level

- Academic Issues:
  - Digital Systems Committee: 2007 – 2008, 2006 – 2007, 2005 – 2006, 2004 – 2005, 2003 – 2004, 2000 – 2001, 1999 – 2000, 1998 – 1999, 1997 – 1998, 1996 – 1997, 1995 – 1996, 1994 – 1995, 1993 – 1994

- Intelligent Systems Committee: 2007 – 2008, 2006 – 2007, 2005 – 2006, 2004 – 2005, 2003 – 2004, 2000 – 2001, 1999 – 2000, 1998 – 1999, 1997 – 1998, 1996 – 1997, 1995 – 1996
- Graduate Program Committee: 2005 – 2006, 2004 – 2005, 2003 – 2004, 1999 – 2000, 1998 – 1999, 1994 – 1995, 1993 – 1994
- Undergraduate Curriculum Committee: 2005 – 2006, 1997 – 1998, 1996 – 1997, 1994 – 1995
- Accreditation Committee(s): 2007 – 2008, 2006 – 2007, 2000 – 2001, 1997 – 1998, 1994 – 1995
- Undergraduate Curriculum Revision and Merging: 2006 – 2007
- Graduate Qualifying Exam Format Ad Hoc Committee: 2007 – 2008, 2006 – 2007
- Planning and Development:
  - Faculty Mentor assigned to Junior ECE Faculty: 2007-2008, 2006 – 2007, 2005 – 2006, 2004 – 2005, 2003 – 2004, 2002 – 2003
  - Strategic Planning Committee: 2004 – 2005
  - Ph.D. Fellowship Committee: 2004 – 2005, 2000 – 2001
  - Industrial Advisory Committee: 1994 – 1995
  - Indonesia Exchange Committee: 1994 – 1995
- Infrastructure and Operations:
  - Engineering III Building Committee: 2004 – 2005
  - Laboratory Committee: 2001 – 2002, 1999 – 2000, 1997 – 1998, 1995 – 1996
  - Computing Resources Committee: 1999 – 2000, 1997 – 1998, 1995 – 1996, 1994 – 1995
  - Lab Director: Microprocessor Lab, Open Computing Lab, Computer Architecture Lab: 1993 – present
  - Lab Faculty: Intelligent Systems Lab, VLSI Lab: 1998 – present
- Evaluation and Recognition:
  - Faculty Excellence Awards Committee: 2005 – 2006
  - Promotion and Tenure Committee: 2005 – 2006, 2004 – 2005, 2003 – 2004, 2002 – 2003, 1999 – 2000
  - Promotion and Tenure Guidelines Committee: 2005 – 2006, 2004 – 2005
  - Merit Raise Guidelines Committee: 2004 – 2005
- Recruiting:
  - Faculty Search Committee: 2006 – 2007, 2005 – 2006, 2003 – 2004, 2000 – 2001, 1998 – 1999, 1997 – 1998, 1996 – 1997, 1995 – 1996, 1994 – 1995
  - Department Chair Search Committee: 2003 – 2004
  - Technician Search Committee: 1995 – 1996, 1994 – 1995

## **F. Academic Program Leadership**

- Computer Engineering Accreditation Coordinator  
University of Central Florida, School of EECS: 2006 – 2008
  - organized ABET accreditation and SACS assessment activities
  - led curriculum renewal and laboratory revitalization efforts
- Associate Chair and Computer Engineering Program Coordinator

ECE Department, University of Central Florida, ECE Department: 1994 – 1995

- led curriculum renewal and laboratory revitalization efforts
- organized ABET accreditation and SACS assessment activities
- developed advising procedure and determined course scheduling/staffing and petitions
- supervised Computer Technicians, Administrative Staff, Student Assistants

### **G. Academic Committee Chairship**

- Chair, EECS/ECE Department Digital Systems and Computer Architecture Technical Area Committee: 2007 – 2008, 2006 – 2007, 2005 – 2006, 2004 – 2005, 2003 – 2004, 2000 – 2001, 1997 – 1998, 1995 – 1996, 1993 – 1994
- Chair, ECE Department Evaluation Committee: 2004 – 2005
- Chair, School of Electrical Engineering and Computer Science Promotion and Tenure Committee: 2005 – 2006 (evaluated eleven faculty), 2002 – 2003 (evaluated 7 faculty)
- Chair, ECE Department Faculty Search Committee: 2006 – 2007 (4 faculty hired), 2000 – 2001 (3 faculty hired), 1996 – 1997 (1 faculty hired), 1994 – 1995 (3 faculty hired)
- Chair, College of Engineering Teaching Award Criteria Committee: 2005 – 2006, 1999 – 2000
- Chair, College of Engineering Teaching Award Selection Committee: 1997 – 1998
- Chair, ECE Department Computing Resources Committee: 1997 – 1998, 1995 – 1996, 1994 – 1995
- Chair, ECE Department Technician Search Committee: 1995 – 1996
- Chair, ECE Department Laboratory Committee: 1995 – 1996
- Chair, ECE Department Indonesia Exchange Committee: 1994 – 1995
- Chair, ECE Department Accreditation Committee: 1994 – 1995

## **VII. Affiliations and Certifications**

### **A. Professional Societies**

- Senior Member of *Institute of Electrical and Electronics Engineers (IEEE)* (current)
- Member of *Association for Computing Machinery (ACM)* (current)
- Member of *American Society for Engineering Education (ASEE)* (current)

### **B. Professional Certification**

- State of California, Board of Engineers  
*Registered Professional Engineer* – Electrical Engineer, License Number E-13860 (current)

### **C. Security Clearance**

- U.S. Department of Defense – Confidential-Level and Secret-Level (inactive)

## VIII. Honors and Awards

### A. Teaching

- *Outstanding Engineering Educator – Southeastern United States:*  
IEEE Professional Society – Region 3, April, 2008.
  - Citation: “For Outstanding Contributions to Engineering Education in Computer Architecture and Intelligent Systems.”
  - IEEE Region 3 encompasses the southeastern United States and includes the states of Alabama, Florida, Georgia, areas of Indiana, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia and the country of Jamaica.
- *Outstanding Engineering Educator – Florida:* IEEE Florida Council, December, 2007.
- *Outstanding Engineering Educator – Orlando Section:* IEEE Orlando Section, September, 2007.
- *Teaching Initiative Program (TIP) Award:* University of Central Florida, 2006 – 2007.
  - Monetary Amount: \$5,000 permanent increase to 9-month salary
- *Excellence in Graduate Teaching:* UCF Dept. of Electrical and Computer Engr., 2004 – 2005.
- *Teaching Initiative Program (TIP) Award:* University of Central Florida, 2001 – 2002.
  - Monetary Amount: \$5,000 permanent increase to 9-month salary
- *Web-based Course Development Award:* IEEE Southeastcon, 1998.
- *Teaching Initiative Program (TIP) Award:* State University System of Florida, 1996 – 1997.
  - Monetary Amount: \$5,000 permanent increase to 9-month salary
- Nominated for *Humphrey Teaching Assistant Award:* Lehigh University, 1986 – 1987.

### B. Research

- *Best Paper Award:* International Conference On Field Programmable Logic, Place and Route session  
R. S. Oreifej, R. N. Al-Haddad, H. Tan, R. F. DeMara, “Layered Approach To Intrinsic Evolvable Hardware Using Direct Bitstream Manipulation Of Virtex II Pro Device,” in *Proceedings of the 17th International Conference On Field Programmable Logic And Applications (FPL’07)*, Amsterdam, Netherlands, August 27 – 29, 2007. Conference acceptance rate 21%. Selected as best paper of track and nominated for best of conference.
- *Distinguished Researcher:* UCF College of Engineering and Computer Science, 2004 – 2005, Associate Professor level.
- *Best Paper Award:* WMSCI’05, Network Security Technologies session  
G. Wang, R. F. DeMara, A. J. Rocke, “Mobility-Enhanced File Integrity Analyzer For Networked Environments,” in *Proceedings of the 9th World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI ’05)*, pp. 341 – 346, Orlando, FL, U.S.A., July 10 – 13, 2005. Received *Best Paper Award*, Network Security and Security Technologies.
- *Researcher of the Year:* UCF Department of Electrical and Computer Engr., 2003 – 2004, Associate Professor level
- *Research Initiative Award (RIA):* University of Central Florida, 2003 – 2004.
  - Monetary Amount: \$5,000 permanent increase to 9-month salary

- *Distinguished Research Lecturer*: UCF College of Engineering, 2003 – 2004.  
– Monetary Amount: \$2,000 one-time award

### **C. Service**

- *Excellence in Professional Service*: School of Electrical Engineering and Computer Science, 2008 – 2009.
- *Achievement Award*: International Multiconference in Computer Science and Computer Engineering, 2005.
- *Faculty Advisor of the Year*: UCF College of Engineering, 1994 – 1995.
- *Faculty Advisor of the Year*: UCF Dept. of Electrical and Computer Engineering, 1994 – 1995.
- Nominated for *IEEE Student Organization Advisor of The Year*, 1995.
- *Special Appreciation Award for Outstanding Employee Contribution*, IBM Corporation, Manassas, Virginia, 1989.

### **D. Other Recognition of Scholarship**

- Marquis Who's Who in America
- Marquis Who's Who in Science and Engineering
- Eta Kappa Nu, Tau Beta Pi, and Phi Eta Sigma Honor Societies
- New York State *Regents Scholarship* and *Science Supervisors' Scholarship*
- Lehigh University Dean's List: semesters 1, 2, 3, 4, 6, 7, 8

## **IX. Personal Information**

### **A. Citizenship**

United States of America

### **B. Foreign Languages**

New York Regents Certification in Spanish: 1983

### **C. Interests**

- Personal Computing: Web-enabled interfaces, Geo-aware computing
- Sustainable Technology and Impact on Society: IEEE Technology and Society interest group member