Table of Contents

Message from the Chair ...............................................................................................................3
1. Faculty and Staff ......................................................................................................................4
   1.1 Faculty .............................................................................................................................4
      Tenured and Tenure-Track Faculty
      New Faculty Hires
      Teaching and Research Faculty
      Joint Faculty
      Faculty Awards and Honors ..............................................................................................11
      Fellows of Technical & Honor Societies
      Services of Professional Societies ..................................................................................12
      University Honors and Award ..........................................................................................12
   1.2 Administrative and Technical Staff ..................................................................................14
2. Academic Programs .............................................................................................................15
   2.1 Enrollment and Degrees Awarded ................................................................................15
   2.2 PhD Dissertation & MS Theses & Honors Theses ..........................................................18
   2.3 Courses Taught ..............................................................................................................20
   2.4 Student Awards Received ...............................................................................................23
   2.5 Course and Program Development ..............................................................................24
   2.6 Instructional Laboratories ............................................................................................25
   2.7 Lectures and Seminars ....................................................................................................26
3. Research ................................................................................................................................28
   3.1 Areas of Research ..........................................................................................................28
   3.2 Research Laboratories .................................................................................................29
   3.3 Publications
      Books .................................................................................................................................34
      Book Chapters ...................................................................................................................34
      Journal Publications (including those by undergraduate and graduate students) ........34
      Conference Papers with Proceedings ..............................................................................40
      Conference Papers without Proceedings .........................................................................50
      Plenary and Invited Talks .................................................................................................54
      Patents ...............................................................................................................................55
      Patent Applications .........................................................................................................56
   3.1 Research Expenditures and Funding ..............................................................................57
   3.2 Externally Funded Research Centers ..............................................................................59
4. Industry Partnership .............................................................................................................60
   The Industrial Advisory Board ..............................................................................................60

Edited by: Terrell Hodges
ECE, Senior Information Specialist
Message from the Chair

Three years ago, ECE department set its strategic goals; the first of them is to increase the size of our tenured/tenure-tracking faculty members from middle 20s to 40 because this increase enables us to further enhance education quality, to reduce the elevated student-to-faculty ratio, and to strengthen our research enterprise. In the past academic year, we have made several strides toward achieving this goal:

- 5 new faculty members (3 associate professors and 2 assistant professors) were hired this year, and our tenured/tenure-track headcount reached 32 after 5 year consistent efforts of hiring.
- Our faculty received national recognitions for their research and education activities, in particular, ECE department added 3 NSF CAREER awardees (including 2 new awards and 1 new hire) and 1 DoE Early Career awardee.
- Through a university-level competition, ECE department was awarded to lead the cluster of RISES (Resilient, Intelligent and Sustainable Energy Systems), and this cluster will not only add another 3 to 4 additional tenured/tenure-track faculty members to the department but also broaden the multidisciplinary reach of ECE research.

With the open positions already approved for hire over the next two cycles, we are confident to meet our goal of faculty expansion.

ECE staff and faculty continue to excel in delivering quality education and undertaking impactful research, as evidenced from the following qualitative measures:

- According to ASEE data, our undergraduate educational programs are among the top-10 most productive in the nation: 169 BSEE & 90 BSCpE are awarded this past academic year (an 84% increase in undergraduate degrees conferred since AY2010-2011).
- Our graduate programs continue to be efficient: 23 PhD degrees are conferred (increased from 19 in AY2010-2011).
- ECE new research funding is $6.4M (close to being tripled from $2.2M in AY2010-2011), and research expenditure is $4.4M (an 81% increase from $2.4M in AY 2010-2011).
- UCF belongs to T50 Index (the top 50 ECE programs) compiled by ECEDHA, the North America ECE department heads association. US News and World Report rankings are 66th (out of 139 ranked programs) for EE and 64th (out of 103 ranked programs) for CpE.

Looking forward, we are very excited about ECE and its future. Our department will continue its growth, ECE faculty (including 1 NAE member, 7 Fellows of IEEE and 7 NSF CAREER awardees) are highly dedicated and creative, and their hard work ensures that our students receive top-quality education and our research addresses critical needs of our time.

This edition of ECE annual report contains the list of our faculty, their expertise and accomplishments in scholarly activities, learning, and technology transfer. With support from our alumni and friends, we will strive to achieve excellence and make ECE the best it can be.

Zhihua Qu
Professor and Chair of ECE

October 19, 2016
1. Faculty and Staff

1.1 Faculty

**Reza Abdolvand**
Associate Professor  
Ph.D., Electrical Engineering  
Georgia Institute of Technology, 2008  
Micro- and Nano-Electromechanical System, Micro-resonators for timing and data processing, resonant sensors  
Reza.Abdolvand@ucf.edu

**George Atia**
Assistant Professor  
Ph.D., Electrical Engineering  
Boston University, 2009  
Signal processing, Stochastic control, Wireless communications, Controlled sensing, Information theory, Detection and estimation  
George.Atia@ucf.edu

**Issa Batarseh**  
Professor  
Ph.D., Electrical Engineering  
University of Illinois at Chicago, 1990  
Power Electronics, Energy Conversion and Grid-tied Inverters  
batarseh@eecs.ucf.edu

**Aman Behal**  
Associate Professor  
Ph.D., Electrical Engineering  
Clemson University, 2001  
Robotics, Neural Modeling, Nonlinear Control and Identification, and Visual Servicing  
abehal@eecs.ucf.edu

**Ronald F. DeMara**
Professor  
Ph.D., Computer Engineering  
University of Southern California, 1992  
Computer Architecture, Intelligent Systems, Evolvable Hardware  
demara@eecs.ucf.edu

**Deliang Fan**
Assistant Professor  
Ph.D., Electrical & Computer Eng.  
Purdue University, 2015  
Ultra-low Power Brain-inspired (Neuromorphic), Nano-scale Physics Based Devices, Modeling and Simulations Low Power Digital and Mixed Signal CMOS Circuit Design  
dfan@ucf.edu

**Michael Georgiopoulos**
Dean and Professor  
Ph.D., Electrical Engineering  
University of Connecticut, 1986  
Machine Learning, Kernel Machines, Neural Networks, Neuro-Evolution, Pattern Recognition and applications  
michaelg@eecs.ucf.edu

**Xun Gong**
Associate Professor  
Ph.D., Electrical Engineering  
University of Michigan at Ann Arbor, 2005  
RF Microwave Millimeter wave Circuits, Integrated 3D High Q Resonators and Filters, Integrated Antennae  
xun.gong@ucf.edu
Samuel M. Richie
Undergraduate Program Coordinator and Associate Professor
Ph.D., Electrical Engineering
University of Central Florida, 1989
Surface acoustic wave SAW device modeling, SAW device computer aided design, transversal filter design theory
richie@eecs.ucf.edu

Kalpathy Sundaram
Graduate Program Coordinator and Professor
Ph.D., Electrical Engineering
Indian Institute of Technology, 1980
Microelectronics, optoelectronic materials, thin films micromachining
sundaram@eecs.ucf.edu

Azadeh Vosoughi
Associate Professor
Ph.D., Electrical Engineering
Cornell University, 2006
Cyber-physical systems, Signal and information processing, Detection and estimation theory, Communication theory
azadeh@ucf.edu

Jun Wang
Associate Professor
Ph.D., Computer Science and Eng.
University of Cincinnati, 2002
Computer Architecture, OS and High Performance
juwang@eecs.ucf.edu

Lei Wei
Associate Professor
Ph.D., Electrical Engineering
University of South Australia, 1996
Mobile communications, wireless systems, error control coding, information theory, fast simulation, signal processing
lei@eecs.ucf.edu

Marwan Simaan
Professor
Ph.D., Electrical Engineering
University of Illinois at Urbana-Champaign, 1972
Optimization and control signal processing, telecommunication and knowledge based signal processing and control
simaan@eecs.ucf.edu

Wei Sun
Assistant Professor
Ph.D., Electrical & Computer Eng.
Iowa State University, 2011
Electric power and energy systems
sun@ucf.edu

Parveen F. Wahid
Professor
Ph.D., Electrical Communication Engineering
Indian Institute of Science, Bangalore, India, 1979
Antenna design and analysis, electromagnetics, microwaves
wahid@eecs.ucf.edu

Arthur Weeks
Associate Professor
Ph.D., Electrical Engineering
University of Central Florida, 1987
Biomedical sensors, patient monitoring, tele-healthcare image processing and wireless computing
weeks@eecs.ucf.edu

Thomas X. Wu
Professor
Ph.D., Electrical Engineering
University of Pennsylvania, 1999
Energy Device and System
tomwu@eecs.ucf.edu
**NEW FACULTY HIRED DURING AY 2015/2016**

**Jiann S. Yuan**  
Professor  
Ph.D., Electrical Engineering  
University of Florida, 1988  
Semiconductor device modeling, device and circuit simulation, analog digital circuit analysis and design  
yuanj@eecs.ucf.edu

**Aleksandar Dimitrovski**  
Associate Professor  
Ph.D., Power Engineering  
Ss. Cyril & Methodius University, Macedonia, 1997  
Analysis of uncertain power systems; hybrid magnetic-electronic power controllers; power system protection  
ADimitrovski@ucf.edu

**Rickard Ewetz**  
Assistant Professor  
Ph.D., Electrical Engineering  
Purdue University, 2016  
Computer Aided design for VLSI; physical design; optimization of large complex systems.  
Rickard.Ewetz@ucf.edu

**Yaser P. Fallah**  
Associate Professor  
Ph.D., Electrical & Computer Eng.  
University of British Columbia, 2007  
Modeling of networked systems, wireless networks; autonomous and connected vehicles; intelligent transportation; vehicles safety and energy efficiency; distributed systems  
Yaser.Fallah@ucf.edu

**Murat Yuksel**  
Associate Professor  
Ph.D., Computer Science  
Rensselaer Polytechnic Institute, 2002  
Networked and wireless systems; optical wireless; spectrum sharing, network economics and architectures; big-data and cloud networking  
Murat.Yuksel@ucf.edu

**Qun Zhou**  
Assistant Professor  
Ph.D., Electrical Engineering  
Iowa State University, 2011  
Data Analytics in power systems; smart grid; renewable energy integration; power economics.  
Qun.Zhou@ucf.edu
TEACHING & RESEARCH FACULTY

Zakhia Abichar
Lecturer
Ph.D., Computer Engineering
Iowa State University, 2010

Wireless networks, mobile computing, pervasive computing, human-computer interaction, innovative computing
zakhia17@eecs.ucf.edu

ChungYong Chan
Lecturer
Ph.D., Electrical Engineering
University of Mississippi, 2010

Linear phase FIR filter design using the Bayesian inference framework, Bayesian Time-Frequency Analysis, Room Acoustics, Landmine Detection
ChungYong.Chan@ucf.edu

John Edison
Visiting Instructor
M.S., Computer Engineering
University of Central Florida, 2013

Machine Learning, Intelligent Systems, Bioinformatics, Network Design
JEdison@knights.ucf.edu

Shady Elashhab
Lecturer
Ph.D., Electrical and Computer Engineering
Oakland University, 2009

Robust and Optimal Control of Dynamical System
selashha@ucf.edu

Azza Fahim
Lecturer
Ph.D., Electrical Engineering
Cairo University, 1984

Electromagnetic analysis of electric machines, Finite-element methods in the analysis and design of electric machine
azza@eecs.ucf.edu

Suboh Suboh
Lecturer
Ph.D., Electrical Engineering
George Washington University, 2010

Computer Architecture & Networking
Suboh.Suboh@ucf.edu

PROFESSOR EMERITUS

Nicolaos S.Tzannes
Professor Emeritus
Ph.D., Electrical Engineering
Johns Hopkins University, 1966

Communications, signal/image processing
tzannes@eecs.ucf.edu

Ronald Philips
Professor Emeritus
Ph.D., Engineering
Arizona State University, 1971

Propagation through random media, optical communications, laser radar and imaging through atmospheric turbulence.
Ronald.Philips@ucf.edu
**JOINT FACULTY**

**Georgios Anagnostopoulos**  
Associate Professor  
Florida Institute of Tech  
Machine Learning, Artificial Neural Networks, Decision Trees, Evolutionary Computation, Data Mining  
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**Ulas Bagci**  
Assistant Professor  
Computer Science  
Biomedical imaging, Computer Vision, Clinical Image Processing, and Statistical Machine Learning  
mainak@cs.ucf.edu

**Ladislau Boloni**  
Associate Professor  
Computer Science  
Distributed systems, network agents, ubiquitous computing, and knowledge representation  
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**Debashis Chanda**  
Assistant Professor  
NanoScience, CREOL  
Thin-film solar cells, study of light-matter interactions in artificially structured metal/dielectric structures  
Debashis.Chanda@creol.ucf.edu

**Mainak Chatterjee**  
Associate Professor  
Computer Science  
Network Science, Video over wireless, QoE, Applied game and auction theory, Dynamic spectrum access, Cognitive radio networks, ad hoc and sensor networks  
mainak@cs.ucf.edu

**David Click**  
Program Director  
Solar Systems Research  
Florida Solar Energy Center  
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**Sasan Fathpour**  
Associate Professor of Optics, CREOL  
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**Peter Delfyett**  
University Trustee Chair & Professor of Optics, ECE & Physics  
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**Neelkanth Dhere**  
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**Sasran Khondaker**  
Associate Professor  
Department of Physics  
Electron transport properties of nanoscale materials  
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**Xiaoman Li**  
Associate Professor  
Burnett School of Biomedical Sciences  
xiaoman@ucf.edu

**Patrick LiKamWa**  
Associate Professor of Optics, CREOL  
Design, fabrication and testing of novel all-optical switching devices using III-V multi-quantum well semiconductors  
patrick@creol.ucf.edu
CAREER and Young Investigator Awardees

National Science Foundation CAREER Award
- George Atia (new awardee)
- Yaser Fallah (new hire)
- Xun Gong
- Mingjie Lin (new awardee)
- Nazanin Rahnavaard
- Azadeh Vosoughi
- Jun Wang

Department of Energy CAREER Award
- Yier Jin (new awardee)
- Jun Wang

External Awards and Honors

NASA Research: 2015 PMM Science Team Award
- W. Linwood Jones

Fellows of Technical & Honor Societies

American Association for the Advancement of AAAS
- Issa Batarseh
- Zhihua Qu
- Marwan Simaan

American Institute for Medical and Biological Engineering
- Marwan Simaan

American Society for Engineering Education
- Marwan Simaan

Electrochemical Society
- Kalpathy Sundaram

IEEE Fellows
- Issa Batarseh
- W. Linwood Jones
- Juin J. Liou
Donna Malocha  
Wasify Mikhael  
Zihhua Qu  
Marwan Simaan

Pegasus Professor

National Academy of Engineering Member  
Marwan Simaan

National Academy of Inventors  
Issa Batarseh  
Marwan Simaan

Chair, Professorship, Endowed Professorship, University Professorship and Faculty Fellows

George Atia, Charles N. Millican Faculty Fellow  
Michael Georgiopoulos, Pegasus Professor  
Xun Gong, CAE Link Faculty Fellow  
Mingjie Lin, SAIC Faculty Fellow  
Jun J. Liou, Lockheed Martin St. Laurent Endowed Professor, Pegasus Professor  
Donald Malocha, Pegasus Professor  
Zihhua Qu, SAIC Endowed Professor, Pegasus Professor  
Marwan Simaan, Florida 21st Century Chair Professor  
Jun Wang, Charles N. Millican Faculty Fellow  
Jiann S. Yuan, Pegasus Professor

Services of Professional Societies

<table>
<thead>
<tr>
<th>Faculty Name</th>
<th>Professional Services</th>
</tr>
</thead>
</table>
| Issa Batarseh | • Educational Committee Member, IEEE PELS  
                 • Panel Member, NSF Career Award |
| Aman Behal    | • Associate Editor, ASCE Journal of Aerospace Engineering |
| Ronald F. DeMara | • Associate Editor, IEEE Transactions on Computers |
| Xun Gong      | • Associate Editor, IEEE Microwave and Wireless Component Letters |
| Yier Jin      | • Associate Editor, IET Computers & Digital Techniques  
                 • Associate Editor, IEEE SMC Society Technical Committee on CCPS |
Newsletter

- Guest Editor, IEEE Transaction on Multi-scale Computing Systems

Wasfy Mikhael
- Membership Chair, IEEE MWSCAS Steering Committee
- Judge, IEEE MWSCAS Best Student Paper Award

Zhihua Qu
- Board of Directors, ECEDHA
- Board of Directors, SCEEE
- President, SECEDHA
- Associate Editor, IEEE ACCESS
- Associate Editor, Automatica

Nazanin Rahnavard
- Associate Editor, Elsevier Computer Networks Journal
- Guest Editor, Electronics Journal, Special Issue

Marwan Simaan
- Editorial Board, IEEE Access
- Editorial Advisory Board, IEEE Systems Journal
- Editorial Advisory Board, Integrated Computer-Aided Engineering

Azadeh Vosoughi
- Associate Editor, IEEE Transactions on Wireless Communications
- Associate Editor, IEEE Signal Processing Letters
- Associate Editor, IEEE Signal Processing Magazine

Parveen Wahid
- Associate Editor, Computer Applications in Engineering Education
- Associate Editor, IEEE Antennas and Propagation Magazine
- Associate Editor, International Journal on Antennas and Propagation

Jun Wang
- Associate Editor, IEEE Transactions on Cloud Computing

Thomas Wu
- Associate Editor, IEEE Transactions on Industrial Applications

Jiann-Shiun Yuan
- Editor, IEEE Transactions on Device and Materials Reliability

University Honors and Awards

Mingjie Lin
- UCF Tip Award 2016
- 2016 UCF Air Force Summer Faculty Fellowship

Wasfy Mikhael
- UCF Tip Award

Parveen Wahid
- CECS Office of Diversity and Inclusion-Trailblazer in CECS women Faculty Award

Xun Gong
- Reach for the Stars Award
- Research Initiative Award
1.2 STAFF

ECE ADMINISTRATIVE AND TECHNICAL STAFF

Diana Camerino
Graduate Admissions Specialist
diana@eecs.ucf.edu
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Coordinator
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Office Phone: (407) 823-2637

Diane D'Avanzo
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Office Phone: (407) 823-4697

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Office Phone: (407) 823-0015

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Academic Advising Services
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Office Phone: (407) 823-2787

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Office Phone: (407) 823-4587

Giji Skaria
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Office Phone: (407) 823-0536

Diana Camerino
Graduate Admissions Specialist
diana@eecs.ucf.edu
Office: HEC-439E
Office Phone: (407) 823-3027
2. Academic Programs

2.1 Enrollment and Degrees Awarded

Undergraduate: BSEE & BSCpE

The mission of the Department of Electrical and Computer Engineering (ECE) is to educate undergraduate and graduate students to become highly skilled in the principles and practices of computer engineering (CpE) and electrical engineering (EE). The Electrical Engineering Program is to develop and disseminate the theory and methods for the design, analysis, and implementation of the principles and practices in Electrical Engineering; and Computer Engineering Program is to develop and disseminate the theory and methods for the design, analysis, implementation, and improvement of computer hardware, software, and systems.

Enrollment in ECE undergraduate programs for Fall 2015 totaled 1487 students as listed below:

- BSEE Enrollment = 770
- BSCpE Enrollment = 717

The chart below shows undergraduate enrollment trend in EE and CpE from Fall 2009 to Fall 2015.

(Source: UCF Pegasus Mine Portal)
The ECE department awarded 259 Undergraduate degrees for AY 2015/2016, as listed below:

- BSEE: Degrees Awarded = 169
- BSCpE: Degrees Awarded = 90

Total Undergraduate Degrees awarded in ECE = 259

The chart below shows the degrees awarded for EE and CpE from AY 2009/2010 to AY 2015/2016.

Graduate: MSEE, MSCpE, Ph.D. EE, Ph.D. CpE

Fall 2015 Enrollment in ECE graduate programs totaled 316 students as listed below:

- MSEE Enrollment = 90
- MSCpE Enrollment = 48
- Ph.D. EE Enrollment = 131
- Ph.D. CpE Enrollment = 47

The chart below shows graduate enrollment in EE and CpE starting Fall 2009 to Fall 2015

(Source: UCF Pegasus Mine Portal)
The ECE department awarded 67 MS degrees and 23 Ph.D. degrees in AY 2015/2016 as listed below:

Total Masters Degrees awarded in ECE = 67
- M.S.EE: Degrees Awarded = 53
- M.S.CpE: Degrees Awarded = 14

The chart below shows M.S. degrees conferred from AY 2009/2010 to 2015/2016.

Total Doctoral degrees awarded in ECE = 23
- Ph.D.EE Degrees Awarded = 16
- Ph.D.CpE: Degrees Awarded=7

The chart below shows Ph.D. degrees conferred from 2008/2009 to 2014/2015.
## 2.2 PhD DISSERTATIONS & MS THESIS & HONORS THESIS

**Ph.D. Dissertations during AY 2015 – 2016:**

<table>
<thead>
<tr>
<th>Term</th>
<th>Last Name</th>
<th>First Name</th>
<th>Title</th>
<th>Chair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2015</td>
<td>Manaffam</td>
<td>Saeed</td>
<td>Stability and Control in Complex Networks of Dynamical Systems</td>
<td>Vosoughi</td>
</tr>
<tr>
<td>Summer 2015</td>
<td>Liu</td>
<td>Hanzhou</td>
<td>Design of High-Efficiency Rare-Earth Permanent Magnet Synchronous Motor and Drive System</td>
<td>Wu</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Al-Zahraimi</td>
<td>Daniel</td>
<td>Fast Online Diagnosis and Recovery of Reconfigurable Logic Fabrics using Design Disjunction</td>
<td>Demara</td>
</tr>
<tr>
<td>Summer 2015</td>
<td>Gallagher</td>
<td>Daniel</td>
<td>Ulta-Wideband Spread Spectrum Communications Using Software Defined Radio and Surface Acoustic Wave Correlators</td>
<td>Malocha</td>
</tr>
<tr>
<td>Summer 2015</td>
<td>Gallagher</td>
<td>Mark</td>
<td>Design, Fabrication, and Interrogation of Integrated Wireless SAW Temperature Sensors</td>
<td>Malocha</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Alzahrani</td>
<td>Ahmed</td>
<td>Design Disjunction for Resilient Reconfigurable Hardware</td>
<td>Demara</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Mcdowell</td>
<td>William</td>
<td>Vehicle Tracking and Classification via 3D Geometries for Intelligent Transportation Systems</td>
<td>Mikhail</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Shahrasbi</td>
<td>Behzad</td>
<td>Compressive Sensing and Recovery of Structured Sparse Signals</td>
<td>Rahnavard</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Shiradkar</td>
<td>Narendra</td>
<td>Predictive Modeling for Assessing the Reliability of Bypass Diodes in Photovoltaic Modules</td>
<td>Sundaram</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Fatemi</td>
<td>Hedy</td>
<td>Performance Optimization of Lateral-Mode Thin-Film Piezoelectric-on-Substrate Resonant System</td>
<td>Abdolvand</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Yin</td>
<td>Jiangling</td>
<td>Research on High-Performance and Scalable Data Analysis in Parallel Big Data Computing</td>
<td>Wang</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Khan</td>
<td>Saad Ahmad</td>
<td>Towards Improving Human-Robot Interaction for Social Robots</td>
<td>Boloni Behal</td>
</tr>
<tr>
<td>Spring 2016</td>
<td>Kritchanchai</td>
<td>Ekavut</td>
<td>RF Circuit Designs for Reliability and Process Variability Resilience</td>
<td>Yuan</td>
</tr>
<tr>
<td>Spring 2016</td>
<td>Padmanadbhan</td>
<td>Karthik</td>
<td>Study of Novel Power Semiconductor Devices for Performance and Reliability</td>
<td>Yuan</td>
</tr>
<tr>
<td>Spring 2016</td>
<td>Xi</td>
<td>Yunfeng</td>
<td>Design and Characterization of System Level Electrostatic Discharge (ESD) Protection Solutions</td>
<td>Liou</td>
</tr>
<tr>
<td>Spring 2016</td>
<td>Santos Garcia</td>
<td>Andrea</td>
<td>Investigation of the Effect of Rain on Sea Surface Salinity</td>
<td>Jones</td>
</tr>
<tr>
<td>Spring 2016</td>
<td>Gopi Krishna</td>
<td>Mohan Krishna</td>
<td>Energy-Aware Reconfigurable Logic Device Using Spin-Based Storage and Carbon Nanotube Switching</td>
<td>Demara</td>
</tr>
<tr>
<td>Spring 2016</td>
<td>Zhang</td>
<td>Tiantian</td>
<td>Model Selection via Racing</td>
<td>Georgiopoulos</td>
</tr>
<tr>
<td>Spring 2016</td>
<td>Modarres-Zadeh</td>
<td>Mohammad</td>
<td>Compressive Sensing and Recovery of Structured Sparse Signals</td>
<td>Rahnavard</td>
</tr>
</tbody>
</table>
MS Thesis during AY 2015 – 2016:

<table>
<thead>
<tr>
<th>Term</th>
<th>Last Name</th>
<th>First Name</th>
<th>Title</th>
<th>Chair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2015</td>
<td>Saidi</td>
<td>Pouria</td>
<td>Motor Imagery Classification Using Sparse Representation of EEG Signals</td>
<td>Atia Vosoughi</td>
</tr>
<tr>
<td>Summer 2015</td>
<td>Robinson</td>
<td>Loren</td>
<td>General Vector Explicit - Impact Time and Angle Control Guidance</td>
<td>Qu</td>
</tr>
<tr>
<td>Summer 2015</td>
<td>Pyle</td>
<td>Steven</td>
<td>Self-Scaling Evolution of Analog Computation Circuits</td>
<td>Demara</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Jabalameli</td>
<td>Amirhossein</td>
<td>Characterization of a Spiking Neuron Model via a Linear Approach</td>
<td>Behal</td>
</tr>
<tr>
<td>Spring 2016</td>
<td>Gopi Krishna</td>
<td>Mohan Krishna</td>
<td>Energy-Aware Reconfigurable Logic Device Using Spin-Based Storage and Carbon Nanotube Switching</td>
<td>Demara</td>
</tr>
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<td>Prakash</td>
<td>Kiran</td>
<td>Smart Grasping Using Laser and Tactile Array Sensors for UCF-MANUS-An Intelligent Assistive Robotic Manipulator</td>
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<td>Spring 2016</td>
<td>Hajibabaei</td>
<td>Zahra</td>
<td>Impact of Wireless Channel Uncertainty Upon M-ary Distributed Detection Systems</td>
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## 2.3 Courses Taught during AY 2015 – 2016

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2.4 STUDENT AWARDS RECEIVED

Alvin Lehman Scholarship  .........................................................  Stephen Pilcher

AT&T Wireless Scholarship .......................................................... Matthew Aberman
                                      Mineckson Deniss
                                      Deandra Dixon
                                      Brandon James
                                      Fatemah Yazdiananari

Professor James Beck Scholarship ............................................... Ley Nezifort
                                      Nha Nguyen

Boeing Scholarship ........................................................................ Akash Jinandra
                                      William Santos
                                      Robert Short

Daniel D. Hammond Engineering Scholarship ............................... Matthew Aberman
                                      (Undergraduate)
                                      Deandra Dixon
                                      Francis Jourdain
                                      Eric Buysinger
                                      Carla Majluf
                                      Kevin Leone
                                      Ley Nezifort
                                      Nha Nguyen

Daniel D. Hammond Engineering Scholarship .............................. Yu Bi
                                      (Graduate)
                                      Andrea Santos Garcia
                                      Nicholas Paperno
                                      Gonzalo Vaca Castano

David and Jane Donaldson Memorial Scholarship ....................... Navid Khoshavi Najafabadi

Duke Energy .................................................................................. Wesley Mullins

Frank Hubbard Engineering Endowed Scholarship ..................... Yunfeng Xi
                                      David Clapp
                                      Mineckson Deniss

Kenneth Kiefer Scholarship ......................................................... Robert Short

Northrup Grumman Scholarship .................................................. Aiman Salih
                                      Lucas Plager

Kris & Bill Sammons Engineering Scholarship ......................... Tasneem Ibrahim

Walt Disney World Scholarship .................................................. Shayna Brock
                                      John Geiger
                                      Patrick Schexnayder
                                      Hieu Pham

William Horton Scholarship ...................................................... Fatemah Yazdiananari

FGLSAMP ...................................................................................... Desiree Dominguez
2.5 Course & Program Development

Some course and program details for AY 2015 – 2016

- Implementation of grade of C (2.00) or better for EEE 3342C Digital Systems, EEL 3004C Electrical Networks, EEL 3123C Networks and Systems, EEL 3801C Computer Organization, and EGN 3211 Engineering Analysis and Computation.

- Support university wide STEM Day through participation.
- BOG TEAm courses offered by UCF, USF and FIU.
## 2.6 Instructional Laboratories

### Undergraduate/Graduate ECE Teaching Laboratories

<table>
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<td>Characterization Laboratory</td>
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### Laboratory & Support

- Continuously update teaching labs (over $700K since Fall 2010, funded by $90 for EE and $86 for CpE per student per term fee)
- Use of Smart Lab (computer lab) for ECE students.
## 2.7 Lectures and Seminars

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<th>Guest Speaker</th>
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<th>Title of Talk</th>
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<td>Gang Qu</td>
<td>University of Maryland</td>
<td>Cybersecurity for Internet of Things from Hardware Perspective</td>
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<tr>
<td>Dong S. Ha</td>
<td>Virginia Tech</td>
<td>Power Management Circuits for Piezoelectric Energy Harvesting</td>
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<tr>
<td>Tomas Korinek</td>
<td>Czech Technical University</td>
<td>Pre-Assessment of Radiated Fields from Small Electronic Submodules</td>
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<tr>
<td>Shaolei Ren</td>
<td>University of California, Riverside</td>
<td>Power Management in Multi-Tenant Data Centers and Beyond</td>
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<tr>
<td>David H. C. Du</td>
<td>University of Minnesota</td>
<td>Storage Research Trends in Big Data Era</td>
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<tr>
<td>Lihong Zhang</td>
<td>Memorial University of Newfoundland</td>
<td>Design-for-Manufacturability-Aware Automated Layout Retargeting for Analog and RF ICs</td>
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<tr>
<td>Laxmi N. Bhuyan</td>
<td>University of California</td>
<td>Energy Aware Network Computing: Packet Processing with Multicore Processors</td>
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<td>Tao Shu</td>
<td>Oakland University</td>
<td>Data-Driven Context-Aware Wireless Networking</td>
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<td>Asimina Kiourti</td>
<td>The Ohio State University</td>
<td>On-/In-Body Antennas, Sensors and a Novel Class of Textiles</td>
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<td>Aatmesh Shrivastava</td>
<td>PsiKick, Charlottesville, VA</td>
<td>Ultra-low Power Circuits and Systems to Enable Energy Autonomous Electronics</td>
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<td>Joe H. Chow</td>
<td>Rensselaer Polytechnic Institute</td>
<td>Synchronized Phasor Measurement Data and their Applications in Power Systems</td>
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<td>Changzhi Li</td>
<td>Texas Technical University</td>
<td>Radio Frequency Non-contact Sensing and Localization</td>
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<td>Xue Shelley Lin</td>
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<td>Exploring Next-Generation Technologies for High-Performance Computing and Near-Threshold Computing Systems</td>
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<td>Arindam Sanyal</td>
<td>University of Texas, Austin</td>
<td>Digital Enhancement Techniques For Data Converters In Scaled CMOS Technologies</td>
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<td>Purdue University</td>
<td>Adaptive Transfer Function RF Filters for Emerging Wireless Systems</td>
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<td>An Chen</td>
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<td>From Emerging Memories to Novel Architectures and New Functionalities</td>
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<td>Yury Dvorkin</td>
<td>University of Washington</td>
<td>Grid-Scale Energy Storage Integration in Power Systems: Methods &amp; Case Studies</td>
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<td>Prasant Mohapatra</td>
<td>University of California, Davis</td>
<td>Smart-Sensing Using Smart-Sensors</td>
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<td>Nilanjan Ray Chaudhuri</td>
<td>North Dakota State University</td>
<td>Hybrid AC - Multi-terminal DC Grids: Modelling, Analysis and Control</td>
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<td>David Sheridan</td>
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<td>High-Voltage SiC and GaN: Devices, Techniques, and Applications</td>
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<td>Kai Ma</td>
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<td>Thomas Lipo</td>
<td>Florida State University</td>
<td>Developments in Permanent Magnet Machine having Concentrated Windings</td>
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<td>Yuanyuan Yang</td>
<td>Stony Brook University</td>
<td>Exploring Server Redundancy in Nonblocking Multicast Data Center Networks</td>
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<td>Mehran Kermani</td>
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<td>Anhyan Bose</td>
<td>Washington State University</td>
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<td>Mahnoosh Alizadeh</td>
<td>Stanford University</td>
<td>Intelligent Infrastructure for a Sustainable Future</td>
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<td>Toru Namerikawa</td>
<td>Keio University</td>
<td>Distributed Real-Time Pricing in Multi-period Electricity Market</td>
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<td>Yu Hua</td>
<td>Huazhong University of Science and Technology</td>
<td>Deduplication-Aware Ecosystem: A Bottom-Up Approach</td>
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<td>Mahdi Nazm Bojnordi</td>
<td>University of Rochester</td>
<td>Memory System Optimizations for Energy and Bandwidth Efficient Data Movement</td>
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<tr>
<td>Aleksandar Dimitrovski</td>
<td>Oak Ridge National Laboratory</td>
<td>Novel Hybrid Magnetic/Electronic Control Devices for Power Systems</td>
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<tr>
<td>Jie Wu</td>
<td>Temple University</td>
<td>Collaborative Mobile Charging and Coverage in Wireless Sensor Networks</td>
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<tr>
<td>Changhong Zhao</td>
<td>California Institute of Technology</td>
<td>Controlling Future Power Grid with Intelligent Endpoints</td>
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<tr>
<td>Murat Yuksel</td>
<td>University of Nevada</td>
<td>Multi-Element Optical Wireless Modules for Mobile Networking and Lighting</td>
</tr>
<tr>
<td>Qun Zhou</td>
<td>University of Central Florida</td>
<td>Economic Analysis for Transmission Operation and Planning</td>
</tr>
</tbody>
</table>
3. Research

3.1 Areas of Research

Computer Systems and Architecture (CSA)
- Data-intensive High Performance Computing, Massive Storage and File System, I/O Architecture
- Computer Architecture and Evolvable Hardware
- Secure, Trusted, and Reliable Processor and ASIC Design; Cyber Security and Cryptography

Cyber-Physical Systems (CPS) [Communication, Controls, Signal Processing, and Energy Systems] Networked Systems, Cooperative Control, Optimization and Games
- Autonomous Robotic Vehicles, Medical and Assistive Robotics
- Smart Grids, Distributed Generation and Optimization, Protection and Control
- Biomedical Devices and Control
- Digital Signal Processing
- Detection and Estimation, Communication Theory, Cognitive Radios and Networks
- Wireless Communication and Sensor Networks
- Machine Learning, Artificial Neural Networks, Distributed Decision

Electromagnetics and Optics (EO)
- Remote Sensing, Satellite Communications
- Microwave Sensors, Antennas, Phased Arrays and Integrated RF

Micro- and Nano-Systems (MNS)
- Power electronics, Power Semiconductor devices and ICs
- Optoelectronic Materials, Thin Films Micromachining
3.2 Research Laboratories

Advanced Microfabrication Support Laboratory – EGN I 122
Donald Malocha and Kalpathy Sundaram

This is a small laboratory used for prototyping and device integration. The laboratory can build small packages, test fixtures, microblasting of wafers. The room also provides support for repair and maintenance of the ECE cleanroom facility.

Antenna, RF and Microwave Integrated Systems Laboratory – HEC 428 & HEC 431
Xun Gong, Parveen Wahid, Raj Mittra

At ARMI Laboratory, we are performing research in applied electromagnetics and microwave engineering. We have active projects on the development of novel low-profile wireless sensors for harsh environment applications. Our research interests also include phased array antennas and beam steerable reflectarray antennas. We have been one of the pioneers in developing integrated filter/antennas and endeavor to further advance this technology. Finally, tunable and flexible microwave devices such as phase shifters, filters and antennas are under development at ARMI Laboratory to be employed in the next-generation conformal and deployable telecommunications systems.

Applied Electromagnetics Lab – HEC 203
Open for All Research Assistants

We focus on investigating advanced electric machinery for aerospace, industry, geology, medical and defense applications. Ongoing projects include high power density aircraft synchronous generator, switch reluctance motor for renewable energy system, high temperature permanent magnet motor, super high speed electric machine, low cost ultra-compact micro inverter, high performance electromechanical actuator, etc.

Artificial Intelligence Lab – HEC 303
Michael Georgiopoulos and Annie Wu

Conduct research in many aspects of AI, but are particularly interested in the following areas of Natural Language Processing.

- semantic interpretation
- syntactic parsing / scope
- word sense disambiguation
- sentiment analysis
- automatic discovery of selectional restrictions
- acquisition of knowledge from the Web or large corpora
- supervised approaches to semantic role and verbal predicate labeling

Assistive Robotics Lab – Research Pavilion 494
Aman Behal

Research is focused on the development of novel human-robot interface (HRI) designs to facilitate ADL (activities of daily living) tasks for individuals in wheelchairs navigating through arbitrary unstructured environments.
Central Florida Remote Sensing Laboratory – HEC 349  
W. Linwood Jones  

The Central Florida Remote Sensing Laboratory of the Electrical & Computer Engineering Department performs state-of-the-art research in the field of microwave remote sensing of atmosphere, ocean and land geophysical parameters. As electrical engineers, we participate in the development of advanced microwave remote sensing instruments and measurement techniques for the National Aeronautics and Space Administration (NASA), other federal governmental agencies and the U.S. aerospace industry. These microwave sensors have applications for environmental monitoring from earth-based, airborne and satellite platforms. Also, we participate on international science teams to develop geophysical data interpretation algorithms using the electrical engineering principles of electromagnetic fields theory, communications theory and digital signal processing. Current satellite remote sensing projects are: Ocean Vector Wind Science Team, Precipitation Measurements Mission Science Team, and Sea Surface Salinity Science Team.

Computer Systems & Architecture Laboratory - HEC 242  
Ronald DeMara, Jun Wang, Mingjie Lin, and Yier Jin  

In the Computer Systems and Architecture Laboratory, we are performing research in Reprogrammable Logic Devices, Evolvable Hardware, Multicore Processors, and Hardware Security. Research in Reprogrammable Logic Devices and Evolvable Hardware is focused on autonomously reconfigurable Field Programmable Gate Arrays (FPGA) devices in applications including signal processing and mission-critical processing systems. Novel FPGA architectural concepts are being developed to achieve survivability while sustaining nominal run-time throughput, despite unanticipated device defects using Adaptive Group Testing, Resource Fitness Escalation, and Consensus techniques. Multicore computer architecture research is focused on memory and cache protocols and their performance, multiprocessor simulation methodologies. It also covers hardware/software co-design ranging from mobile and low-power architectures such as Energy-efficient Embedded Computing to Scalable Web Services. Hardware Security research is focused on hardware Trojan Detection in digital and mixed-signal designs such as Wireless Cryptographic ICs. Resources range from FPGA development boards to Berkeley Emulation Engine testbeds, servers, and simulation tools.

Digital Signal Processing Laboratory – HEC 342  
Wafsy Mikhael, George Atia and Azadeh Vosoughi  

Research is conducted in digital signal processing of one and multidimensional signals and systems. Topics include Adaptive signal processing with communications applications such as IQ mismatch compensation, adaptive beam forming, channel identification, noise cancellation, etc……, efficient feature extraction of speech and image signals With applications such as signal compression, model and transform based signal representation, facial recognition, speaker Recognition, human action recognition, etc….., sparse signal processing with applications such as compressive sensing, network tomography, group testing, etc… and adaptive algorithms for real and complex signal and systems with applications such as error correction in interleaved analog to digital converters, interference suppression, signal Separation, signal enhancement, etc….

Florida Power Electronics Center – Research Park  
Issa Batarseh  

The Center's mission is to develop advanced energy conversion technologies for solar and other renewable sources through multidisciplinary engineering research and education in the field of power electronics. The research vision is to achieve significant improvements in power density, efficiency, reliability, and cost-effectiveness of electric energy processing systems by developing innovative topology and control techniques, power semiconductor devices, passive components, and packaging and system integration techniques.
Communication and Wireless Networks – HEC 331
Michael Georgiopoulos, Nazanin Rahnavard

The Communication and Wireless Networks Laboratory represents a group of faculty and students undertaking high quality research in intelligent systems. This lab is part of the Department of Electrical Engineering and Computer Science at the University of Central Florida in Orlando, FL. We take a broad interpretation of the term intelligent, but the large majority of our work involves artificial intelligence and all the technologies derived therefrom. Our focus is in using such technologies to build systems that encompass both hardware and software, and are of practical use in human endeavors.

Medical Robotics Laboratory – HEC 302
Zhihua Qu, Eytan Pollak, and Vipul Patel

The Medical Robotics Laboratory is to bring together a team of faculty from UCF and local hospitals, to educate our students the state-of-art techniques in medical robotic surgery, and to conduct multidisciplinary research in tele-surgery, mixed and augmented virtual reality, surgical simulation and rehearsal, virtual mentoring, and other technologies of medical robotics.

Micro/Nanoelectronics Design Laboratory – HEC 401
Juin J. Liou

Electrostatic discharge (ESD) is an event in which a finite amount of charge is transferred from one object to the other. The electrostatic charge generation results from either the triboelectrification process (i.e., transfer of electrons when two different materials are in contact) or the inductive process (i.e., separation of positive and negative charges due to an electric field). If a microchip or electronic system is subject to the ESD, then the huge current associated with the ESD event can likely damage the microchip and cause malfunction to the electronic system. It is estimated that about 35% of all damaged microchips are ESD related, resulting in a loss of revenue of several hundred million dollars in the global semiconductor industry every year.

The Micro/Nanoelectronics Laboratory at UCF has been working on ESD research work for more than 15 years, and the lab possesses several ESD specific equipment which can be used to conduct the testing and characterization of ESD protection structures. The group is aiming to design and implement effective and robust ESD protection solutions in Si CMOS, Si BiCMOS, SiGe, GaAs, and emerging technologies. Current industry partners include Analog Devices, Intersil, Maxim, and National Semiconductor.

Nano/MEMS Laboratory – HEC 406
Kalpathy Sundaram, Vikram Kapoor, Arthur Weeks

This laboratory is devoted to thin film materials and nano/microelectronic device characterization. Materials characterization focuses on optical properties of thin films using a Varian UV-Visible spectrophotometer. Resistivity studies of thin films can be performed from low temperature (20 K) to high temperatures up to 523 K. Device characterization include MOS CV and I-V studies using HP dedicated systems.

Secure CMOS Design Laboratory – HEC 425
Jiann S. Yuan, Yier Jin, Ronald DeMara

The Secure CMOS Design Laboratory is actively engaged in research of CMOS device and circuit reliability. Our radio-frequency integrated circuit design addresses device physics and reliability issues in the circuit operation environment. Process variability, temperature fluctuation, and supply voltage variations are accounted for in the design of wireless transceiver circuits, such as low noise amplifiers, voltage-controlled oscillators, and power amplifiers.
Microsystems Laboratory – HEC 404
Reza Abdolvand

In Microsystems Lab we utilize our collective intellectual capacities to extend the application of hybrid integrated micro-systems to new areas of technology. Our main focus is to understand the fundamental physics behind the operation of transducers at small scales and to optimize their performance for applications in the fields of radio-frequency, biomedical, and wireless sensing.

Power Systems Laboratory – HEC 302
Wei Sun

In the Power Systems Lab, we are working on different aspects of power systems including:
a) Optimal operation of transmission and distribution systems with high penetration of renewable energies
b) Stochastic modeling of power systems
c) Protection of PV farms
d) Real-time monitoring of transmission and distribution systems
e) Power system restoration and resilience analysis

Robotics Laboratory – EGN I 364
Zhihua Qu

The 400-sf Robotics Laboratory, housed at ENG I 364, conducts research in robotic manipulation, motion planning, and control. Topics include cooperative control of unmanned vehicles, teleoperation, coverage control, and novel energy-harvesting devices. Applications include medical surgical robots, mobile robotic platforms, and ocean wave energy generation devices.

Signals and Communication Laboratory – HEC 334
Lei Wei and Azadeh Vosoughi

The Advanced Communication Laboratory at Department of Electrical and Computer Engineering, The University of Central Florida, conducts researches in the areas of Wireless Communications, Emergency Communications, Error Control Coding, and Application of advanced coding theory in Bio-inspired system design, called General Purpose Representation and Association Machine (GPRAM). The Lab obtained funds from various sources, including NSF, US Homeland Security Department, FDOE, NASA/FSGC, US ARMY. Currently, his group is fully focusing on GPRAM machine prototype development.

Software Systems – HEC 231
Jun Wang

Our Computer Architecture and Storage System (CASS) laboratory has primary research interests which cover a wide spectrum in the areas of high performance and computer systems. A common thread among our research projects focuses on fast data accesses and resource sharing with cost- and energy-efficient management at different levels of memory and storage hierarchies in supercomputer, parallel and distributed computer systems. More recently, CASS research interests cover the areas of interdisciplinary computing, computer architecture, and low-power computing. A significant complimentary thread among CASS extensive research projects emphasize at developing new software tools and hardware platforms to stimulate advances in science and engineering research, where large digital data collections are increasingly prevalent. CASS research projects have been sponsored by several federal funding agencies such as National Science Foundation, Department of Energy, and NASA. In the last five years, the total amount of research funding is approximately $3.03M.
Solid State Devices Laboratory – EGN I 234
Donald Malocha

The solid state devices and systems laboratory (SSDSL) performs experimental and solid-state research in a broad range of technologies. The laboratory has been operational for over 25 years and has established a network of partnerships with industry and government groups. The laboratory has facilities for RF device probing for characterization in the 100 kHz to 6 GHz range, various vector and scaler analyzers, printed circuit board design and fabrication, wafer dicing and die bonding, and custom analysis, design, synthesis and measurement computer systems. The research emphasis of the laboratory is in solid-state bulk and surface acoustic wave technology for communication and sensors. In 2000, we were the 1st US group to fully characterize LGS, LGN and LGT piezoelectric material parameters over temperature, the group has invented and patented embodiments of RF orthogonal frequency coded (OFC) SAW tag and sensors, and is continuing research on passive wireless system and technology solutions for sensors. In conjunction with ECE’s microfabrication facilities, submicron devices can be produced, from mask to packaging, in a quick turn-around capability. Devices can then be fully characterized, tested, packaged and integrated into a wireless test system.

Systems & Controls Laboratory – HEC 434
Zhihua Qu, Marwan Simaan, and Michael Haralambous

The 400-sf Controls Laboratory, housed at HEC 434, conducts research in optimization and controls of cyber-physical systems. Topics include identification of dynamic systems, estimation of distributed networks, and distributed cooperative control of nonlinear heterogeneous systems, distributed game algorithms, and optimization of network topologies. Applications include biomedical devices, autonomous vehicle systems, solar-energy grid-tied systems, smart grids, and energy systems.
3.3 Publications

Books


J. J. Liou and S. K. Liaw (Editors), Recent Advances on Nano Devices and Sensors, 12 chapters, 250 pages, De Gruyter Publisher, Boston, Mar. 2016


Book Chapters


Journal Publications


**Conference Papers with Proceedings**


Conference Papers without Proceedings


Plenary and Invited Talks


21. Liou, J. J., “Compact modeling of MOS junction failure subject to ESD stresses,” Hong Kong University of Science and Technology, Hong Kong, China, August 2015.

22. Liou, J. J., “Electrostatic Discharge Protection in Emerging Technologies,” Tel Aviv University, Tel Aviv, Israel, March 2016.

23. Liou, J. J., “Electrostatic Discharge Protection in 28-Nm CMOS Technology Node and Beyond,” Peking University, Beijing, China, May 2016.

**Patents**


Liou, J. J., Novel Multi-Gate pHEMT Devices for On-Chip Electrostatic Discharge (ESD) Protection of Gallium Arsenide Integrated Circuits, Taiwan Patent Number I518,866

**Patent Applications**


**Batarseh, I.,** “Modular Grid-Tied Multi-Pulse Inverter for a Distributed PV System,” Patent Application Number 2013284381 (AU) NAT 33164

**Batarseh, I.,** “Modular Grid-Tied Multi-Pulse Inverter for a Distributed PV System,” Patent Application Number 13 808 682.2 (EU)


**Liou, J. J.,** “No-Snapback SCR with Adjustable Trigger and Holding Voltages for High-Voltage ESD Protection Applications,” U.S. Patent, filed Oct. 2015


3.1 RESEARCH EXPENDITURES AND FUNDING

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<th>Academic Year</th>
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<th>Expenditures</th>
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<td>Abdolvand, Dr. Reza</td>
<td>FHTC: Engineered Dielectric Layers for Enhanced Temperature Coefficient of Stiffness(ID: 1060152)</td>
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<td>Batarseh, Dr. Issa E</td>
<td>OSD/NAVY SBIR Phase II - High-Density Soft-Switching Multi-Port Photovoltaic Power Manager(ID: 1057690)</td>
<td>Advanced Power Electronics Corporation (APECOR)</td>
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<td>Behal, Dr. Aman</td>
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<td>National Science Foundation (NSF)</td>
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<td>DeMara, Dr. Ronald F</td>
<td>Trusted IoT using Cross-layer Leveraging of Reconfigurable Device Signatures(ID: 1060115)</td>
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<td>Fan, Dr. Deliang</td>
<td>Self-sustained Spin-transfer Torque Devices based Brain-inspired Processor Powered by Energy Harvesting Technologies for Internet of Things Applications(ID: 1060721)</td>
<td>Office of Research &amp; Commercialization</td>
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<td>Jones, Dr. W Linwood</td>
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<td>Gong, Dr. Xun</td>
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<td>IH: Building a Self-healing Smart Grid: From Data Centers to the Bulk Power System(ID: 1060702)</td>
<td>Office of Research &amp; Commercialization</td>
<td>$7,500</td>
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<td>Vosoughi, Dr. Azadeh Foundations for Engineering Education for Distributed Energy</td>
<td>US Department of Energy</td>
<td>$83,519</td>
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<td>Resources (FEEDER)(ID: 1055621)</td>
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<td>CIF: Small: Advanced Ion Channel Models for Neurological Signal Processing -- Theory</td>
<td>National Science Foundation</td>
<td>$74,000</td>
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<td>and Application to Brain-Computer Interfacing(ID: 1058266)</td>
<td>(NSF)</td>
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<td>Wang, Dr. Jun GOLD SALMON project(ID: 1052541)</td>
<td>NASA Shared Services Center</td>
<td>$292,239</td>
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<td>SHF: Small: Multi-criteria optimization control for temperature constrained</td>
<td>National Science Foundation</td>
<td>$369,092</td>
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<td>energy efficient data center using fuzzy decision making theory(ID: 1058278)</td>
<td>(NSF)</td>
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<td>DOE Oak Ridge Lab subcontract Multi-tiered Storage and software defined</td>
<td>Oak Ridge National</td>
<td>$58,736</td>
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<td>networking (ID: 1060197)</td>
<td>Laboratory</td>
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<td>Weeks, Dr. Arthur R Wireless Surface Acoustic Wave Sensor System for SHM(ID:</td>
<td>Albido Corporation</td>
<td>$142,042</td>
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<td>1058244)</td>
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<td>Passive Surface Acoustic Wave Detector(ID: 1057583)</td>
<td>Defense Intelligence Agency</td>
<td>$55,000</td>
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<td>Wu, Dr. Xinzhang (Thomas) Thermal Management of Electromechanical Actuator for</td>
<td>North Carolina A&amp;T State</td>
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<td>Flight Control Surfaces(ID:1057673)</td>
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<td>OSD/NAVY SBIR Phase II - High-Density Soft-Switching Multi-Port Photovoltaic Power</td>
<td>Advanced Power Electronics</td>
<td>$74,854</td>
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<td>Manager(ID: 1057690)</td>
<td>Corporation (APECOR)</td>
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<td>Thermal Management of Electrical Actuation via Enhanced Air Circulation(ID:</td>
<td>Rini Technologies, Inc.</td>
<td>$10,000</td>
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<td>1055596)</td>
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<td>Three Dimensional FEA Modeling and Permanent Magnet Motor(ID: 1059826)</td>
<td>Calnetix, Incorporated</td>
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<td>Yuan, Dr. Jiann-Shiun I/UCRC Multi-functional Integrated System Technology (MIST)(</td>
<td>National Science Foundation</td>
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<td>(ID: 1057009)</td>
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<td>I/UCRC Multi-functional Integrated System Technology (MIST)(ID: 1057009)</td>
<td>Various</td>
<td>$120,000</td>
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<td>Securing the Internet of Things (IoT) from the Hardware and Architecture</td>
<td>University of South Florida</td>
<td>$12,500</td>
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<td>Perspectives(ID: 1060140)</td>
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<td>Zhou, Qun FEEDER: Strategic Expansion to Achieve GEARED Goals (STEP) (ID: 1059230)</td>
<td>US Department of Energy</td>
<td>$44,570</td>
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<td>Total</td>
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<td>$6,417,905</td>
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(Source: Aurora)

### 3.2 Externally Funded Research Centers

- FEEDER funded by DoE
- EVTC funded by US DoT
- NSF I/UCRC funded by NSF
4. Industry Partnership

**The Industrial Affiliates Board (IAB)**

The EECS Industrial Advisory Board meeting was held on May 20th, 2016 at Harris Corporation Engineering Center room 101. The meeting was held to collaborate on research areas and enhancing the quality of CpE and EE undergraduate and graduate academic programs.

**2016 EECS Industrial Advisory Board Members**

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Mike Braden, Orlando Health  
Herb Gingold, G5 Engineering Solutions  
Paul R. Grimes, Leidos  
George Gurlaskie, Duke Energy  
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Carlos Leon-Barth, Applied Visual Technology - AVT Simulation  
Jose Nunes, NASA  
Jim Vinson, Intersil  
Robert Reedy, Florida Solar Energy Center