

Dr. Issa Batarseh
Pegasus Professor

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Home page: www.fpec.ucf.edu

EDUCATION

- Ph.D. Electrical Engineering, *University of Illinois, Chicago*, June, 1990.
M.S. Electrical Engineering, *University of Illinois, Chicago*, December, 1985.
B.S. Electrical Engineering and Computer Science (EECS), *University of Illinois, Chicago*, June, 1983. *Graduated with High Honors.*
Harvard Kennedy School, Certificate, "*Leading in Times of Crisis*," May 10-12, 2012, Athens, Greece.

ACADEMIC & ADMINISTRATIVE EXPERIENCE

Academic Experience:

- ***Pegasus Professor, August 1991 – Present***
Department of Electrical and Computer Engineering
University of Central Florida, Orlando, Florida, USA
Conducting research and teaching in power electronics. Developed the educational and research infrastructure in the ECE Department and new degree programs in the college. Established the MS concentration in power electronics, and several power conversion and energy certificate programs.
- ***Fulbright Visiting Associate Professor, January 1997 - August 1997***
Electrical and Electronics Engineering Department
Princess Sumaya University for Technology,
Amman, Jordan
Taught and developed power electronics and energy conversion teaching and research infrastructure.
- ***Postdoctoral Researcher, August 1990 - June 1991***
Electrical Engineering and Computer Science Department
University of Illinois, Chicago, Illinois, USA
- ***Visiting Assistant Professor, August 1989 - June 1990***
Electrical Engineering Department
Purdue University, Calumet, Indiana, USA
- ***Research & Teaching Assistant, September 1983- August 1989***
Electrical Engineering and Computer Science Department
University of Illinois, Chicago, Illinois, USA
- ***Internship Research Engineer, Summers of 1987 & 1988***
Electronics Engineering Dept.
Zenith Electronics Co., Glenview, Illinois, USA

Administrative Experience:

- ***Founder and Director, 1998 – Present***
Florida Power Electronics Center (www.fpec.ucf.edu)
University of Central Florida, Orlando, FL, USA

Leading a research, development, and commercialization team in power electronics systems. In 1998, with infrastructure equipment funds from the US National Science Foundation and industry, he established FPEC to conduct cutting-edge, and high-quality research in energy conversion systems. In 25 years, the center has been the launch pad for several spin-off companies, 700 published papers, attracted more than \$25 million in research funding from industry, state and federal sources, and more than 40 issued patents, and has graduated more than 150 doctoral and master students.

- **Director of Energy System Integration, Dec. 2016 – Aug. 2018**

Florida Solar Energy Center (FSEC) at the University of Central Florida, Orlando, FL, USA

Dr. Batarseh was charged to establish the ESI division to focus on the Center's research and energy storage integration efforts and enable technology transfer and commercialization, while executing and managing several multi-million projects with federal agencies. Help develop core capabilities to perform high-quality power electronics and grid-integration system modeling, analysis and evaluation for Florida's power electronics and utility industry.

- **University President, Sept. 2010 – Aug. 2014**

Princess Sumaya University for Technology (PSUT)
Amman, Jordan

While on professional development leave from UCF, Dr. Batarseh served as President of PSUT where he helped develop several new undergraduate and graduate degree programs, launched the AACSB accreditation process and obtained the ABET accreditation for four engineering and computer science degree programs, and developed renewable energy educational and research activities. Over his tenure at PSUT, he led the university through its largest academic and research growth and led as the PI for a multi-million research project in renewable energy funded by the European Union. He received the highest leadership recognition by the King of Jordan for the university excellence ranking. He led the development of the first interdisciplinary BS degree in renewable energy systems. He was appointed by the Royal Court to a national innovation council to set the innovation agenda for Jordan.

- **School Director, July 2003 – Aug. 2010**

School of Electrical Engineering and Computer Science (EECS) in the College of Engineering and Computer Science
University of Central Florida, Orlando, Florida, USA

Dr. Batarseh was responsible for running the School EECS with 67 full-time faculty members, 18 staff members and more than 2,500 graduate and undergraduate students enrolled in four degree programs: electrical engineering, computer engineering, computer science, and information technology. He provided the leadership to develop strategic plan to promote research and educational synergies in the school and he oversaw the School's vision, mission, research and educational direction, and budget.

- **Associate Dean for Graduate Studies, Aug. 1998 – May 2003**

College of Engineering and Computer Science (CECS)
University of Central Florida, Orlando, Florida, USA

Dr. Batarseh was responsible for the applications, admissions, fellowship processes for more than 1100 graduate students in CECS. He was responsible for maintaining high quality graduate programs, and developing new and innovative graduate degree programs. The position reported to the dean directly.

- **Assistant Chair, Aug. 1997 – Aug. 1998**

Electrical and Computer Engineering (ECE) Department

University of Central Florida, Orlando, Florida, USA

Dr. Batarseh was responsible for faculty teaching assignments, managed the new courses, certificate and degree programs approval process at the departmental level. The position reported to the chairman of the ECE Department.

TEACHING

HONORS & AWARDS

- University Pegasus Professor, 2021.
- University Award "Scholarship of Teaching and Learning (SoTL)", 2020.
- *Excellence in Undergraduate Teaching Award*, College of Engineering & Computer Science, 2020
- University Teaching Incentive Award, 2017
- Technology Transfer Grant to develop Technical e-book Platform, Aug. 2013-2014.
- Awarded several US patents for the e-book for electrical circuits, 2012-2016.
- *University Teaching Incentive Awards*, 2004.
- *Fulbright Scholar*, Jordan 1997.
- *Outstanding Engineering Educator of the Year*, IEEE, 1998.
- Awarded one undergraduate *LEAD Scholar*, Spring 1997.
- *Excellence in Undergraduate Teaching Award*, College of Engineering, 1996.
- *Excellence in Undergraduate Teaching Award*, ECE Dept., 1995 & 1994.
- *Highest Student Evaluations for TAs*, University of Illinois, Chicago (UIC), 1987.
- Graduated with *High Honors*, Dean's List, *Honors College*, UIC, 1981-1985.

PH.D. DISSERTATIONS SUPERVISED

Currently Enrolled:

1. Sahin Gullu, Expected Graduation: Spring 2024
2. Reza Rezail, Expected Graduation: Spring 2024
3. Anirudh Pise, Expected Graduation: Summer 2025
4. M. Nilian, joined Fall 2022.
5. Gustavo Gamboa, Part Time Lockheed Martin
6. Russ Case, Part time, Joined 2020, Private Sector

Ph.D. Completed (Supervised 43 doctoral students all at UCF):

1. Sumana Ghosh, Spring 2023
Design and Analysis of Multi-port Converters utilizing LLC Resonant Tank
(R&D Engineer: Cree-Wolfspeed, Research Triangle, NC)
2. Mohammed Rias, Spring 2023
Modular, Multiport, And Multilevel Converters Based On Gallium Nitride Wide Band Gap Devices
(Senior design engineer: ApECOR, Orlando, FL)
3. MD Safayatullah, Spring 2023
Design and Control of Dual Active Bridge Converter for EV and PV Applications
(Senior Design Engineering, Ford Corp, Detroit, MI)
4. Ranadhir Sarkar, Summer 2022
Search space reduction techniques for solution of combinatorial optimization problems in power system.
(Research Engineer, Electric Power Engineers, Texas)

5. Seyyed Rashid Khazeiynasab, Fall 2021
Parameter Calibration and Optimization In Smart Grid For Synchronous Generators And Power Electronic Converters
(Senior Data Scientists, Oracle, Austin, Tx)
6. Fahad Alaqi, Summer 2021
Analysis and Design of LLC Resonant Converters For Wide, Low-Input, High- Output Voltage Dc Bus Applications
(Assistant Professor, King Saud University, Saudi Arabia)
7. Abdullah Alhatlani, Summer 2021
Design And Analysis Of Multi-Port Converters Utilizing LLC resonant Tank
(Assistant Professor, King Saud University, Saudi Arabia)
8. Khalil Alluhaybi, Spring 2020
Integrated Microinverter and Storage for Portable Photovoltaic Systems
(Embayment after graduation: Assistant Faculty, Taiba University, Saudi Arabia)
9. Amit Bhattacharjee, August 2019.
Development of multiport bidirectional converter for Photovoltaic and Energy storage integration
(R&D at Bloom Energy, N.J.)
10. Xi Chen, August 2019.
Analysis, Design and Efficiency Optimization of Power Converters for Renewable Energy Applications
(R&D, at Maxim Integrated, Austin, Texas)
11. Mahmoud Al-Harbi, July, 2018.
Design and Implementation of PV-Firming and Optimization Algorithms for Three-Port Microinverters
(Assistant Professor, Taiba University, Saudi Arabia)
12. Seyed-Milda Tayebi, Spring 2017.
Advanced Control Techniques for Efficiency And Power Density Improvement of a Three-Phase Microinverter
(Senior R&D Enphase Energy System)
13. Ahmadrza Amirahmadi, Spring 2014
Control Based Soft Switching Three Phase Micro Inverter: Efficiency and Power Density Optimization
(Senior Design Engineer, JPL, Pasadena, CA)
14. Lin Chen, Spring 2014
Investigation of Dual-Stage High Efficiency & Density Module Integrated Converter for Solar Application
(Alpha & Omega Semiconductor San Jose, California)
15. Qian Zhang, Spring 2013
A high efficiency module solar system architecture
(International Rectifiers, CA)
16. Xiang Fang, Spring 2012
Analysis and Design Optimization of Resonant DC-DC Converters
(Apple, San Francisco Bay Area, CA)
17. Ala Al Haj Hussein, Summer 2011
Design and Operation of Stationary Distributed Battery Micro- Storage Systems
(Professor, Prince Mohammad University (PMU), Saudi Arabia)

18. Zhijun Qian, Spring 2010
Design and implementation of the multi-port DC-DC converters with Solar Input
(Designer, Linear Technology, Milpitas, California)
19. John Elms, Summer 2010
Design of High Power-Density Bidirectional Converters for Electric Vehicles
(CEO of ApECOR)
20. Majd Batarseh, Spring 2010
Digital Pulse Width Modulation Techniques for DC–DC Converters
Co-advisor: Dr. John Shen
(Associate Professor, Princess Sumaya University for Technology, Jordan)
21. Wisam Al-Hoor, Summer 2009
Adaptive Efficiency Optimization for Digitally Controlled Power Converters.
(Integrated Device Technology, Tempe, AZ)
22. Ehab Shoubaki, Summer 2009
Unified Large And Small Signal State-Space Based Modeling And Symbolic Simulation For PWM Converters
(Researcher, The University of North Carolina at Charlotte)
23. Feng Tian, Spring 2009
Pulse Frequency Modulation ZCS Flyback Converter in Inverter Applications
(MKS Instruments, Boston, MA)
24. Khalid Rustom, Fall 2007
Steady State and Dynamic Analysis and Optimization of Single Stage Power Factor Correction Converters
(VP at Advanced Charging Technologies, Orlando, FL)
25. Liangbin Yao, Fall 2007
Topology and Control of High Frequency DC-DC Converters
(Maxim Integrated Products, San Francisco, CA)
26. Osama Al-Rahaman, Fall 2007
Soft-Switching High Frequency DC-DC Converters
(Head of R&D, Infineon, Orlando Office)
27. Hua Zhou, Summer 2007
Integrated Magnetics on DC-DC Converters
Co-advisor: Dr. Tom Wu
(GE Healthcare Florence, South Carolina)
28. Yangyang Wen, Summer 2007
Digital Control of Switching Power Supply
(Maxim Integrated, Austin, Texas)
29. Husam Al-Atrash, Fall 2007
Integrated Topologies and Digital Control for Satellite Power Management and Distribution Systems
(Tesla, Palo Alto, CA)
30. Xiangcheng Wang, Summer 2006

- Active Transient Voltage Compensator for VRMs Applications*
(Cirrus Logic, Austin, Texas)
31. Songquian Deng, Fall 2005
High Frequency DC-DC Converters
(Founder and CEO of Songquan Photography, Edison, New Jersey)
 32. Hong Mao, Spring 2004
Topology and Control of Low-Voltage High-Current Isolated DC-DC Converters
(Lowpower Technology, Head of Dallas Design Center, Allen, Texas)
 33. Jia Luo, Spring 2004
Novel Voltage Regulator Controllers and Transient Compensators for Powering Microprocessors
(Intersil, San Francisco Bay Area, CA)
 34. Jaber Abu Qahouq, Fall 2003
High-Density High Current Fast-Transient Low-Voltage DC-DC Converters
(Professor, University of Alabama, Tuscaloosa, Alabama)
 35. Weihong Qiu, Summer 2003
A Novel Energy Direct Transfer Concept in AC-DC Converter with Power Factor Correction
(Apple, San Francisco Bay Area, CA)
 36. Wenkai Wu, Spring 2003
Control methods for a new topology in Single-Stage PFC
(Texas Instruments, Rhode Island Area)
 37. Zaki Moussaoui, Spring 2003
New Designs of High Frequency Resonant Ballasts
(Apple, San Francisco Bay Area, CA)
 38. Wei Gu, Fall 2001
Hysteretic Control in the design of Low Voltage Converters for new Generation of Microprocessors
(Dell, Austin, Texas)
 39. Christopher Iannello, Summer 2001
Dynamic Modeling of Power Converters Using A Unified Approach
(NASA, Kennedy Space Center)
 40. Shiguo Luo, Summer 2001
Front-End Converter Design And System Integration Techniques In Distributed Power Systems
(Dell, Austin, Texas)
 41. Guangyong Zhu, Fall 1999
Dynamic Modeling of Power Factor Correction Circuits
(Dell, Austin, Texas)
 42. Wei Huai, Fall 1999
Single-Stage Single-Switch Power Factor Correction Circuits: Analysis, Design and Implementation
(CTO, NetPower Technologies, Dallas, Texas)

43. Aslam Khan, Spring 1999
*Analysis and Design of Resonant Power Factor Correction Techniques
(Bassett Healthcare Network, Cooperstown, New York)*

M.S. THESES SUPERVISED

1. Anirudh Pise, Fall 2017
Ultra-Efficient Cascaded Buck-Boost Converter
2. Siddhesh Shinde, Fall 2016
AC Battery with frequency regulation and grid tied applications.
3. Utsav Somani, Summer 2013
Design optimization of LLC topology and phase skipping Control of three phase inverter for PV applications
4. Anna Grishina, Summer 2012
*A New Quasi Resonant DC-Link For Photovoltaic Micro-inverters
Co-advisor: Dr. John Shen*
5. Christopher Hamilton, Fall 2010
Control Strategy for Maximizing Power Conversion Efficiency and Effectiveness of Three Port Solar Charging Station for Electric Vehicles
6. Souhib Harb, Summer 2010
Analysis and Design of Inverter Topologies for Photovoltaic Application
7. Michael Islas, Fall 2009
Efficiency Improvement Techniques for High Voltage Capacitor Charging
8. Gustavo Gamboa, Summer 2009
Realization of Power Factor Correction and Maximum Power Point Tracking for Low Power Wind Turbines
9. Michael Pepper, Spring 2009
Bi-Directional DC-DC Converter for Hybrid Electric Vehicles
10. David Bills, Fall 2007
Analysis and Design of Forward Resonant Converters
11. Keith Mansfield, Fall 2007
Grid-Connected PV Inverters
12. John Elms, M.S. Summer, 2007
Maximum Energy Harvesting for Oscillating Energy Harvesting Systems
13. Justin Reese, Summer 2007
Design, Modeling, and Control of Three-Port Converters for Solar Power Applications
14. Majd Batarseh, Fall 2006
A Non-Isolated Half Bridge Buck- Based Converter for VRM Application and Small Signal Modeling of a Non-Conventional Two-Phase Buck
15. Wissam Al-Hoor, Spring 2006

Unified Computer Aided Steady State Model for Soft-Switching Cell

16. Osamah Abdel Rahman, Spring 2006
High Frequency Two-stage DC-DC Conversion
17. Ehab Shoubaki, Summer 2005
Small Signal Modeling of Power Electronic Converters
18. Liangbin Yao, Summer 2005
Digital Control of Half-Bridge DC-DC Converters with Current Doubler Rectification
19. Husam Al-Atrash, Spring 2005
Multi-channel Solar Inputs with DSP Control Analysis and Design of a Modular Solar-Fed Fault-Tolerant Power System with Maximum Power Point Tracking
20. Feng Tian, Spring 2005
Solar-Based Single-Stage High-Efficiency Grid-Connected Inverter
21. Yangyang Wen, Fall 2004
Design and Implementation of a Digital Controller with DSP for Half-Bridge DC-DC Converters
22. Todd Edward Persen, Fall 2004
FPGA-based Design of a Maximum-Power-Point Tracking System for Space Applications (co-advisor).
23. Shilpa R. Kaluvala, Fall 2003
High Frequency Link Inverters for Fuel Cell-Based Systems
24. Khalid Rustom, Spring 2002
Maximum Tracking Control in Photo-Voltaic Based Systems
25. Abel Halim Al-Sharaqawi, Spring 2002
Small-Signal Modeling of Megamp Converters
26. Joy Mazumdar, Summer 2002
Design and Analysis of High-Frequency Inverters for Solar System Applications
27. Mansi Soundalgekar, Summer 2001
Dynamic Modeling of Low-Voltage Converters for New Generation of Computer Systems
28. Basset Yacoub, Spring 2001
Analysis and Design of High-Order Parallel Resonant Converters
29. Syed Raihan, Spring 2001
Evaluation and Improvement of an Internet Based Circuit Design Package
30. Smitha Ridy, Fall 2000
Internet Based Circuit Design Package
31. Jaber Abu Qahouq, Spring 2000
Generalized Analysis of Soft-Switching DC-DC Converter Families
32. Qiong Zhang, Spring 2000

Design and Evaluation of an Internet-Based Circuit Design Package used in an Undergraduate Engineering Circuit Course

33. Chris Iannello, Summer 1999
Dynamic Modeling of Power Converters Using A Unified Approach
34. Robert Eriksson, Fall 1999
The Development of a Circuit Markup Language using XML and a Corresponding editor/browser in Java (co-advisor)
35. Faouzi El Filali, Summer 1998
Analysis and Design of Soft-Switching DC-to-DC Converters
36. Hsiao-Ping Lin, Summer 1998
Soft-Switching Resonant Converters
37. Loutfella Elkaldi, Fall 1997
A Study of Power Factor Correction and Total Harmonic Distortion in Power Electronic Systems
38. Allam Hatoum, Spring 1996
Steady-state Analysis and Small-Signal Modeling of Switch Mode Power Converters
39. John Evans, Spring 1995
Harmonics Analysis of three-phase systems
40. Jinrong Qian, Summer 1994
Classification and Generalization of ZVS and ZCS of Resonant Power Factor Correction Circuits
41. Aslam Khan, Summer 1994
Analysis and Design of Resonant Power Factor Correction Techniques
42. Audry Bonsall, Summer 1994
Design and Simulation of Parallel-Series Resonant Converters
43. Zaki Moussaoui, Spring 1994
Steady State Analysis and Control Characteristic Curves for Resonant Converters
44. Christos Megalemos, Summer 1993
Small Signal Modeling of the LCC-Type Parallel Resonant Converters

HONOR UNDERGRADUATE THESES:

1. Ross A. Kerley, Fall 2011
Small-Scale Hybrid Alternative Energy Maximizer for Wind Turbines and Photovoltaic Panels
2. Jonathan Baker, Summer 2009
An Optimal, Low-Cost Design for Small Wind Turbine Converters Applied to Charging Batteries
3. Christopher Hamilton, Summer 2009
Digital Control Algorithms: Low Power Wind Turbine Energy Maximizer for Charging Lead Acid Batteries
4. Roberto Miguez, Spring 2009

Introduction to the Grand Solar Belt of America: Combinatorial Optimization Using Genetic Algorithms

5. Venceslav Gaydarzhiev, Fall 2007
Energy Extraction using Maximum Energy Harvesting Control as a refinement over Maximum Power Point Tracking on an Energy Harvesting Backpack.
6. Najlae Yazghi, Fall 2006
Interactive Learning System for Electrical Engineering Circuits
7. Justin Reese, Fall 2006
Averaged Model of a Three-Port Solar Power Converter
8. Matt Hicks, Spring 2006
High Frequency DC-DC converters
9. Adje Mensah, Fall 2004
Modeling and Analysis of Solar Arrays for Grid Connected Systems with Maximum Power Tracking
10. Rebecca Hayman, Fall 2004
DSP-Based Design of Solar-Based Inverter Systems
11. Loni Gibson, Fall 2000
Steady State Analysis and Simulation of an Inverter Circuit for NASA Applications
12. Enrique Tenicela, Summer 2000
Steady State Analysis for a New Power Static Inverter Topology for Aerospace Applications
13. Danny Tawil, Spring 1995
Analysis of PWM Converters Including Transistor and Inductor Losses
14. Debra-Ann Kemnitz, Spring 1994
Simulation of Family of DC-to-DC Resonant Converters
15. Henry Nguyen, Spring 1993
Steady State Analysis and Design of Parallel Resonant Converters

COURSES TAUGHT

Taught various courses at the undergraduate and graduate levels in the following areas:

Engineering Freshman Experience, Undergraduate Research Experience, Fundamentals of Electrical Engineering, Electronics, Advanced Electronics, Energy and Power Systems, Machines, Power Electronics, Advanced Power electronics, Senior Design.

Average Student Evaluation over the year approximately: 4.6/5.0.

BOOKS AND BOOK CHAPTERS

1. I. Batarseh, *Introduction to Circuits-Interactive ebook*, In Print, Pearson, 2023.
2. I. Batarseh and Ahmad Harb, 2nd Edition, *Power Electronics*: Springer, Dec. 2017.
3. I. Batarseh and H. Wei "Power Factor Correction Circuits," *Power Electronics Handbook: Devices, Circuits, and Applications*, 2nd ed., Academic Press, 2007, Ch. 19, pp. 517-542.

4. I. Batarseh "The Power MOSFETs," Power Electronics Handbook: Devices, Circuits, and Applications, 2nd ed., Academic Press, 2007, Ch. 4, pp. 41-70.
5. I. Batarseh, Power Electronic Circuits, John Wiley Publisher, 2004, 576 pages.
6. I. Batarseh, "The Power MOSFETs," Power Electronics Handbook, Academic Press, 2001. Ch. 6, pp. 75-100.

CURRICULUM RELATED ACTIVITIES

Course Improvement: Dr. Batarseh leads the department teaching and research efforts in power electronics and energy conversion. He has introduced several new courses and modifying the contents of several courses including: Engineering Freshman Experience, Fundamentals of Electrical Engineering, Electronics, Energy and Power Systems, Power Electronics, Advanced Power Electronics.

Laboratory Development: Developed several Electrical Engineering Laboratory manuals with colleagues in the ECE Department.

Faculty Mentor: Helped mentor several students including 15 Undergraduate Thesis, Senior Design Projects, NASA Undergraduate Scholarship Program, and students from local High Schools.

PUBLICATIONS IN EDUCATION

Dr. Batarseh, with his students, has published the following refereed educational conference and journal papers that were mostly presented at various national and international conferences. All remaining publications are research based and are listed under the Referred Publications section below.

Journal Papers:

1. R. A. Amarin, O. Garibay, and I. Batarseh, "A Topic-Driven Modular Approach to Engineering Education Delivery," International Journal of Emerging Technologies in Learning, Vol. 8, No. 1, pp. 53-57, March, 2013. <http://online-journals.org/i-jet/article/view/2470>
2. R. Amarin, E. Shoubaki, Issa Batarseh, "Java Based Symbolic Circuit Solver For Electrical Engineering Curriculum" International Journal of online Engineering, Vo. 8, No. 4, pp. 9-13, November 2012. <http://www.online-journals.org/index.php/i-joe/article/view/2155>
3. R. A. Amarin, I. Batarseh, K. B. Sundaram, and A. Weeks, "Importance of Practical Relevance and Design Modules in Electrical Circuits Education," Int. J. of Online Engineering (iJOE), vol. 7, no. 2, pp. 10-14, 2011. <http://www.online-journals.org/index.php/i-joe/article/view/1646>
4. R. A. Amarin, F. Batarseh and I. Batarseh, "Adaptive Electronic Quizzing Method for Introductory Electrical Circuit Course", Int. J. of Online Engineering (iJOE), vol. 5, no. 3, pp. 4-7, 2009. <http://www.online-journals.org/index.php/i-joe/article/view/930>

Conference Papers:

1. R. A. Amarin, O. Garibay, and I. Batarseh, "A Topic-Driven Modular Approach to Engineering Education Delivery," presented at International Conference on Interactive Mobile and Computer Aided Learning (IMCL), Amman, Jordan, Nov. 2012. doi: [10.1109/IMCL.2012.6396447](https://doi.org/10.1109/IMCL.2012.6396447).
2. R. A. Amarin, E. Shoubaki, and I. Batarseh, "Java Based Symbolic Circuit Solver For Electrical Engineering Curriculum," presented at IEEE EDUCON Education Engineering, Marrakesh, Morocco, April 17-20, 2012.
3. R. A. Amarin and I. Batarseh, "eTutor – An Interactive Module for Electrical Engineering Curriculum," presented at

American Society for Engineering Education, Philadelphia, PA, Oct. 28-29, 2011.

4. R. A. Amarin, , K.B. Sundaram, A. Weeks, I. Batarseh, "Importance of Practical Relevance and Design Modules in Electrical Circuits Education," presented at IEEE Global Engineering Education Conference, pp. 792-796, 2011.
5. F. Batarseh, I. Batarseh, Michael Haralambous, "QuizMe – An Interactive Learning Tool with Application to Electrical Circuits," Proc. 8th ASEE Global Colloquium on Engineering Education, Budapest, Hungary, Oct. 2009. GC 2009-73.
6. I. Batarseh, "Interactive Power Electronics Applets for Educational Delivery," 49th IWK Conference, Technische Universität Ilmenau, Germany, Sept. 2004. (Invited)
7. S. Harb, I. Batarseh, "Teaching Electrical Circuit Analysis Using Web-Based Simulation," 49th IWK Conference, Technische Universität Ilmenau, Germany, Sept. 2004. (Invited)
8. Z. Qu and I. Batarseh, "Web-Based Simulation Architecture for Engineering Education Using Java/XML," presented at American Society for Engineering Annual Conference, St. Louis, MO, June 18-21, 2000.
9. I. Batarseh et al., "Multi-Media Enhancement of the Electrical Engineering Core Course," presented at American Society for Engineering Education Annual Conference, St. Louis, MO, June 18-21, 2000.
10. I. Batarseh, "Review Of Emerging Technologies In Power Electronics And Power Quality," Science and Technology Transfer, University of Alsharjah, United Arab Emirates, April 2000.
11. R. Eaglin, I. Batarseh, R. Miller, "Distance Learning at the University of Central Florida: Meeting the Educational Demands of the Working Professional," presented at NASA 2nd Annual Education Conference, Oct. 1999.
12. A. Aguilar, R. Eaglin, A. Mehdi, I. Batarseh, "Distributed Engineering Courses with Online Components," presented at IEEE Southeastcon '98, pp. 212-215, April 1998.
13. A. Aguilar, R. Eaglin, I. Batarseh, N. Bakir, "Distance Learning and the use of the Internet and WWW in Education," presented at IEEE Southeastcon '97, pp. 202-206, April 1997.
14. A. Gonzalez, I. Batarseh, Z. Qu, "Current Efforts in Revitalizing Electric Power Engineering at the University of Central Florida," presented at IEEE Southcon Record, pp. 238-242, June 1996.
15. Z. Moussaoui, I. Batarseh, C.Q. Lee, C. Kennedy, "An Overview of the Control Scheme for Distributed Power Systems," presented at IEEE Southcon Record, pp. 584–591, June 1996.
16. K. Shenai, C.Q. Lee, I. Batarseh, "An Integrated Power Electronics Curriculum," NSF Workshop Proc., Orlando, FL, pp. 21-26, March 24-26, 1996.
17. I. Batarseh, A. Gonzalez, Z. Qu, A. Khan, "Proposed Power Electronics Curriculum," presented at IEEE Southcon '96, pp. 251-262, March 1996.
18. A. Gonzalez, I. Batarseh, Z. Qu, "Proposed Power Electronics Curriculum," presented at IEEE Southcon '96, pp. 238-242, March 1996.
19. D. Kemnitz, A. Khan, I. Batarseh, "Power Electronics Education: Courses and Laboratory," presented at IEEE Southcon '95, Ft. Lauderdale, FL., pp. 240-245, March 1995.
20. I. Batarseh "Course and Laboratory Instructions in Power Electronics," presented at IEEE Power Electronics

Specialists Conference (PESC'94), Taipei, Taiwan, Vol. 2, pp. 1359-1368, June 1994.

21. I. Batarseh, D. Kemnitz "Undergraduate Education in Power Electronics," presented at IEEE Southcon '94, Orlando, FL., pp. 207-213, March 1994.

RESEARCH

Dr. Batarseh's research has resulted in the publication of more than 400 journal articles and presentations to international and national refereed conferences. He has supervised 43 doctoral dissertations, 44 master's theses, and 15 undergraduate honors theses. He holds 39 U.S. patents; one international patent and the results of his research have been licensed for commercialization to several U.S. companies. In addition, he has co-founded three private companies to bring his innovations to the marketplace. Dr. Batarseh has contributed to securing nearly \$15 million for UCF's research in energy conversion and integration technologies. Through private and governmental funding, Dr. Batarseh's team has been developing innovative power electronic systems to enable the solar energy conversion, storage and its integration into electricity grids.

Summary of Technical Expertise:

- 1) Designed, built and commercialized DC-to-AC grid-forming solar inverters
- 2) Developed new resonant topologies and control techniques for single-phase and three-phase DC-AC inverters
- 3) Design and built the smallest DC-to-DC converters for telecom and renewable energy application.
- 4) Developed several resonant control techniques of DC-DC and DC-AC converters.
- 5) Developed power factor correction circuits for various application such as computers and LED lighting

Citation Indices:

Google Citations: 16,750+

h-index: 63

i10-index: 251(Number of papers cited by at least 10 times each)

https://scholar.google.com/citations?user=xl0jn_IAAAAJ&hl=en

RESEARCH HONORS & AWARDS

- Selected for the [University Pegasus Professor, 2021](#).
- [IEEE PELS R. David Middlebrook Achievement Award "For contributions to power electronics conversion and application to photovoltaic \(PV\) generation," 2019](#).
- Star of Science Award, World Science Forum, November 2017.
- Inducted into Florida Inventors Hall of Fame, 2017.
- National Academy of Inventors (NAI), 2015.
- University Research Awards (RIA), 2002, 2011, 2015.
- AAAS Fellow, 2009.
- IEEE Fellow, 2005.
- Best Paper Award, 5th IEEE Vehicle Power and Propulsion Conference (VPPC'09), entitled "Modular Bidirectional DC-DC Converter for Hybrid/Electric Vehicles with Variable-Frequency Interleaved Soft-Switching", September 10, 2009.
- IEEE International Future Energy Challenge Overall First Prize for Wind Turbine Energy Maximizer, hosted by IEEE and the IEEE Power Electronics Society, 2009.
- IEEE Power Electronics Society, IEEE Transactions on Power Electronics Prize Paper Award: "Flyboost Power Factor Correction Cell and a New Family of Single Stage AC/DC Converters," Vol. 20, No. 1, pp. 25-34, January 2005.
- Davis Productivity Award for Best Invention, given by the State of Florida, 2004.
- IEEE Fellow, 2003.
- IEEE International Future Energy Challenge Award, 3rdPlace, Department of Energy, 2001.
- College Distinguished Researcher Award, UCF, 2001.
- University Distinguished Researcher Award, 1995.

U.S. PATENTS ISSUED

1. [11,682,983 "A GaN-Based Multiport Multilevel Converter/Inverter", June 20 2023.](#)
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315. D. Kemnitz, I. Batarseh, "Topical Overview of Soft-Switching PWM High Frequency Converters," IEEE Southcon'95, Ft. Lauderdale, FL., pp. 47-52, March 1995.
316. D. Kemnitz, A. Khan, I. Batarseh, "Power Electronics Education: Courses and Laboratory," IEEE Southcon'95, Ft. Lauderdale, FL., pp. 240-245, March 1995.
317. J. Qian, I. Batarseh, R. RiuOrtiz-Conde, "Steady-State Analysis of Current Driven Full-Bridge Parallel Resonant Converter," International Power Electronics and Motion Control Conference '94, Beijing, China, pp. 815-821, July 1994.
318. J. Bu, M. Sznaiier, I. Batarseh, Z. Wang, "Robust Control Design for a Parallel Resonant Converter Using:-Synthesis," IEEE-Power Electronics Specialists Conference (PESC'94), June 24, Taipei, Taiwan, pp. 289-293, June 1994.

319. I. Batarseh, R. Liu, A. Ortize-Conde, A. Yacoub, K. Siri, "Steady-state analysis and Performance Characteristics of the LLC-Type Parallel Resonant Converter," IEEE-Power Electronics Specialists Conference (PESC'94), June, Taipei, Taiwan, Vol. 1, pp. 597-606, June 1994.
320. I. Batarseh, K. Siri, H.T. Lee, "Investigate of the Output Droop Characteristics of Parallel-Connected DC-DC Converters," IEEE-Power Electronics Specialists Conference (PESC'94), June, Taipei, Taiwan, Vol. 2, pp. 1342-1351, June 1994.
321. I. Batarseh "Course and Laboratory Instructions in Power Electronics," IEEE-Power Electronics Specialists Conference (PESC'94), June, Taipei, Taiwan, Vol. 2, pp. 1359-1368, June 1994.
322. I. Batarseh, K. Siri, J. Banda, "An Alternative Approach for Improving Current-Sharing in Parallel-Connected DC-DC Converter Systems," In the Conf. Rec. of The High Frequency Power Conversion Conference (HFPC'94), April 17-19, San Jose, CA, April 1994.
323. A. Khan, I. Batarseh, K. Siri, "Boost Derived Topology as a Power Factor Correction Circuit," IEEE-Southeastcon'94, pp. 175-179, April 1994.
324. I. Batarseh, D. Kemnitz "Undergraduate Education in Power Electronics," IEEE Southcon'94, Orlando, FL., pp. 207-213, March 1994.
325. Z. Moussaoui, A. Bonsall, I. Batarseh, "Performance Characteristics of the Series-Parallel Resonant Converter," IEEE Southcon'94, Orlando, FL., pp. 573-577, March 1994.
326. A. Bonsall, Z. Moussaoui, I. Batarseh, "Modeling and PSPICE Simulation of the Series-Parallel Resonant Converter," IEEE Southcon'94, Orlando, FL., pp. 270-275, March 1994.
327. A. Khan, I. Batarseh, "Analysis and Design of the Boost Derived PWM Converter," IEEE Southcon'94, Orlando, FL., pp. 552-559, March 1994.
328. A. Khan, I. Batarseh, K. Siri, J. Elias, "Boost Power Factor Correction Circuits," IEEE-Southcon Record, pp. 552-559, Mar 1994.
329. J. Qian, I. Batarseh, "Analysis and PSPICE Simulation for Resonant Power Factor Correction Circuits," IEEE Southcon'94, Orlando, FL., pp. 560-566, March 1994.
330. K. Siri, V. Caliskan, I. Batarseh, "PWM Zero-Voltage Switching Single-Ended Current-Fed Converters with Output Isolation," IEEE-APEC'94, Orlando, FL February 13-17, Vol. 1, pp. 150-158, 1994.
331. I. Batarseh, "Performance Characteristics of the LCC-Type Parallel Resonant Converter," Proceedings of the IEE-International Power System Conference'93, Amman-Jordan, pp. 17-23, October 1993.
332. Z. Wang, M. Sznaiier, I. Batarseh, "Robust Control Design for a Conventional Series Resonant Converter using μ -synthesis," In the 2nd IEEE Conference On Control Applications, Vancouver, Canada, Vol. 2, pp. 885-890, September 1993.
333. I. Batarseh, "State-Plane Analysis of Current Driven Full-Bridge Parallel Resonant Converter," In the Conf. Rec. of the Society of Instrument and Control Engineering (SICE)'93, Kanazawa, Japan, pp. 1557-1563, Aug. 4-6, 1993.
334. R. Liu, I. Batarseh, C.Q. Lee, "Resonant Power Factor Correction Circuits with Capacitor-Voltage and Inductor-Current-Programmed Controls," In the Conf. Rec. of IEEE-PESC'93, Seattle, WA, pp. 675-680, June 1993.

335. C. Megalomouse, I. Batarseh, M. Sznaier, S. Ramaswamy, "Small Signal Modeling of the LLC-Type Parallel Resonant Converter," In The Conf. Rec. of The High Frequency Power Conversion Conference'93, pp. 179-193, May 24-25, 1993.
336. J.P. Agrawal, I. Batarseh, "Improving the Dynamic Modeling and Static Cross Regulation in Multi-Output Resonant Converters," In the Conf. Rec. of APEC'93, March 7-11, San Diego, CA, pp. 65-70, March 1993.
337. I. Batarseh, J. Nayfeh, "Analysis of a New Parallel Resonant Converter Topology," International Power Conversion Conference-PCIM'92, pp. 17-25, Sept. 1992.
338. I. Batarseh "Analysis of the Voltage Fed Parallel Resonant Converter," In the Conf. Rec. of Society of Instrument and Control Engineering (SICE), Tokyo, Japan, pp. 1185-1188, July 1992.
339. R. Liu, C.Q. Lee, I. Batarseh, "A Unified Approach to the Design of Resonant Power Factor Correction Circuits," IEEE-Power Electronics Specialists Conference (PESC'92), Vol. 1, pp. 181-188, June 1992.
340. I. Batarseh, R. Severns, "Resonant Converter Topologies with Three and Four Energy Storage Elements," In the Conf. Proc. of the High Frequency Power Conversion'92, May 4-8, pp. 374-383, May 1992.
341. I. Batarseh, K. Siri "Generalized Analysis of High-Bridge Resonant Converters," In the Conf. Proc. High Frequency Power Conversion'92, May 4-8, pp. 221-228, May 1992.
342. I. Batarseh, "The Japanese Experience in Technology Transfer and How it May Apply to Saudi Arabia," Symposium on Industrial Management-Japanese Experience, Dhahran, Saudi Arabia, pp. 197-218, Dec. 15-18, 1991.
343. I. Batarseh, C.Q. Lee, "State-Plane Analysis of High Order Parallel Resonant Converters," IEEE-Midwest Symposium on Circuits and Systems, Monterey, CA, Vol. 2, pp. 939-942, May 1991.
344. K. Siri I. Batarseh, C.Q. Lee, "Small Signal Analysis of Parallel Resonant Converters," IEEE-Midwest Symposium on Circuits and Systems, Vol. 2, pp. 739-742, May 1991.

From 1988-1990:

345. I. Batarseh, C.Q. Lee, "State-Plane Analysis of High Order Parallel Resonant Converters," In the Annual Meeting of SESCON'90, Cairo, Egypt, pp. 71-81, Dec. 1990.
346. I. Batarseh, C.Q. Lee, "Multi-Output LLC-type Parallel Resonant Converter," In the Conference Record of IEEE-IECON'90, pp. 850-856, Pacific Grove, CA, Vol.2, pp. 850-856, November 1990.
347. I. Batarseh, R. Liu, C.Q. Lee, "Unified Approach to the Analysis and Design of Resonant Converters: Part II - Continuous Conduction Mode in High Order Converters," In the Conf. Record of IEEE-ICCAS, Nanjing, China, July 1989.
348. I. Batarseh, C.Q. Lee, "Steady-State Analysis of the Parallel Resonant Converter with LLC-Type Commutation Network," In the Conf. Rec. of IEEE-PESC'89, Milwaukee, WI, Vol. 2, pp. 971-978, June 1989.
349. R. Liu, I. Batarseh, C.Q. Lee, "LLC-Type and the Class-E Converters," In the Conference Rec. of High Frequency Power Conversion'89, Naples, Florida, pp. 486-496, May 1989.
350. I. Batarseh, R. Liu, C.Q. Lee, A. Upadhyay, "150 Watts and 140 kHz Multi-Output LCC-Type Parallel Resonant Converter," In the Conf. Rec. of the IEEE-APEC'89, pp. 221-230, February 1989.
351. C.Q. Lee, I. Batarseh, R. Liu, "Design of Capacitive Coupled LCC-Type Parallel Resonant Converter," In the Conf. Rec. of IECON'88, Singapore, pp. 672-677, Oct. 1988.

352. I. Batarseh, R. Liu, C.Q. Lee, "State-Plane Analysis and Design of the Parallel Resonant Converter with LCC-Type Commutation," In the Conf. Rec. of SICE'88, Japan, pp. 831-835, 1988.
353. C.Q. Lee, I. Batarseh, R. Liu, A. Upadhyay, "Comparison of Capacitive and Inductive Coupled Parallel Resonant Converters," In the Conf. Rec. of IEEE-APEC'88, pp. 157-166, Feb. 1988.

ORGANIZED WORKSHOPS

As workshop technical organizer, served as an editor of the following six NSF workshop proceedings:

1. *Energy Education and Research Activities*, NSF Workshop, Texas A&M University, Qatar Campus, Dec. 13-16, 2009.
2. *Power Electronics and Drives*, NSF Workshop, American University of Sharjah, United Arab Emirates, Dec. 13-16, 2005.
3. *Modern Power Electronics Curriculum: Teaching and Research*, NSF Workshop, Amman-Jordan, Dec. 15-17, 2002.
4. *Multi-Media Delivery of Power Electronics*, NSF Workshop Proceedings, edited by Issa Batarseh, Nov. 9-11, 2000. (110 pages).
5. *Power Electronics Research and Teaching Activities*, NSF Workshop Proceedings, edited by Issa Batarseh, May 9-11, 1999. (65 Pages).
6. *Develop Power Electronics Curriculum and Laboratory*, Proceedings, edited by Issa Batarseh, Orlando, FL, March 24-26, 1996.

Organized and ran a USAID workshop entitled "Graduate Admissions, Scholarships and Industry Internship Opportunities in the U.S.," Jordan, August 9, 2015.

RESEARCH GRANTS (All as Principal Investigator)

1. **STTR-NSF –Multi-port PV Module Design, \$155,00, July. 1, 2023 – Dec.31, 2024, with *FHTC Match*.** Nov. 1, 2022 – Nov. 1, 2025.
2. **NSF – Collaborative Research: Compact, Multi-port, GaN-Based Grid-Forming Inverter, \$270,000, Dec. 1, 2022 – Dec.1, 2025.**
3. **A.F. Mensah – Enabling Advanced Battery and Inverter Design and Integration with Permanent Demonstration Installation at FSEC, \$900,000, including \$450,000 *FHTC Match*.** Nov. 1, 2022 – Nov. 1, 2025. (Funded – contract is being finalized).
4. **Smart Charging Technologies (SCT) – Design and Development of Multi-Level, Three-Phase Inverter based on the Flying Capacitor Architecture, \$300,000, including \$150,000 *FHTC Match*.** Nov. 1, 2022 – Nov. 1, 2025.
5. **A.F. Mensah - Controller design and demonstration of Integrated battery-Inverter storage system, \$300,000, including \$150,000 *FHTC Match*.** Sept 1, 2021 – Aug. 31 31, 2022.
6. **NSF – Collaborative Research: Advanced and Highly Integrated Power Conversion Systems for Grid Stability and Resiliency, NSF-ECCS-2103442, \$280,628, June, 2021 – May, 2024.**
7. **Smart Charging Technologies (SCT) – Exploring DC Chargers for Recommunication Applications, \$96,000, including \$48,000 *FHTC Match*.** Jan 1, 2021 – Dec 31, 2021
8. **NSF – GOALI: Highly Integrated Grid-Tied Multi-Port Power Module for PV and Storage, NSF-ECCS-1810733, \$360,000, Co-PI Said Al-Hallaj, Sept. 1, 2018 – Sept. 1, 2021.**

9. NSF – [Planning Grant: Engineering Research Center for Energy Storage System Enabled Society \(ESSENSE\)](#), NSF-EEC-1840359, \$100,000, Sept. 1, 2018 – Sept. 1, 2019.
10. **US-Navy Phase II SBIR: High Density Soft-Switching Multi-Port Photovoltaic Power Manager**, \$1,000,000 (UCF portion \$200,000 with \$50,000 Match FHTC), Oct. 2015 – Oct. 2017.
11. **Office of Technology Transfer (OTT)-UCF: Interactive Technical Electronic Book Operating System**, \$15000, June 2013 - April 1, 2014.
12. NSF - [US-Jordan Cooperative Science: Chaos Theory on Micro-Inverters for Photovoltaic \(PV\) Systems](#), NSF- ECCS-1156633, \$180,000, Oct. 1, 2012 – Sept. 30, 2016.
13. **Department of Energy (DoE): Photovoltaic Power Electronics Research Initiative (PERI) for developing low cost, ultra-compact, three-phase micro inverters or "AC bricks", DoE Award (DE-EE0003176.000), \$1.4 M**, Jan. 1, 2011 – Dec. 31, 2013. (including 50% match)
14. NSF - [US-UAE Workshop: Energy Developments, Addressing the need of the energy industry](#), NSF - **Office of International Science and Engineering**, \$48,000, Jan. 1, 2011 – Dec. 31, 2012
15. NSF – [CCLI: Development of Modular Interactive Learning and Assessing Tools for Electrical 1. Circuit Core Course for Engineering Students](#), NSF-CCLI Phase I, \$199,000, June 1, 2009 – May 30, 2012.
16. **State of Florida Energy Program - Florida Solar Energy Consortium (FESC), \$7.8M** (Dr. Batarseh’s portion **\$1.9M+\$0.6M match**), Jan. 1, 2009 – Dec. 31, 2013. Co-PIs: John Shen, Wasfy Mikhael, Zhihua Qu, Louis Chow, Thomas Wu, Peter Yuan.
17. NSF - [US-Qatar Workshop: Recent Research and Educational Activities in Power Electronics and Drives](#), NSF - **Office of International Science and Engineering**, Co-PI Ned Mohan, \$49,370, Dec. 2009.
18. **US Army Phase III SBIR – High Power High Density Bi-directional DC-DC Converter, US Army TACOM, \$200,000 (Including \$100k Match by I-4 Program)**, Feb. 2009 – Feb. 2010.
19. **Intel Corporation** “Dynamic Digital Power Techniques to improve Efficiency and Performance” **\$100,000**, Jan. 2007 – Jan. 2009.
20. **Intel Corporation** - Dynamic Modeling of Portable Dc-dc Converters, **\$150,000**, Jan. 1, 2006 – Dec. 31, 2009.
21. **NASA Phase II SBIR – Integrated Three-Port Converters for Compact and Efficient Power Management, \$400,000** Dec. 2007 – Dec. 2009.
22. **US Navy Phase I SBIR – Low-Cost, High-Efficiency, High-Density, DC-DC Converter, \$70,000** Jan. 2007 – July, 2007.
23. NSF - **International Research Experience for Student (IRES): US-Jordan- In Photovoltaic Based Power Electronics Conversion Systems**, \$137033, April 2007 – April 2010.
24. **NASA Phase I SBIR – Integrated Three-Port Converters for Compact and Efficient Power Management, \$100,000** Jan. 2007 – July, 2007.
25. **US Navy Phase I STTR – Energy Harvesting from Backpack, \$100,000**, July 1, 2006 – Jan. 2007.
26. **Intel Corporation – Design, Simulation, and Development of Voltage Regulators with Improved Efficiency at Light Load, \$55,880**, Jan. 2006 – Dec. 31, 2006.

27. **US Army Phase II SBIR** – *High Power High Density Bi-directional DC-DC Converter*, **US Army TACOM**, \$750,000, Feb. 2006 – Feb. 2008.
28. **US Army Phase I SBIR** – *High Power High Density Bi-directional DC-DC Converter*, **US Army TACOM**, \$120,000, Feb. 23, 2005 – Jan. 22, 2006.
29. **ApECOR, Corp.** – *Developing Interactive Applets for the Design of High-Frequency DC-DC Converters for Communication*, \$31,000, Feb. 2004 – Jan. 2005
30. **I-4 Match** – *Developing Interactive Applets for the Design of High-Frequency DC-DC Converters for Communication*, \$15,000, **UCF-OSR**, Feb. 2004 – Jan. 2005.
31. **Intel Corp** – *Dynamic Modeling of Voltage Regulator Modules (VRMs)*, \$200,000, Oct. 1. 2003 – Sept. 30, 2005.
32. **NSF – US – United Arab Emirates - Workshop** – *Power Electronics and Drives*, \$22,000, **National Science Foundation – International Program**, Dec. 13-15, 2005
33. **NSF** – *Innovative Maximum Power Tracking Control*, **NSF International Program**, \$35,000, Feb. 22, 2003 – Feb. 21, 2005.
34. **US Air Force, Phase II: SBIR** – *Maximum Power Point Tracking for Solar Array Systems*, \$741,000, Feb. 7, 2003 – Feb. 6, 2005.
35. **Emerson Corp.** – *High-Efficiency DC-DC Converter Designs*, \$1,500,000, Nov. 15, 2002 – Nov. 15, 2004.
36. **NSF** – *Hybrid Design of AC-DC Converters with PFC*, \$180,000, **National Science Foundation- Division of Electrical and Communication Systems (ECS)-ECS-01-32965**, May 1, 2002 – May 1, 2004 (Including \$30,000 as International Supplement).
37. **Presidential Equipment Grant**, \$35,000, **UCF**, Feb. 25, 2003 – Feb. 26, 2004.
38. **ApECOR, Corp.** – *Electronic Ballast Design*, \$38,200, Jan. 1, 2003 – Dec. 31, 2003.
39. **I-4 Match** – *Electronic Ballast Design*, \$38,200, **UCF-OSR**, Research Park, UCF, Jan. 1, 2003 – Dec. 31, 2003.
40. **ApECOR, Corp.** – *AC-DC Power Factor Correction*, \$32,600, Nov. 1, 2002 - Oct. 31, 2003.
41. **I-4 Match** – *AC-DC Power Factor Correction*, \$32,600, **UCF-OSR**, Research Park, UCF, Nov. 1, 2002 – Oct. 31, 2003.
42. **US Air Force, Phase I: SBIR** – *Maximum Power Point Tracking for Solar Array Systems*, \$96,400, April 1, 2002 – March 30, 2003.
43. **NSF Workshop** – *Modern Power Electronics Curricula and Research Activities*, \$19,500, **NSF-International Program**, Oct. 1, 2001 – Sept. 30, 2002.
44. **NSF** – *Bifurcation Analysis of Power Electronics Circuits*, **NSF-International Program**, \$36,000, Jan. 25, 2002 – Dec. 31, 2003.
45. **NSF – RUE-Supplement** – *Dynamic Modeling and Design of High Frequency DC-DC Converters In Distributed Power Systems*, \$12,000, **NSF-EECS Division**, June 1, 2000 to May 30, 2002.

46. **NSF – RUE-Supplement – High Frequency AC Distribution Systems, \$12,000, National Science Foundation- Division of Electrical and Communication Systems (ECS)-ECS-99-79797**, Sept. 1, 1999 – Aug. 31, 2002.
47. **NSF – Dynamic Modeling and Design of High Frequency DC-DC Converters In Distributed Power Systems, \$54,000, NSF-EECS Division**, June 1, 2000 to May 30, 2002.
48. **NSF – Jordan Joint Project – Experimental and Simulation studies of Power Factor Corrections, NSF International Program, \$12,000**, June 1, 2000 to May 30, 2001.
49. **NASA-STTR, Phase II – Soft-switching Converters with Unity Power Factor Correction, NASA-Science and Technology Transfer Research (NAMASTE), \$500,000**, April 21, 2000 – April 22, 2002.
50. **NASA-STTR, Phase II – Soft-Switching Power Factor Correction Circuits, Match \$156,271**, April 21, 2000 – April 22, 2002.
51. **I-4 Match –Low Voltage Converters for New Generation of Computer Systems, UCF-OSR, \$30,000**: PI: Issa Batarseh, Jan. 1, 2000 to Dec. 31, 2000.
52. **NSF – High Frequency AC Distribution Systems, \$130,000, National Science Foundation - Division of Electrical and Communication Systems (ECS)-ECS-99-79797**, Sept. 1, 1999 – Aug. 31, 2002.
53. **NSF-Workshop – Development of Multi-Media Based Power Electronics Curriculum, \$16,000, NSF-Division of Electrical and Communication Systems (ECS-9985605)**, Sept. 1, 1999 – Aug. 31, 2001.
54. **NSF-STTR –Low Voltage Converters for New Generation of Computer Systems, \$100,000, NSF**, Jan. 1, 2000 – Dec. 31, 1999.
55. **NSF– High Frequency AC Power Distribution Systems, UCF Match, \$32,000**, Sept. 1, 1999 – Aug. 31, 2001.
56. **I-4 Match: Soft-Switching Unity Power Factor Correction Circuits, UCF-OSR, \$60,000**: Oct. 22, 1998 – Oct. 21, 1999.
57. **NSF – US-Jordan NSF-Workshop – Power Electronics Curricula and Applications, \$18,000, National Science Foundation – International Program and the Division of Electrical and Communication Systems (ECS)**, May 18-24, 1998.
58. **NASA – Soft-Switching Unity Power Factor Correction Circuits, NASA-Science and Technology Transfer Research (NASA-STTR –NAS10-98064); \$99,600**, Oct. 22, 1998 to Oct. 21, 1999.
59. **Florida Space Grant Consortium-NASA – Power Factor Correction Circuits, \$20,000**; P.I.: Issa Batarseh, Co-PI Chester Kennedy, Martin Marietta, May 1, 1998 to June 1, 1999.
60. **Florida Space Grant Consortium-NASA – Design of Parallel Connected DC-to-DC Power Converters for Distributed Power Systems to Be Used in the Space Station, \$ 4,500**; May 1, 1998 to May 31, 1999.
61. **Small-Business Initiative Program (SBIR) – Brushless DC Machines, \$25,000; Electroynamics Co**, Orlando, FL, June 1, 1997 to Dec. 31, 1998.
62. **Strategic Initiative Program – Developing Power Engineering Curriculum, \$40,000; UCF**; P.I. Issa Batarseh; Co-P.I.: Qu, Yuan, Mosley, Liou, Jan. 31, 1996 – July 31, 1997.
63. **NSF – Research Equipment Grant: Experimental Investigation of High Frequency Power Converters, \$42,565; National Science Foundation - Division of Electrical and Communication Systems (ECS)**, ECS-9500465, Sept. 30,

1995 – Aug. 31, 1996.

64. **NSF – Developing Power Electronics Curricula: Courses, Hardware, and Software Laboratory (workshop), \$21,000, National Science Foundation - Division of Electrical and Communication Systems (ECS), ECS-9523167, March 24-26, 1996.**
65. **Florida Space Grant Consortium-NASA – Control Design for Distributed Power Systems for Space Applications, \$20,000; P.I.: Batarseh, Co-PI Chester Kennedy, Martin Marietta, May 1, 1995 - June 1, 1996.**
66. **Incandescent Disposal Systems (IDS) – Design of a 9kW, 100kHz ZVS Flyback PWM Converter for Incandescent Disposal Systems Applications, \$22,500; Altamonte Springs, FL, June 1, 1995 - June 1, 1996.**
67. **Florida Space Grant Consortium-NASA – Simulation of High Frequency Power Converters For Space Applications, \$4,500; Aug. 24, 1995 - May 29, 1996.**
68. **Florida Space Grant Consortium-NASA – Design of Parallel Connected DC-to-DC Power Converters for Distributed Power Systems to be used in the Space Station, \$4,500; Aug. 24, 1995 - May 29, 1996.**
69. **Division of Sponsored Research – Distributed Power Systems for Space Station, \$7,500; UCF; June 1, 1995 - June 30, 1996.**
70. **Florida Space Grant Consortium-NASA – Simulation of High Frequency Power Converters For Space Applications, \$4,000; May 25, 1995 - Oct. 31, 1995.**
71. **Division of Sponsored Research – Modeling and Design of Distributed Power Systems for Space Station, \$5,249; UCF; June 1, 1994 - June 30, 1995.**
72. **Myron Zucker Research Award –Analysis and Design of Resonant Power Factor Correction Circuits, \$27,949; IEEE Industrial Application Society; Jan. 1, 1994 – Dec. 31, 1994.**
73. **Allied Signal Inc. –Magnetic for the Boost-Derived ZVS Power Factor Correction Circuit, \$8,972; March 31, 1994-March 30, 1996.**
74. **Florida Space Grant Consortium-NASA – Modified Power Electronics Course to Include Distributed Power Systems for Space Applications, \$4,000; June 1, 1994 - May 1, 1995.**
75. **Florida Space Grant Consortium-NASA – Simulation of High Frequency Power Converters, \$5,000; May 25, 1993 to Oct. 31, 1994.**
76. **NASA-College of Engineering – Minority Engineering Program-Mentor, \$1000/year, 1993-1997.**
77. **Florida Space Grant Consortium-NASA – Simulation of Family of DC-to-DC Resonant Converters, \$4,273; May 7, 1993 – Oct. 15, 1993.**
78. **EIES – Generalized Small-Signal Analysis of Resonant Converters, \$6,976; UCF, Orlando, Florida, August 23, 1992 – May 7, 1993.**
79. **Division of Sponsored Research – Generalized Analysis of Resonant Converter Topologies, \$5,000; UCF, May 7, 1992 – Aug. 8, 1993.**

RESEARCH GRANTS (as a Co-Principal Investigator)

80. **DNA Sports Training LLC - Advanced Golf Stroke Training System**, \$117,333; Oct. 2013 – Dec. 2016, (PI: Thomas Wu, Co-PI: Louis Chow and Issa Batarseh). In addition, FHTC match of \$46,733.
81. **US Department of Energy – ARRA-SEGIS Phase I and II**, “Development, Demonstration and Commercialization of Smart-Grid Inverters for Wider PV Technology Utilization”, \$2.3M, June 2008 – Feb. 2011. (P.I. Robert Reedy, Co-P.Is. Gobind Atmaram, (Batarseh’s Share \$100k).).
82. **Petra Sola, Inc**, “Research and Development Activities on Grid Tied Inverters,” \$900,000 Dec. 2007 – Dec. 2011. (P.I. John Shen, Co-P.I.: Issa Batarseh).
83. **NASA – SRI – Radiation Hard Power System-on-Chip for Space Applications**, NASA-UCF-UF joint Project, \$160,000, June 2006 – June 2007. P.I. John Shen (Batarseh’s Share \$40k).
84. **Orange County Express Way Authority; Orlando– West African Graduate Engineering Exchange Program**, \$81,250/year for four years, June 2000 – June 2004.
85. **Florida Dept. of Energy** – Project funded through Solar Energy Center, \$20,000, Co-PIs: Zhihua Qu and Issa Batarseh, 1997-1998.
86. **Lockheed Martin – Miniature Heat Pump Design and Cooling Analysis for MOSFET Devices**, \$35,000; PI: Louis Chow, Co-PI: Issa Batarseh, Kalpathy Sundaram, UCF, Nov. 1, 1998 – Nov. 1, 1999.

INVITED PRESENTATIONS/SEMINARS

Dr. Batarseh made more than 40 national and international invited talks, conference presentation, seminars and keynote speeches.

SERVICE

PROFESSIONAL SERVICE HONORS & AWARDS

- Selected as Fellow Advisory Committee, National Academy of Inventors (NAI), 2017.
- Founder and President of the UCF Chapter of the National Academy of Inventors (NAI), May, 2017.
- Recognition by the Institute of International Education (IIE) for the excellent work in the Rescue Funds Program at PSUT, New York, 2012.
- President, VP and Secretary of the Electrical And Computer Engineering Department Heads Association (ECEDHA), 2007-2010.
- President, VP and Secretary of the Southeastern Section of ECEDHA, 2007-2009.
- IEEE Outstanding Service Award, Florida Council, February, 2004.
- IEEE Outstanding Service Award, Orlando Section, March, 2003.
- College Professional Service Award, January 2001.
- IEEE Millennium Medal, March 25, 2000.
- Outstanding Faculty Advisor Award, College of Engineering, February 1998.
- Outstanding IEEE Power Engineering Orlando Chapter, 1997.
- IEEE Outstanding Chapter Award, IEEE Orlando Section, June, 1995.
- IEEE Outstanding Service Award, IEEE Orlando Section, June 12, 1994.
- Certificate of Appreciation, Chairman, Power Engineering Society, IEEE Orlando Section, 1994.
- Certificate of Appreciation as Conference Chairman, IEEE Orlando Section, June 1994.
- Outstanding Chapter Award, 1991-1992, *Eta Kappa Nu* Honor Society.

PROFESSIONAL SERVICE

AFFILIATIONS

- Florida Inventors Hall of Fame, Inducted on Nov. 6, 2017.
- NAI – Fellow.
- IEEE – Fellow Member.
- AAAS- Fellow.
- IEEE – Power Electronics Society, Aerospace and Electronics Systems, Member.
- Florida Engineering Society – Member.
- *Eta Kappa Nu*, Faculty Initiate.
- *Tau Beta Pi*, Member.

BOARD MEMBER

- NASA Electrical Power TDT, Member, 2009-Present
- Petra System, Inc., New Jersey, 2012-Present
- ApECOR, 2011- Present.
- Innovation Solution Board, Royal Court, Jordan, 2016-Present.
- Fulbright Commission, Amman, Jordan 2011 – 2014.
- Arab Scientists and Technologist Foundation (ASTF), 2007-2009.

IEEE

- Chair, PELS-IEEE Technical Committee on Energy Access, Starting on Jan. 1, 2024.
- Vice Chair, PELS-IEEE Technical Committee on Energy Access, 2020-Present.
- Global Steering Committee, Empower A Billion Lives (EBL). 2019-Present
- Education Chair, Power Electronics Society (PELS), 2015 – 2019
- General Chair of PELS 2007 Conference.
- Associate Editor, IEEE Transaction on Circuits and Systems, 2001 – 2005.
- Associate Editor, IEEE Transaction on Aerospace and Electronic Systems, 1989 – 2003.
- AdCom Member, IEEE Power Electronics Society, 2003 – 2009.
- Section Chair, IEEE Orlando Section, 1999 – 2001.
- Executive Board, IEEE Orlando Section, 1994 – 1997.
- Power Engineering Society, Chairman, IEEE Orlando Section, 1993 – 1995
- Chapters Chair, Chairman, IEEE Orlando Section, 1995 – 1997.
- Conference Committee, Chairman, IEEE Orlando Section, 1993 – 1999.
- Education Committee, Chairman, IEEE Orlando Section, 1992 – 1993.

REVIEWER

- National Academy of Inventors
- AAAS
- National Science Bowl Competition.
- NSF Graduate Research Fellow Program
- Fulbright Program, Jordan.
- California Energy Commission.
- Canadian Research Council.
- U.S. Department of Education.
- NSF – *Panel and Site Reviewer (ERC, CAREER, IGERT, SBIR, Education, International Programs)*
- IEEE – Several Transactions and International Conferences.
- Orlando Science Center.
- Florida Space Grant Consortium (FSGC).
- City University of Hong Kong-Science Council.

- Florida Foundation for Future Scientists, Captain.
- Textbooks on Power Electronics, Microelectronics, Energy Power Systems.

ADVISOR

- IEEE Student Chapter at UCF, 1995 – 1997.
- Honor's Program, Theses Advisor, 1992 – 2002.
- Youth Motivator, Oviedo High School, FL, 1993 – 1994.
- Eta Kappa Nu, Advisor, 1991 – 1993.
- Volleyball Club, Advisor, 1991 – 1992.

CONTINUING EDUCATION

- Help Organize Webinars for IEEE-PELS Professional Society.
- Organize and teach the Professional Engineering (PE) Review Course for engineers interested in obtaining Florida's PE license. UCF, 1994 – 2008.
- Organize and teach part of the Engineering Fundamentals (EF) Review Course for engineers interested in obtaining Florida's PE license. UCF, 1994 – 2008.

CONFERENCE & WORKSHOP COMMITTEES

WORKSHOPS ORGANIZATION

- NSF Workshop, Chairman, "**NSF - US-UAE Workshop: Energy Developments, Addressing the need of the energy industry,**" Abu Dhabi, Nov. 2012.
- NSF Workshop, Co-Chairman, "Recent Research and Educational Activities in Power Electronics and Drives," Qatar, Dec. 2009.
- Chairman, "Delivery of Modern Power Electronics," University of Salerno, Italy, Sept. 2-5, 2003.
- NSF Workshop, Chairman, "Modern Power Electronics Curriculum: Teaching and Research," Amman-Jordan, Dec. 11-14, 2002.
- NSF Workshop, Chairman, "Multi-media Delivery of Power Electronics," Nov. 11-13, 2000.
- NSF Workshop, Chairman, "Teaching and Research in Power Electronics," Amman, Jordan, May 1999.
- IEEE Student Chapters Leadership Workshop, Orlando, FL, 1996, 1997, 1998.
- NSF Workshop to develop Power Electronics Curriculum, Orlando, FL, 1996.

CONFERENCE AND SESSION CHAIRING

- IEEE Power Electronics Specialist Conference 2007 (PESC), General Chair, 2007.
- NSF Workshop on Multimedia Delivery of Power Electronics Education, Chairman, 2000.
- IEEE ISCAS 1999 Local Arrangement Chairman, May 1999.
- NSF Workshop on Power Electronics Education, Chairman, March 24-26, 1996.
- IEEE Southcon 1995, and 1994.
- Conference Co-Chairman for UNESCO sponsored conference.
- Invited Session Chair for several IEEE-PESC, APEC, ISCAS, IECON, SoutheastCon, and other conferences.
- Served as Technical Committee Chairman and/or member for numerous IEEE sponsored and other international conferences.

UNIVERSITY COMMITTEES

DEPARTMENT COMMITTEES

- ECE Tenure and Promotion Committee, Chair, 2016-18.
- ECE Executive Committee, Member 2010-Present

- EECS Executive Committee, Chair, 2005 – 2010.
- EECS Academic Coordinators Committee, 2006 – 2008.
- ECE Fellowship Committee, Chairman, January, 2000 – 2002.
- Undergraduate Affairs Committee, Chairman, 1997 – 2001.
- Administrative Committee, Chairman, 1996 – 1997.
- Tenure and Promotion Committee, Member, 1996 – 2002.
- Graduate Affairs Committee, member, 1995 – 2010.
- Electronics Committee, *Chairman*, August 1994 – July 1995.
- Space Management Committee, 1994 –1996.

COLLEGE COMMITTEES

- SoTL Awards Committee, 2021-2022.
- Dean’s Graduate Recruitment Committee, 2014-2019.
- Deans and Chairs Committee, 2003 – 2010.
- Search Committee Chair, Chairman for the MMAE, 2001 – 2002.
- Awards and Scholarship Committee, Chairman, August 1989 – 1995.
- COE Honor’s Committee, 1995 – 2002.
- COE Teaching Incentive Program (TIP), 1995 – 1996.
- COE Diversity Team, and Minority Faculty Advisory Committee, 1993 – 1998.
- International Affairs Committee, Chair and Member
- Dean Faculty and Staff Advisory Committee, member, 1992 – 1993.
- United Way, coordinator for several years.

UNIVERSITY COMMITTEES

- University Conflict of Interest (COI) and Commercialization, 2021-Present.
- Research Incentive Awards Committee, 2014-2015.
- Sabbatical Committee, 2000 – 2002.
- Interdisciplinary Council, 1998 – 2000.
- University Freshman Experience, 1998 – 1999.
- International Affairs Committee – Curriculum Subcommittee, 1997 – 2001.
- University Graduate Affairs Committee, 1998 – 2003.
- International Outreach Subcommittee, 1998 – 2001.
- Distance Learning Committee, Member, 1995 – 2000.
- University Senate, 1994 – 1996.
- Undergraduate Policy and Curriculum Committee, 1994 – 1995.
- Graduate Policy and Curriculum Committee, 1995 – 1996.

Dr. Batarseh has served on many other department, college and university search committees since joining UCF.

PERSONAL

Dr. Batarseh has a passion for educating future technical leaders and empowering entrepreneurs and enjoys engaging in interactive and adaptable educational delivery systems. References available upon request.