

KHALIL ALLUHAYBI

ASSISTANT PROFESSOR



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Alluhaybi

OVERVIEW

An electrical engineering expert in fields that requires solid background in design and development of power electronics, motor drives, analog/digital circuits, and embedded control systems.

EDUCATION

Ph.D. Electrical Engineering 2020

University of Central Florida
Dissertation Title: "Integrated
Microinverter and Storage for
Portable Photovoltaic Systems"

M.S. Electrical Engineering 2017

University of Central Florida

B.S. Electrical Engineering 2012

Taibah University

EXPERIENCE

2020- Present

- Senior Research Fellow

- Florida Power Electronics
Center, FL, USA.

2020- Present

- Associate Researcher

- power conversion and power
management Center, Nanjing,
China.

2020- Present

- Assistant Professor

- Taibah University, Medina,
KSA.

2018-2020

- Research Assistant

- University of Central Florida

2013-2014

- Teaching Assistant

- Taibah University

TECHNICAL SKILLS

Analog/digital circuit design:
DSP and Power Supply controller
ICs.

Simulation:
Simulink, PSIM and LTspice

Programming:
C, Matlab and MathCad

RESEARCH EXPERIENCE

- Conducted research and development project for IEEE Empower a Billion Lives.
- Modeling and simulation experiences with various dc/dc, ac/dc, dc/ac power converters, electric machines and related control algorithms.
- Designed and implemented three-port microinverter to integrate PV, battery and inverter in a module level.
- Designed highly efficient soft-switching dc/ac converter operating at high frequencies with high power density.
- Implementing battery management system for the PV-Battery integrated module.

PROFILE

- Highly motivated, team-spirited professional with 5 years' experience in research and development in the areas of power electronics, electric machine drives, and embedded control.
- Strong background in electronics, switch-mode power supplies, power management and control design.
- Extensive hands-on experience in the design, analysis and hardware implementation of a variety of switch-mode power converters, including dc- dc converter, rectifier, inverter and power factor corrector.
- In-depth understanding of signal processing and control algorithm implementation using micro-controllers and DSPs.
- Very strong technical and analytical skills in troubleshooting circuits and finding root cause of failures.
- Good communication skills and team-work spirit.

ACADEMIC ACTIVITIES

- Served as session chair International Power Electronics and Motion Control Conference.
- Reviewer for IEEE Transaction on Power Electronics.
- Reviewer for IEEE Transaction on Industry applications.
- Reviewer for IEEE Journal of Emerging and Selected Topics in Power Electronics.
- Tutorial for IPEMC2020- Integrated Microinverter and Energy Storage

PUBLICATIONS

- K. Alluhaybi, H. Hu and I. Batarseh, "Design and Implementation of Dual-input Microinverter for PV-Battery Applications," 2020 IEEE Applied Power Electronics Conference and Exposition (APEC), New Orleans, LA, USA, 2020, pp. 1467-1474, doi: 10.1109/APEC39645.2020.9124118.
- K. Alluhaybi, H. Hu and I. Batarseh, "Dual-Input Single-Stage Inverter for Photovoltaic-Battery Applications," 2019 IEEE Energy Conversion Congress and Exposition (ECCE), Baltimore, MD, USA, 2019, pp. 4234-4240, doi: 10.1109/ECCE.2019.8912721.
- K. Alluhaybi, X. Chen and I. Batarseh, "A Grid Connected Photovoltaic Microinverter with Integrated Battery," IECON 2018 - 44th Annual Conference of the IEEE Industrial Electronics Society, Washington, DC, 2018, pp. 1597-1602, doi: 10.1109/IECON.2018.8591658.
- K. Alluhaybi, I. Batarseh and H. Hu, "Comprehensive Review and Comparison of Single-Phase Grid-Tied Photovoltaic Microinverters," in IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 8, no. 2, pp. 1310-1329, June 2020, doi: 10.1109/JESTPE.2019.2900413.
- X. Chen, A. Kumar Bhattacharjee, K. Alluhaybi, H. Hu and I. Batarseh, "Single-Stage PV-Battery Microinverter Energy Solutions with Decentralized Model for Single-Family Homes," 2019 IEEE Decentralized Energy Access Solutions Workshop (DEAS), Atlanta, GA, USA, 2019, pp. 208-212, doi: 10.1109/DEAS.2019.8758765.
- I. Batarseh and K. Alluhaybi, "Emerging Opportunities in Distributed Power Electronics and Battery Integration: Setting the Stage for an Energy Storage Revolution," in IEEE Power Electronics Magazine, vol. 7, no. 2, pp. 22-32, June 2020, doi: 10.1109/MPEL.2020.2987114.
- K. Alluhaybi and I. Batarseh, "Review and Comparison of Single-Phase Grid-Tied Photovoltaic Microinverters," 2018 IEEE Energy Conversion Congress and Exposition (ECCE), Portland, OR, 2018, pp. 7101-7108, doi: 10.1109/ECCE.2018.8558076.
- F. Alaqa, K. Alluhaybi and I. Batarseh, "A Wide Input Voltage Range LLC Converter with Multi-Mode Operations" 2020 IEEE 9th International Power Electronics and Motion Control Conference (IPEMC2020-ECCE Asia)