# Mr. Juntao YAO

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PhD Candidate, Focusing on Power Electronics and EMI Solutions 001-3523285405

Research Assistant, Power Electronics and Electrical Power Research Lab (PEEPRL),

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## Education

- PhD, Electrical Engineering, University of Florida, 2017-2021, Advisor: Dr. Shuo Wang
  Thesis: Modeling and Reduction of Radiated Electromagnetic Interference in Power Converters
- MS, Electrical Engineering, Wuhan University, 2013-2016, Advisor: Dr.Fei Liu & Dr.Xiaoming Zha
  Thesis: Operational Control for Photovoltaic-Storage based DC Microgrid
- BS, Electrical Engineering, Wuhan University, 2009-2013, GPA 3.66/4 (89/100), Ranking 22/392
  Thesis: Compound Repetitive Control for LCL-filter based Active Power Filter

## Skills

- **EMI Solutions for Power Electronics Systems** including conducted and radiated EMI in non-isolated and isolated power converters, in consumer electronics and automotive electronics, by improving the component (e.g. switching transformers, EMI filters) design and the PCB layout
- **Hardware**-PCB design in Altium Designer, design of switching power supplies and components, and testing using vector network analyzer, impedance analyzer, spectrum analyzer, power analyzer, oscilloscope, signal generator, etc.
- **Finite Element Simulation** in ANSYS Q3D, HFSS, and CST
- **Circuit Simulation** in Matlab Simulink, PSPICE, Saber, PSIM, and SIMPLIS
- **Programming** in Matlab, Code composer studio, Latex, and GitHub for web development

## Research Experiences

**Power Electronics and Electrical Power Research Lab (PEEPRL), University of Florida**

- **EMI in Power Converters in Automotive Applications** Aug. 2018 -Present
  *Sponsored by* ***Monolithic Power Systems, Inc. San Jose, CA, USA***
- **Radiated EMI in GaN IC-based Active Clamp Flyback Adapters** Mar. 2018 - Oct. 2019
  *Sponsored by* ***Navitas Semiconductor, Inc. El Segundo, CA, USA***
- **EMI in Flyback Adapters** Jan. 2017 - Dec. 2017
  *Sponsored by Huawei Technologies*

**Center for Grid Power Electronics, Wuhan University**

- **DC Microgrid Control** Sep. 2014 - June 2016
  *Sponsored by Smart Grid Research Institute of State Grid*
- **Regenerative Bidirectional Cascaded Multilevel Converter** June 2013 - June 2015
  *Sponsored by National Natural Science Foundation of China*
- **Shunt Active Power Filter** Nov. 2012 - Aug. 2013
  *Bachelor thesis (Province-level honor)*

## Selected Publications

(Over 10 technical papers have been published in IEEE transactions and conferences.)

1. **J. Yao**, Y. Li, S. Wang, X. Huang, and X. Lyu, "Modeling and Reduction of Radiated EMI in a GaN IC-based Active Clamp Flyback Adapter," submitted to IEEE Transactions on Power Electronics. (Under Review)
2. **J. Yao**, S. Wang and H. Zhao, "Measurement Techniques of Common Mode Currents, Voltages, and Impedances in a Flyback Converter for Radiated EMI Diagnosis," in IEEE Transactions on Electromagnetic Compatibility, vol. 61, no. 6, pp. 1997-2005, Dec. 2019.
3. **J. Yao**, S. Wang and Z. Luo, "Near Field Coupling's Impact on Radiated EMI and Mitigation Techniques for Power Converters in Automotive Applications," in 2020 IEEE Energy Conversion Congress and Exposition (ECCE), 2020.

4. **J. Yao**, S. Wang and Z. Luo, "Radiated EMI Reduction by Layout Improvement in Power Converters in Automotive Applications," in 2020 IEEE 9th International Power Electronics and Motion Control Conference (IPEMC2020-ECCE Asia), 2020, pp. 1-6.
5. **J. Yao**, Y. Li, S. Wang, X. Huang, and X. Lyu, "Analysis and Reduction of Radiated EMI in High-Frequency GaN IC-based Active Clamp Flyback Converters," in 2020 IEEE Applied Power Electronics Conference and Exposition (APEC), 2020, pp. 664-671.
6. **J. Yao**, S. Wang and Z. Luo, "Modeling and Reduction of Radiated EMI in Non-isolated Power Converters in Automotive Applications," in 2020 IEEE Applied Power Electronics Conference and Exposition (APEC), 2020, pp. 385-392.

## Selected Patent

1. S. Wang, **J. Yao** and Y. Li, "New Common Mode (CM) Electromagnetic Interference (EMI) Filters for Reducing Radiated EMI in Power Converters," U.S. Patent, 62/950,268, Dec. 19, 2019 (Pending, U.S. patent)

## Honors and Awards

- Excellent master graduate(Top 3%) , Wuhan University, 2016
- First-class scholarship, Wuhan University, 2014
- Excellent bachelor thesis of Hubei province(Top 2%), 2013
- Excellent graduate(Top 3%) , Wuhan University, 2013
- Honorable mention, US Mathematical Contest in Modeling/Interdisciplinary Contest in Modeling (US ICM/MCM), 2012
- All-round excellent student(Top 5%), Wuhan University, 2012
- Outstanding student leader, Wuhan University, 2012
- National encouragement scholarship(Top 5%), 2012
- $3^{rd}$ Prize in the National Electrician Mathematical Modeling Contest, 2011
- Award for creative researcher, Wuhan University, 2011
- National encouragement scholarship(Top 5%), 2011