

Liang Wang

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Education Background

ShanghaiTech University Ph.D Electrical Engineering	Specialized Courses GPA: 3.69/4.0	Shanghai, China 09/2019 – present
<ul style="list-style-type: none">● Advisor: Prof. Haoyu Wang● Research interests: Point-of-load converter; Three-port converter, DC/DC resonant converters.● Core courses: Power Electronics, Advanced Power Conversion Techniques, Power Systems, Analog integrated circuit, VLSI		
Harbin Engineering University B.S. Electrical Engineering and automation	Grade: 86/100 (top 20%)	Harbin, Heilongjiang, China 08/2015 – 06/2019
<ul style="list-style-type: none">● Core courses: Power Electronics, Analog Circuits, Digital Circuits, Control Theory● Thesis: Dual-input-single-output non-isolated dc/dc converter		

Research Experiences

48V-12V zero-voltage-switching switch capacitor converter (ZSC)	10/2022 – present
<ul style="list-style-type: none">● Fixed frequency non-isolated full-ZVS DCX● Optimize dynamic response utilizing trajectory control● Small-signal modeling based on describing function method	
Multiphase series capacitor trans-inductor voltage regulator (TLVR)	02/2022 – present
<ul style="list-style-type: none">● Propose a point-of-load converter based on TLVR● Achieve fast dynamic response utilizing constant-on-time control● Small-signal modeling based on describing function method	
A Fully ZVS dual-active-bridge based three-port converter with high integration	02/2020 – 06/2022
<ul style="list-style-type: none">● Propose and evaluate a DAB based three-port converter with PV, battery, and dc link.● Analyze the design considerations to achieve MPPT for PV and power management in various operating conditions.● Optimize control strategy to widen ZVS range and to reduce circulating current.	
H5-bridge based single-input-dual-output LLC converter with wide output voltage range	10/2020 – 06/2021
<ul style="list-style-type: none">● Design and implement an H5-bridge based single-input-dual-output LLC converter.● Achieve wide output voltage range by modifying H5 bridge and secondary-side duty cycles.● Analyze the design considerations to achieve ZVS for all MOSFETs and ZCS for all diodes.	
Three-port power electronic interface in electromagnetic energy harvesting systems	02/2019 – 02/2020
<ul style="list-style-type: none">● Design, analyze and implement a three-port converter with an ac source, a battery and a constant voltage load.● Achieve ac/dc rectification and bi-directional dc/dc simultaneously.● Propose a novel and simplified MPPT method for ac source.	

Teaching Experiences

Teaching Assistant	Social Practice	08/2022
<ul style="list-style-type: none">● Lead a team (20 undergraduate students) as a mentor● Learn the local customs in Guangyuan, Sichuan● Negotiate with local officer		
Teaching Assistant (Best TA prize)	Introduction to information technology(SI100)	02/2021 – 06/2021
<ul style="list-style-type: none">● Lead and teach experiments, grade homework.● Communicate with students to solve their problems, and help them to improve.● Software guidance and homework tips in tutorial class.		
Teaching Assistant	Postgraduate Admission Examination	09/2019 – 12/2019
<ul style="list-style-type: none">● Experience sharing and methods guidance.● Mathematic and specialized courses teaching.● Mock examination organization.		

Tutorial

- The 3rd IEEE PEAC 2022 Tutorial: 48V bus-based datacenter voltage regulator modules: topology, control and magnetic integration

Journal Papers

- [1] **L. Wang**, H. Wang*, M. Fu, J. Liang and Y. Liu, "A three-port energy router for grid-tied PV generation systems with optimized control methods," *IEEE Trans. Power Electron.*, vol. 38, no. 1, pp. 1218-1231, Jan. 2023. [[URL](#)][[PDF](#)]
- [2] **L. Wang**, H. Wang*, B. Xu, and M. Zhou, "H5-bridge based Single-Input-Dual-Output LLC Converter with Wide Output Voltage Range," *IEEE Trans. Ind. Electron.*, vol. 69, no. 7, pp. 7008-7018, Jul. 2022. [[URL](#)][[PDF](#)]
- [3] **L. Wang**, **H. Wang***, M. Fu, Z. Xie, and J. Liang, "Three-port power electronic interface with decoupled voltage regulation and MPPT in electromagnetic energy harvesting systems," *IEEE Trans. Ind. Appl.*, vol. 58, no. 2, pp. 2144-2154, Mar./Apr. 2022. [[URL](#)][[PDF](#)]
- [4] J. Liang, **L. Wang**, M. Fu, J. Liang, and H. Wang, "Overview of voltage regulator modules in 48 V bus-based data center power systems," *CPSS Trans. Power Electron. Appl.*, vol. 7, no. 3, pp. 283-299, Sept. 2022. [[URL](#)][[PDF](#)]
- [5] Bo. Xue, **L. Wang**, and H. Wang, "State-Space Based Universal Time-Domain Model for Voltage-Fed Bidirectional IPT Systems," *IEEE Trans. Ind. Electron.*, under review

Conference Proceedings

- [1] **L. Wang**, H. Wang*, Y. Liu, J. Liang, and M. Fu, "A Fully ZVS Dual-Active-Bridge based Three-Port Converter with High Integration," *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Phoenix, AZ, USA, Jun. 14-17, 2021, pp. 1410-1415. [[URL](#)][[PDF](#)]
- [2] **L. Wang**, M. Fu, and H. Wang*, "A three-port power electronic interface to harvest the maximum power in electromagnetic energy harvesting systems," in *Proc. Int. Power Electron. Motion Control (IPEMC-ECCE Asia)*, Nanjing, China, Nov. 2020, pp. 1475-1481. [[URL](#)][[PDF](#)]
- [3] **L. Wang**, H. Wang*, J. Liang, X. Gao and Y. Wu, "A multi-phase series capacitor trans-inductor voltage regulator with high switching frequency and fast dynamic response," in *Proc. IEEE Appl. Power Electron. Conf. Expo. (APEC)*, Orlando, FL, Mar. 2023.
- [4] H. Zhang, **L. Wang**, and **H. Wang***, "Stacked-bridge-based three-level DAB converter in 800V dc micro-grids," in *Proc. IEEE Appl. Power Electron. Conf. Expo. (APEC)*, Orlando, FL, Mar. 2023.

Professional Skills

English	CET-6; fluent in speaking, good technical writing skills
Software	Altium Designer, PSIM, Matlab/Simulink, Multisim, CCS, Mathematica
Equipment	Impedance Analyzer, Power Devices Analyzer, Power Analyzer, Oscilloscope, Electronic Source/Load
μcontroller	TMS320F28335, TMS320F28379, Arduino

Professional Services

Membership	Student Member, IEEE	07/2019 – present
	Young Professionals, IEEE	07/2019 – present
	Member, IEEE Industry Applications Society	07/2019 – present
	Student member CPSS	07/2021-present
Reviewer	IEEE Energy Conversion Congress and Exposition (ECCE)	2020
	The Applied Power Electronics Conference (APEC)	2020, 2021, 2022
	IEEE Transactions on Power Electronics (TPEL)	2019 – present
	IEEE Transactions on Industry Applications (TIA)	2019 – present
	IEEE Transactions on Transportation Electrification (TTE)	2019 – present