JIAWEI LIANG

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EDUCATION

Shanghaitech University Shanghai, China
Ph.D. Electrical Engineering Sept. 2020 - present
Advisor: **Prof. Haoyu Wang**
Core courses: Advanced Power Conversion Techniques (A), Modeling and Control of Power Electronic Converters (A-), Power System (A), Energy Storage Devices and Systems (A+)
Research interests: Point-of-load converters in data center applications
Specialized courses GPA: 3.77/4

Shanghaitech University Shanghai, China
B.E. Electronic Information Engineering Sept. 2016 - Jun. 2020
Core courses: Power Electronics (A), Digital Integrated Circuits (A), Analog Integrated Circuits (A-)
Overall GPA: 3.51/4

RESEARCH EXPERIENCES

Highly Integrated VRM for data center applications Nov. 2021 - present

- Operating the converter at its resonant frequency as a dc transformer (DCX) to achieve optimal efficiency;
- Improve the power density by less-magnetics or integrated-magnetics.

Light load efficiency boost technique for STC Sept. 2021 - present

- Propose a hybrid soft switching control scheme to improve the light-load efficiency of switched-tank converter (STC);
- Regulate the frequency and phase shift such that the converter is tuned in either zero-current-switching (ZCS) or zero-voltage-switching (ZVS) mode;
- Built the switching loss model to optimize the soft switching control scheme.

Merged H-bridge based STC for front-end VRMs Sept. 2020 - May 2021

- Propose a merged H-bridge based STC to serve as the front end non-regulated stage of VRM;
- Analyze and design a 6-to-1 STC with ZCS operation;
- A hardware prototype that converts 48 V to 8 V is designed and tested. The maximum output current can reach 28 A, and the peak efficiency is 97.11%.

TEACHING AND VOLUNTEER EXPERIENCES

1. Teaching Assistant
EE270 Modeling and Control of Power Electronic Converters Sept. 2021- Jan. 2022

- Prepare, grade, and guide homework/project;
- Lead and teach project experiments;
- Update and maintain course website.

EE111 Electric Circuits Mar. 2020- Jul. 2020

- Lead and teach discussion class;
- Communicate with students to solve their problems, and help them to improve;
- Update and maintain course website.

2. Volunteer
Open Campus Day, ShanghaiTech University Jun. 2020,2021

SELECTED HONORS & AWARDS

2022	The second prize in the Third SUNGROW College Innovation Competition;
2022	Excellent Popular Science Popularization Award, 5th Innov. & Entr. Conf., ShanghaiTech Univ.;
2021-2022	Merit Student of ShanghaiTech University;
2020-2021	Merit Student of ShanghaiTech University;
2021	Excellent Popular Science Video Award, 4th Innov. & Entr. Conf., ShanghaiTech Univ.

PUBLICATIONS

[1] **J. Liang**, Liang Wang, M. Fu, J. Liang, and H. Wang*, "Overview of Voltage Regulator Modules in 48V Bus-based Data Center Power Systems," *CPSS Trans. Power Electron. Appl.*, vol. 7, no. 3, Sept. 2022.

[2] **J. Liang**, and H. Wang*, "Light Load Efficiency Boost Technique for Switched Tank Converters Based on Hybrid ZVS-ZCS Control," in *Proc. Int. Power Electron. Conf. (IPEC-ECCE Asia)*, Himeji, Japan, May 2022, pp. 2231-2235.

[3] **J. Liang**, H. Wang*, and H. Yang, "A merged H-bridge based switched tank converter for front-end voltage regulator modules," in *Proc. IEEE Energy Convers. Congr. Expo. (ECCE)*, Vancouver, BC, Oct. 2021, pp. 1995-2000.

ORAL PRESENTATIONS

- "48V bus-based datacentre voltage regulator modules: topology, control and magnetic integration," *IEEE Int. Power Electron. Appl. Conf. Expo. (PEAC 2022)*, Xiamen, China, Nov. 2022.
- "Light Load Efficiency Boost Technique for Switched Tank Converters Based on Hybrid ZVS-ZCS Control," *SIST Student Seminar*, Shanghaitech University, Sept. 2022.
- "Light Load Efficiency Boost Technique for Switched Tank Converters Based on Hybrid ZVS-ZCS Control," *Int. Power Electron. Conf. (IPEC-ECCE Asia)*, Himeji, Japan, May 2022 (online).
- "A merged H-bridge based switched tank converter for front-end voltage regulator modules," *The China Power Supply Society Conference (CPSSC)*, Shanghai, China, Nov. 2021.
- "A merged H-bridge based switched tank converter for front-end voltage regulator modules," *IEEE Energy Convers. Congr. Expo. (ECCE)*, Vancouver, BC, Oct. 2021 (online).

PROFESSIONAL SKILLS

Language	CET-6, good technical writing and reading skills, fluent in speaking.
Software	Altium Designer, PSIM, Matlab/Simulink, LTspice, Visio
Hardware	TMS320F28335, TMS320F28379, STM32F10x
Equipment	Oscilloscope, Electronic Source/Load, Impedance Analyzer, Power Devices Analyzer, Power Analyzer

PROFESSIONAL SERVICES

Membership	Student member, CPSS	Sept. 2021 - present
Reviewer	IEEE Transaction on Industrial Electronics	Feb. 2022 - present
	IEEE Transaction on Power Electronics	Oct. 2022 - present
	IEEE Transactions on Transportation Electrification	Jun. 2021 - present
	IEEE Appl. Power Electron. Conf. Expo. (APEC)	2021, 2022, 2023