

# HAOYU ZHANG

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## EDUCATION

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**ShanghaiTech University**, Shanghai

2022 – present

*Ph.D. Student* in Electrical Engineering (GPA: 3.53/4.0)

- Advisor: Prof. Haoyu Wang
- Research interests: Bidirectional DC-DC Converters
- Core courses: Modeling and Control of Power Electronic Converters, Advanced Power Conversion Techniques

**ShanghaiTech University**, Shanghai

2018 – 2022

*B.S. Electronic and Information Engineering* (GPA: 3.42/4.0)

- Core courses: Power Electronics, Analog and Digital circuits, Embedded System

## RESEARCH EXPERIENCE

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**Efficiency optimization for IPOS-DAB in wide voltage range**

2023.12 – 2025.05

- Propose a hybrid modulation scheme for efficiency optimization on Dual-active-bridge (DAB) converter with wide voltage range, including minimizing circulating current and widening ZVS soft switching range
- Apply a coupled inductor between two phases to achieve controllable leakage inductance
- Analysis the characteristic of output power and soft switching and give guidelines to the system design

**Stacked-bridge based DAB converter for high-volt bus microgrid**

2022.07 – 2023.03

- Propose a stacked-bridge based DAB converter for bidirectional power transfer between 800V bus and battery pack
- Half switches' voltage stress on high-voltage side with stacked bridge struture
- Achieve wide output voltage range with APWM and PSM
- Implement a 1000W prototype with 800V input and 100-200V output and validate the proposed concept

## TEACHING EXPERIENCE

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**Teaching Assistant** Modeling and Control of Power Electronic Converters

2023.09 – 2024.01

- Assist Prof. Haoyu Wang in grading homework and preparing homework solutions
- Communicate with students to solve their problems

## PUBLICATION

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- [J1] **H. Zhang**, J. Liang, J. Liang, M. Fu, H. Wang\*. "Wide Voltage Range Efficiency Enhancement Scheme for Input-Parallel-Output-Series DAB Converters in 800V DC Microgrids," IEEE Trans. Power Electron., in press.
- [C1] **H. Zhang**, L. Wang, and H. Wang\*, "Stacked-bridge-based three-level DAB converter in 800V dc microgrids," in *Proc. IEEE Appl. Power Electron. Conf. Expo. (APEC)*, Orlando, FL, Mar. 2023, pp. 1384-1390.

## PROFESSIONAL SKILLS

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- English: CET-6
- Programming: Matlab, C (DSP/Single Chip Microcomputer Programming), Python
- Software: Altium Designer, Matlab, PSIM, Maxwell, Visio
- Equipment: Impedance analyzer, Oscilloscope, Electronic Source/Load

## PROFESSIONAL SERVICES

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### Reviewer

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|---|----------------|
| IEEE Transactions on Industrial Electronics (TIE)         | 2023 – present |
| IEEE Transactions on Transportation Electrification (TTE) | 2023 – present |
| IEEE Transactions on Power Electronics (TPEL)             | 2025 – present |
| The Applied Power Electronics Conference (APEC)           | 2023           |