

Fuwei Li

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EDUCATIONAL EXPERIENCE

Guangdong Ocean University, Zhanjiang, China

Sept. 2019 - Jun. 2023

B.E. in Electrical Engineering and Automation, GPA: 86.5/100, Rank: 14/146, IELTS 6.5 (6.0)

PUBLICATIONS (SELECTED)

- [1] F. Li, J. He, D. Huang, et al., "Synchronous Dual-Switch Ultrahigh Step-Up DC-DC Converter Based on Coupled Inductor and Voltage Multiplier for Photovoltaic Systems," in **IEEE Transactions on Industrial Electronics**, vol. 71, no. 5, pp. 4807-4817, May 2024. DOI: 10.1109/TIE.2023.3283699
- [2] F. Li, J. He, P. Luo, et al., "Quadratic-type high step-up DC-DC converter with continuous input current integrating coupled inductor and voltage multiplier for renewable energy applications," in **Journal of Power Electronics**, vol. 23, no. 4, pp. 555-567, April 2023. DOI: 10.1007/s43236-022-00564-1

RESEARCH EXPERIENCE

Research on DC-DC Converter:

Sept. 2021 - Jun. 2023

High step-up quadratic BOOST converters designed for renewable energy applications($V_{in}/V_{out}=24/400V$)

- Description: Developed multiple new topologies that combined coupled inductors and voltage multipliers from switched inductor and switched capacitor techniques
- Main work: Analyzed circuits in CCM and DCM, implemented PI closed-loop control, simulated MPPT feasibility, PCB design for 200W&250W prototypes, loss analysis, paper writing, argued with reviewers
- Achievement: **3 SCI** (TIE, JPE, IET all published), **1 EI Conference** (ITOEC2022), **1 patent** (utility model)

BUCK-BOOST converter applied in friction-based nanogenerator energy storage device($V_{in}/V_{out}=20\sim60/48V$)

- Description: Designated a topology featuring leakage inductance recovery with 8-component. Implemented a control strategy integrating fuzzy PID control and voltage feedforward with negligible deviation
- Main work: As a **team leader** for a national competition, project management, topology research and calculations, PCB layout, PID parameter tuning, report writing, presentations, poster and promotional video production
- Achievement: National First Prize, The 1th College E&EE Innovation Competition, Beijing, China

Sept. 2022

Research on DC-AC Inverter:

Feb. 2023 - Apr. 2023

- Description: Conducted a comprehensive literature **review** to analyze the evolution of inverters' step-up modules
- Achievement: Yielded 16 improved topologies from 116 references, with one applied to the 'College students' Innovation and Entrepreneurship Training Program' titled 'Review on High Step-Up Inverter for Aquaculture Complex'

WORK EXPERIENCE

Shenzhen SHINEYOUNG New Energy Technology Co., Ltd.

Jul. 2023 - Mar. 2024

- Project: A 125 kW PCS (using the three-level NPC1 topology) for commercial and industrial energy storage
- Position and responsibilities: Hardware engineer for dissipation calculations of the PCS main power board, thermal management system testing and its optimization, data analysis, derating manual development and production control
- Achievement: Resolved 12 issues, generated 10 reports, experienced 5 instances of bricking (involving over \$2200), and obtained CE and CQC certifications. Achieved an **A-grade** performance evaluation during the probation period

SERVICES

Journal / Conference Reviewers

- IEEE ACCESS
- IEEE ONCON2023

Mar. 2022 - Dec. 2023

Oct. 2023

Volunteer Experience

Oct. 2019 - Dec. 2021

- Participated in the voluntary repair activities of the GDOU Electronics Club
- Provided free maintenance services for 7 students and 5 villagers in Zhanjiang for their old appliances
- Successfully repaired a total of 14 electronic devices

SKILLS

Topology research: EndNote, Listry

Calculation, simulation and PCB design: Mathcad, SIMPLIS, PSIM, MATLAB/Simulink, Altium Designer

Proficiency in the use of oscilloscopes, signal generators, multimeters and other instruments

Graphing and writing: Origin, Visio, PS, AI, Microsoft Office (Word, Excel, PowerPoint)

Programming: C for DSPs

Language: Cantonese (native), Mandarin (native), English (fluent)

AWARDS

Second Prize in EDA (Electronics) at 13th Lanqiao Cup Provincial Competition, Guangdong Province

2022

First Class of Academic Excellence Scholarship (top 3%), Guangdong Ocean University

2021

Excellence Award in English Speech Contest of EIE College, Guangdong Ocean University

2021

Second Class of Academic Excellence Scholarship (top 10%), Guangdong Ocean University

2020