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 integrating coupled inductors and voltage multipliers based on 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 triboelectric nanogenerator energy storage device (V_{in}/V_{out}=20~60/48V)

- Description: Designed an 8-component topology featuring leakage inductance recovery. Implemented a control strategy integrating fuzzy PID control and voltage feedforward, resulting in remarkable dynamic response
- Main work: As a **team leader** for a national competition, handling project management, topology research and calculations, PCB layout, PID parameter tuning, report writing, presentations, poster and promotional video production
- Achievement: The **only** all-undergraduate team to win first prize at the 1st CE&EEI Competition *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

Hardware Engineer in 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
- Responsibilities: 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, handled 5 explosion events (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 *Mar. 2022 – Dec. 2023*
- IEEE ONCON2023 *Oct. 2023*

Volunteer Experience *Oct. 2019 – Dec. 2021*

- Description: Participated in the voluntary repair activities organized by the GDOU Electronics Club
- Main work: Provided free appliance repair services to 7 students and 5 villagers in Zhanjiang
- Achievement: Successfully repaired 14 electronic devices and received positive feedback

SKILLS

Research management: EndNote, Listary, Focus To-Do
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*