Fuwei Li

Email: im.fuweili@gmail.com | Personal website: https://electricowl-e10.github.io/Fuwei-Li.github.io/

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 innovative topologies integrating coupled inductors and voltage multipliers using switched inductor and switched capacitor techniques
- Main work: Analyzed circuits in CCM and DCM, implemented MPPT simulation and PI closed-loop control, designed PCB for 200W&250W prototypes, conducted loss analysis, authored papers, and responded to reviewers' comments
- Achievement: **3 SCI** (TIE 1st, JPE 1st, IET 4th), **1 EI Conference** (ITOEC2022 2nd), **1 patent** (utility model 1st)

BUCK-BOOST converter applied in triboelectric nanogenerator energy storage device (V_{in}/V_{out}=20~60/48V)

- Description: Designed an 8-component topology with leakage inductance recovery. Implemented a control strategy integrating fuzzy PI control and voltage feedforward, resulting in remarkable dynamic response
- Main work: As the **team leader** for a national competition, I oversaw topology research and calculations, optimized PCB layout and control, report writing, presentations, and created promotional materials including poster and video
- Achievement: The **only all-undergraduate** team to win first prize at the 1st CE&EEI Competition

Research on DC-AC Inverter: *Feb. 2023 - Apr. 2023*

- Description: Conducted a literature review to analyze the evolution of inverters' step-up modules
- Achievement: Developed 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 3-level I-type NPC topology) for commercial and industrial energy storage
- Responsibilities: Performed dissipation calculations for the PCS main power board, tested and optimized the thermal management system, analyzed related data, developed derating manuals, improved production processes of the MPB
- Achievement: Resolved 12 issues, generated 10 reports, handled 5 PCS blow-ups (involving over $2200), and secured CE and CQC certifications. Received an **A-grade** performance evaluation during the probation period

SERVICES

Journal / Conference Reviewer

- 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 earned positive recognition from beneficiaries.

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/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*