Kaisen Yang

Graduate Research Assistant, Center for Power Electronics Systems (CPES)

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Research Interests

- High Frequency DC-DC Converters, Datacenter Point-of-Load (PoL) Converters
- PCB Transformers, Magnetic Integration, Coupled Inductors

Education

Virginia Tech, Blacksburg, U.S. May 2026
M.Sc. in Electrical and Electronics Engineering, GPA: 3.74/4.0 (Expected)

Advisor: Prof. Qiang Li

Key Courses:
Power Converter Modeling & Control, Advanced Power Conversion Technology, EMI Noise Reduction, Applied Linear Systems, etc.

Dalian Maritime University, Dalian, China Jun. 2024
B.E. in Electrical Engineering, GPA: 92.0/100, Ranking: 1/137

Key Courses:
ElectricMachinery, Power Electronic Technology, Signals and Systems, Fundamentals of Power Systems, High Voltage, Control Systems of Electric Drives, etc.

Project Experience

48V-1V PoL Converter for Datacenter Power Supply (Hardware) Ongoing

- Novel isolated topology for single-stage 48V-1V Voltage Regulator (VR) features fewer components and lower primary voltage stress compared to Half-Bridge Current Doubler was developed
- Half-turn Transformer Design was adopted to achieve high density and high efficiency
- Impact of high frequency loop parasitics were analyzed and PCB design was optimized

Datacenter Voltage Regulator Transient Performance Improvement Ongoing

- Auxiliary circuits were adopted to assist Multi-phase Buck Converter during load transient
- Novel control strategy is developing for the hybrid structure

Dual-Active Bridge Resonant Converter (Hardware) Jan. 2024

- A Dual-Active Bridge Resonant LLC Converter was designed to run at 10kHz
- Phase shift control and frequency control were combined to achieve wide output voltage range
- Soft-switching and Synchronous Rectification was achieved with peak efficient of 93.03% at 30% load

Skills

- **Power Converter Circuit and Control System Design** using AD, SIMPLIS, LTspice, and MATLAB
- **Magnetic Component Design and Simulation, PCB Parasitic Extraction** with Ansys Maxwell and Q3D
- **Embedded Controller Programming**, using MCUs and DSPs for power converter control applications
- **Hardware Testing and Validation** using oscilloscopes, function generators, network analyzers, power analyzers, and other test instruments
- IELTS: 7.5 (minimum 6.5 per section); GRE: 323 (Quantitative 170)
- Strong Analytical, Critical Thinking, and Quick Learning Abilities

Academic Service

- Volunteer Reviewer for *IEEE Transactions on Power Electronics*
- Volunteer Reviewer for *IEEE Open Journal of Power Electronics*
- Volunteer Reviewer for *IEEE Journal of Emerging and Selected Topics in Power Electronics*