Sangin Bae

Research Assistant at University of Wisconsin-Madison

sangin.bae@wisc.edu   (608)209-6125   Madison

WORK EXPERIENCE

University of Wisconsin-Madison - Research Assistant

Aug 2025 - current   Madison Town, Wisconsin, United States

- Develop Active Power Decoupling Modular Multilevel Converter (APD-MMC) control strategy
- Develop Stability analysis method via Monodromy Matrix

Chung-Ang University - Undergraduate Student Researcher

Jan 2024 - Feb 2025   Seoul, Republic of Korea

- Develop 25kW modular Electric Vehicle (EV) fast charger
- Utilize Wide-Band Gap (WBG) devices for a compact design - 25kW/1.5L
- Design magnetic devices optimized to a high switching frequency - up to 500kHz
- Implement Zero-Voltage Switching (ZVS) for a high efficiency - more than 95%

Hanyang University - Undergraduate Student Researcher

Jun 2023 - Aug 2023   Seoul, Republic of Korea

- Train VGGNet for an object detection
- Experience in Pytorch

PUBLICATION

Nov 2024

- Sang In Bae, Woo Cheol Jeong, Jang Hun Park, Tae Min Woo, Hong Je Ryoo. "Development of a 25kW high-frequency phase-shift PWM full-bridge DC/DC converter for a wide range of load applications" *The Transactions of the Korean Institute of Power Electronics, Vol. 30, No.4, August 2025*

EDUCATION

University of Wisconsin-Madison - Ph.D., Electrical and Computer Engineering

Jan 2025 - current

Hanyang University - B.S, Electrical Engineering

Jan 2019 - Jan 2025,   3.8/4.0 (Summa Cum Laude)

Awards

- Hanyang Academic Excellence Award, October 2023

Relevant courses
- Circuit Theory1
- Circuit Theory2
- Microelectronic Circuits
- Signals and Systems
- Field & Wave Electromagnetics
- Electric Power Engineering
- Power Electronics
- Electric Machines
- Applied Power Conversion
- Smart Grid

SKILLS

- PSIM
- PLECS
- MATLAB
- SIMULINK
- PCB Design
- DSP
- Python

VOLUNTEER EXPERIENCE

Community Child Care Center
- Teach math and science to children