Woo Jin, An

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EDUCATION

Imperial College London ***Sep 2024 – Sep 2025***

Master of Science in Future Power Networks

Newcastle University ***Sep 2021 – Aug 2024***

Bachelor of Engineering (Hons) in Electrical Power Engineering

GPA 4.83/5.0

PROJECTS

Development of a tool to analyze the steady-state operation of modular-multilevel converter (MMC) for Voltage Source Converter HVDC transmission (VSC-HVDC) ***Dec 2024 – Present***

Imperial College London

- Designed and developed a MATLAB-based analytical tool to simulate and evaluate steady-state performance of MMCs in VSC-HVDC transmission systems
- Integrated user configurable inputs including AC filter impedance, submodule capacitance and, power dispatch parameters to model phase/line voltages, arm currents, power distribution and, capacitor energy ripple
- Visualized converter operational boundaries on active/reactive power planes to support control strategy development and steady-state constraint validation

Hierarchical Energy Management System Based on Hierarchical Optimization for Microgrid Community Economic Operation – *Industrial Collaboration with Power Automation Pte Ltd* **Jan 2024 – Sep 2024**

Newcastle University

- Designed a hierarchical MILP-based optimization algorithm to jointly minimize energy costs and carbon emissions in a mixed DER environment at Jurong Port microgrid
- Modeled multi-agent coordination among PV systems, ESS and, generators under dynamic pricing and mission constraints
- Validated scalability and practical implementation potential in collaboration with industry engineers

Self-Guided Inductive Vehicle with Embedded Control Systems ***Mar 2023 – Jul 2023***

Newcastle University

- Developed an autonomous buggy using inductive line-following sensors, Atmega16 microcontroller and, real-time PD control for steering and propulsion
- Engineered modular subsystems (sensor, motor, control), fabricated PCBs and, resolved noise and interference issues through interactive circuit debugging and waveform analysis

Smart Environmental Sensor – Sakura Science Program (Japan) ***Sep 2022 – Nov 2022***

Newcastle University

- Designed embedded systems for environmental monitoring, integrating temperature and humidity sensors with real-time data transmission protocols
- Collaborated in a multicultural team with members from Singapore, Taiwan and, Japan

WORK EXPERIENCE

Marvell Technology Inc. (Singapore) ***July 2023 – Jan 2024***

Product Engineer Intern

- Tested program modification to reduce testing time of individual automobile semiconductor device to increase productivity of the testing procedure
- Failure analysis to improve reliability of produced automobile semiconductor devices
- Implementation of Smart Socket to load board to read tested device's serial number and enabled measurement of temperature of the individual devices during tests

ORGANIZATION

Member of Korean Scientists and Engineers Association in the UK (KSEAUK)

AWARDS

ACES Book Prize in Electrical Machines and Generators ***Oct 2024***

Presented by Association of Consulting Engineers Singapore

Recognized for outstanding achievement in electrical machines coursework – 1st/115

SP Group Book Prize in Generation, Transmission and Distribution ***Oct 2023***

Presented by Singapore Power Limited

- Awarded for top academic performance – 1st/120

SKILLS

- C-programming, MATLAB
- Circuit Analysis
- Fluent in English and Korean