

Inhwi Hwang

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Seoul, South Korea
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ECE Ph.D. Candidate at University of Michigan-Ann Arbor

EDUCATION

- Ph.D. Candidate Sep. 2023 -
Electrical and Computer Engineering, University of Michigan-Ann Arbor
- M.S. Feb. 2022
Electrical and Computer Engineering, Seoul National University Major GPA: 4.0/4.0
- B.E. Aug. 2020
Electrical and Computer Engineering, Seoul National University Major GPA: 3.91/4.0

RESEARCH AND TECHNICAL EXPERIENCE

- Academic project May 2023 — Jun. 2023
Self-synchronized grid connected converter Seoul, Korea
- Academic project Apr. 2023 — Jun. 2023
Digital filter design under variable sampling Seoul, Korea
- Academic project Sep. 2022 — Apr. 2023
Real time temperature estimation in SiC MOSFET Seoul, Korea
- Industrial project Jan. 2022 — Feb. 2023
3.2 kW PFC design in Intel data centers, LG Innotek Co., Ltd. Seoul, Korea
- Academic project Sep. 2021 — Nov. 2021
Extending torque operation limit in signal-injection sensorless control for IPMSM Seoul, Korea
- Industrial project Jan. 2021 — Aug. 2021
Motor control for vibration reduction in scotch-yoke system, LG Electronics Inc. Seoul, Korea
- Academic project Mar. 2020 — Jun. 2020
3-bit optical coding for improving the power of optical computing Seoul, Korea

PUBLICATIONS

Journals

- ‘Digital Filter Design under Variable Sampling Frequency for Power Electronics Control’ (Status: Will be submitted)
Authors: **Inhwi Hwang**, Jaekeun Lee, Shenghui Cui
IEEE Transactions on Power Electronics Letter (TPEL, Letter), 2023
- ‘Grid Voltage Sensorless Operation in Totem-pole PFC Boost Converter’ (Status: Will be submitted)
Authors: **Inhwi Hwang**, Jaekeun Lee, Shenghui Cui
IEEE Transactions on Power Electronics (TPEL), 2023
- ‘Enhanced Dynamic Operation of Heavily Saturated IPMSM in Signal-Injection Sensorless Control with Ancillary Reference Frame’
(Status: Published)
Authors: **Inhwi Hwang**, Yong-Cheol Kwon, Seung-Ki Sul
IEEE Transactions on Power Electronics (TPEL), 2023
- ‘Analysis of Position Estimation Error in Signal-Injection Sensorless Control Induced by Inverter dv/dt Based Current Measurement Noise’ (Status: Published)
Authors: Yoon-Ro Lee, Jiwon Yoo, **Inhwi Hwang**, Seung-Ki Sul
IEEE Transactions on Power Electronics (TPEL), 2022

Conference

- ‘Self-Synchronization Method for 3.2kW Totem-pole PFC Boost Converter’ (Status: Will be submitted)
Authors: **Inhwi Hwang**, Jaekeun Lee, Shenghui Cui
IEEE Applied Power Electronics Conference and Exposition (APEC), 2024
- ‘Time-Step-Adaptive-Bilinear (TSAB) Second-Order Digital Filter Design for Variable Sampling Frequency Control of Power Converter’
(Status: Accepted)
Authors: **Inhwi Hwang**, Jaekeun Lee, Shenghui Cui
IEEE Energy Conversion Congression and Expo (ECCE), 2023
- ‘Enhanced Dynamic Operation of Heavily Saturated IPMSM in Signal-Injection Sensorless Control’ (Status: Published)
Authors: **Inhwi Hwang**, Yong-Cheol Kwon, Seung-Ki Sul
IEEE Energy Conversion Congression and Expo (ECCE), 2022
- ‘Gain Scheduling of Full-Order Flux Observer for Sensorless PMSM Drives Considering Magnetic Spatial Harmonics’ (Status: Published)
Authors: Jiwon Yoo, **Inhwi Hwang**, Yoon-Ro Lee, Seung-Ki Sul
IEEE Energy Conversion Congression and Expo (ECCE), 2021

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HONORS

<i>Research Assistant Funding</i>	Fall 2023
<i>Commencement Valedictorian (Graduate Class Representative) in Graduation Ceremony</i> (Click here for speech video link)	Fall 2020
<i>Academic Scholarship, Kim Jeong-Sik Special Scholarship</i>	Spring 2020

SKILLS AND INTERESTS

Tools and Languages	SiC power circuit design, DSP, Fusion360, Matlab, Simulink, Plecs, C, Latex, Python(Pytorch), R
Interests	Wireless power transfer (Biomedical, Space-Solar power system), High-performance power electronics, Power semiconductor packaging, Grid-tied converters