

Yeonho Jeong

Assistant Professor, University of Rhode Island
The Department of Electrical, Computer, and Biomedical Engineering
College of Engineering
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PROFESSIONAL ACADEMIC/INDUSTRIAL EXPERIENCE

- Assistant Professor, **University of Rhode Island**, RI, USA, 2020 – Present
- Postdoctoral Fellow, **University of Colorado Denver**, CO, USA, 2018 – 2020
- Senior Research Engineer, **Solu-M**, South Korea, 2015 – 2018
- Research Engineer, **Samsung Electro-Mechanics**, South Korea, 2008 – 2015

EDUCATION

- **KAIST**, Ph.D. in Electrical Engineering, 2018
- **KAIST**, M. S. in Electrical Engineering, 2014
- **Dankook University**, B.S. in Electrical Engineering, 2008

HONORS AND AWARDS

- **Nominated for the Best Paper Award**, IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP). 2023.
- **Best Paper Award**, *IEEE Transportation Electrification Conference*, 2016.

JOURNAL PUBLICATIONS (Blue: After joining URI)

Undergraduate and graduate students/post-docs/visiting scholars advised and co-advised.

- [1] M. -H. Park, X. **Zhang**, **Y. Jeong** and G. -W. Moon, "A High Efficiency Boost Pre-regulator Merging with an Asymmetric LLC Standby Converter in DC Power Distribution System for Data

- Center," in *IEEE Transactions on Power Electron.*, vol. 39, no. 8, Aug. 2024.
- [2] S. Kim, **Y. Jeong**, and J. W. Nam, "Solving Optimal Electric Vehicle Charger Deployment Problem," *Applied Sciences*, Vol. 14, no. 12: 5092.
 - [3] K. W. Kim, M. Y. Kim, J. I. Kang, and **Y. Jeong**, "High-Efficiency Multi-Output LLC Resonant Converter with Multi-Winding Transformer and Cost-Effective Analog Control Circuit," *IEEE Journal of Emerging and Selected Topics in Industrial Electronics*, vol. 4, no. 4, pp. 1034-1044, Oct. 2023.
 - [4] **Y. G. Kwak**, **Y. Jeong**, and **B. H. Lee**, "Port Configuration Method of Three-Switch Converter for High-voltage Gain in Hybrid UAVs Applications," *Journal of Electrical Engineering & Technology*, vol. 19, pp. 463-472, June 2023.
 - [5] **B. Babaiahgari**, **Y. Jeong**, and J. D. Park, "Dynamic Control of Region of Attraction using Variable Inductor for Stabilizing DC Microgrids with Constant Power Loads," *IEEE Trans. Ind. Electron.*, vol. 68, no. 10, pp. 10218-10228, Oct. 2021.
 - [6] **K. W. Kim**, **Y. Jeong**, J. S. Kim, and G. W. Moon, "Low Common Mode Noise Full-Bridge LLC Resonant Converter with Balanced Resonant Tank," *IEEE Trans. Power Electron.*, vol. 36, no. 4, Apr. 2021.
 - [7] **K. W. Kim**, **Y. Jeong**, J. S. Kim, and G. W. Moon, "Low Common-Mode Noise LLC Resonant Converter with Static-Point-Connected Transformer," *IEEE Trans. Power Electron.*, vol. 36, no. 1, Jan. 2021.
 - [8] **Y. Jeong**, M. S. Lee, J. D. Park, J. K. Kim, and Ronal A. L. Rorrer, "Hold-up Time Compensation Circuit of Half-Bridge LLC Resonant Converter for High Light-load Efficiency," *IEEE Trans. Power Electron.*, vol. 35, no. 12, pp. 13126-13135, Dec. 2020.
 - [9] **M. H. Park**, **Y. Jeong**, R. A. L. Rorrer, D. Choi, and G. W. Moon, "Hold-up Time Extension Method for LLC Resonant Converter by Detecting Operation Region," *IEEE Trans. Power Electron.*, vol. 35, no. 10, pp. 9949-9952, Oct. 2020.
 - [10] **Y. Jeong**, M. H. Park, and G. W. Moon, "High Efficiency Zero-Voltage-Switching Totem-pole Bridgeless Rectifier with Integrated Inrush Current Limiter Circuit," *IEEE Trans. Ind. Electron.* vol. 67, no. 9, pp. 7421-7429, Sep. 2020.
 - [11] **C. Y. Lim**, **Y. Jeong**, and G. W. Moon, "Half-Bridge Integrated Phase-Shifted Full-Bridge Converter With High Efficiency Using Center-Tapped Clamp Circuit for Battery Charging Systems in Electric Vehicles," *IEEE Trans. Power Electron.* vol. 35, no. 5, pp. 4934-4945, May. 2020.
 - [12] **Y. Jeong**, J. D. Park, and G. W. Moon, "An Interleaved Active-Clamp Forward Converter Modified for Reduced Primary Conduction Loss without Additional Components," *IEEE Trans. Power*

Electron., vol. 35, no. 1, pp. 121-130, Jan. 2020.

- [13] *M. H. Park*, J. I. Baek, **Y. Jeong**, and G. W. Moon, "An Interleaved Totem-pole Bridgeless Boost PFC Converter with Soft-Switching Capability Adopting Phase-Shifting Control," *IEEE Trans. Power Electron.*, vol. 34, no. 11, pp. 10610-10618, Nov. 2019.
- [14] *C. Y. Lim*, **Y. Jeong**, and G. W. Moon, "Phase-Shifted Full-Bridge DC-DC Converter With High Efficiency and High Power Density Using Center-Tapped Clamp Circuit for Battery Charging in Electric Vehicles," *IEEE Trans. Power Electron.*, vol. 34, no. 11, pp. 10945-10959, Nov. 2019.
- [15] K. W. Kim, H. S. Youn, J. I. Baek, **Y. Jeong**, and G. W. Moon, "Analysis on Synchronous Rectifier Control to Improve Regulation Capability of High-Frequency LLC Resonant Converter," *IEEE Trans. Power Electron.*, vol. 33, no. 8, pp. 7252-7259, Aug. 2018.
- [16] **Y. Jeong**, J. K. Kim, and G. W. Moon, "A Bridgeless Dual Boost Rectifier With Soft-Switching Capability and Minimized Additional Conduction Loss," *IEEE Trans. Ind. Electron.*, vol. 65, no. 3, pp. 2226-2233, Mar. 2018.
- [17] **Y. Jeong**, J. K. Kim, J. B. Lee, and G. W. Moon, "An Asymmetric Half-bridge Resonant Converter Having a Reduced Conduction Loss for DC/DC Power Applications With a Wide Range of Low Input Voltage," *IEEE Trans. Power Electron.*, vol. 32, no. 10, pp. 7795-7804, Oct. 2017.

CONFERENCE PUBLICATIONS (Blue: After joining URI)

Undergraduate and graduate students/post-docs/visiting scholars advised and co-advised.

- [1] *X. Zhang* and **Y. Jeong**, "Design and Modeling of Multi-purpose Control System in a Hybrid Converter Considering Coupling Effect," *in proc. IEEE Energy Conversion Congress and Exposition (ECCE)*, 2024.
- [2] S. Kim, **Y. Jeong**, and J. -W. Nam, "Optimizing EV Chargers Location via Integer Programming," 2024 IEEE Transportation Electrification Conference and Expo (ITEC), Chicago, IL, USA, 2024, pp. 1-7.
- [3] *M. M. N. Alzyod*, A. T. Al-Awami, **Y. Jeong**, and S. Kim, "A Multi-Phase Energy Management System for Hybrid Fuel Cell Drones," 2024 IEEE Transportation Electrification Conference and Expo (ITEC), Chicago, IL, USA, 2024, pp. 1-6.
- [4] *X. Zhang*, M. Y. Kim, J. I. Kang and **Y. Jeong**, "A Scalable Multi-input Hybrid Converter for Energy Management Control in Hybrid Energy Systems Empowering Electric Mobility," *in proc. IEEE Energy Conversion Congress and Exposition (ECCE)*, 2023.

- [5] **X. Zhang**, K. W. Kim, M. Y. Kim, J. I. Kang, and **Y. Jeong**, “A New Multi-Output Structure with CRM Boost PFC Converter,” in *proc. IEEE Energy Conversion Congress and Exposition (ECCE)*, 2023.
- [6] **Z. Xu**, M. Yu, Q. Yang, **Y. Jeong**, J. Cai and T. Wei, “A Novel FPGA-Based Circuit Simulator for Accelerating Reinforcement Learning-Based Design of Power Converters,” in *proc. 2023 IEEE 34th International Conference on Application-specific Systems, Architectures and Processors (ASAP)*, 2023.
- [7] **S. Thurber**, J. Baek, and **Y. Jeong**, “An Auxiliary Circuit with a Flexible LC Resonant Tank for High-Efficiency and Low-Cost Totem-Pole Boost Bridgeless Power-Factor Correction Converter,” in *Proc. IEEE Applied Power Electronics Conference and Exposition (APEC)*, 2023.
- [8] **X. Zhang**, R. A. L. Rorrer, and **Y. Jeong**, “A Novel Digital Energy Management Control Strategy of a Fully Active Hybrid Converter for Unmanned Aerial Vehicle Applications,” in *Proc. IEEE Applied Power Electronics Conference and Exposition (APEC)*, 2023.
- [9] **Z. Xu**, M. Yu, Q. Yang, **Y. Jeong**, and T. Wei, “A Novel FPGA Simulator Accelerating Reinforcement Learning-Based Design of Power Converters,” *Proceedings of the 2023 ACM/SIGDA International Symposium on Field Programmable Gate Arrays*, 2023.
- [10] **Z. Xu**, **X. Zhang**, T. Wei, K. W. Kim and **Y. Jeong**, “An FPGA-based Power Converter Simulation Accelerator Towards Highly Time-Efficient Machine Learning-Aided Design Methodology,” *IEEE Energy Conversion Congress & Exposition (ECCE)*, 2022.
- [11] J. Y. Kim, **Y. Jeong**, and J. K. Kim, “Double-Voltage Charger for On-Board Charger With 800 V Battery,” *The ICT-Future Vehicle session at ICNGC 2022*, 2022.
- [12] **X. Zhang**, K. W. Kim, and **Y. Jeong**, “Low Cost and Small Component Count Hybrid Converter with Energy Management Control for Unmanned Aerial Vehicle Applications,” in *Proc. IEEE Applied Power Electronics Conference and Exposition (APEC)*, 2022.
- [13] K. W. Kim, **Y. Jeong**, M. Y. Kim, and J. I. Kang, “High Efficiency Dual-Output LLC Resonant Converter with Synchronous Rectifier Control,” in *Proc. IEEE Applied Power Electronics Conference and Exposition (APEC)*, 2022.
- [14] J. S. Choi, **N. Lee**, Y. -J. Cheon, S. W. Cho, H. -W. Kim, J. Koo, J. Choi, **Y. Jeong**, and T. Chung, “A Flat Architectural Wall Approach to Electrical Integration and Test for GK2A and GK2B,” in *Proc. IEEE Aerospace Conference*, 2022.
- [15] S. H. Lee, **Y. Jeong**, and J. K. Kim, “Integrated DC/DC converter for Reducing Voltage Stress and DC Offset Current of Transformer,” in *Proc. ICT-Future Vehicle Workshop 2021*, 2021.

- [16] **Y. Jeong**, K. W. Kim, R. A. L. Rorrer, and J. D. Park, "A Novel Multi-Input and Single-Output DC/DC Converter for Small Unmanned Aerial Vehicle Applications," in *Proc. 2020 IEEE Applied Power Electronics Conference and Exposition (APEC)*, 2020, pp. 1302-1308.
- [17] **S. H. Ko**, **Y. Jeong**, B. H. Lee, R. A. L. Rorrer, and J. D. Park, "Asymmetric Dual Active Clamp Forward Converter with Phase-Shift Control for Small Conduction Loss," in *Proc. 2020 IEEE Applied Power Electronics Conference and Exposition (APEC)*, 2020, pp. 1866-1871.
- [18] **B. Babaiahgari**, **Y. Jeong**, and J. D. Park, "A Stability Enhancement Method for DC Microgrids with Constant Power Loads Using Variable Inductor," in *Proc. 2020 IEEE in Proc. Applied Power Electronics Conference and Exposition (APEC)*, 2020, pp. 2236-2240.
- [19] **M. H. Park**, **Y. Jeong**, D. Choi, D. M. Kim, and G. W. Moon, "Hold-up Time Extension Method in LLC Converter by Detecting Operation Region," in *Proc. IEEE 9th International Power Electronics and Motion Control Conference (IPEMC2020-ECCE Asia)*, 2020, pp. 1706-1709.
- [20] **K. W. Kim**, **Y. Jeong**, J. S. Kim, J. E. Park, and G. W. Moon, "Low Common-Mode Noise Structure Based on Half-Bridge LLC Converter for Medium and High Power Applications," in *Proc. IEEE 9th International Power Electronics and Motion Control Conference (IPEMC2020-ECCE Asia)*, 2020., pp. 640-643.
- [21] **M. S. Lee**, C. Y. Lim, **Y. Jeong**, T. W. Kim, and G. W. Moon, "A High Efficiency Phase-Shift Full-Bridge Converter with Improved Clamping Circuit to Eliminate Oscillation for EV Battery Charger," in *Proc. IEEE 9th International Power Electronics and Motion Control Conference (IPEMC2020-ECCE Asia)*, 2020, pp. 1696-1701.
- [22] **Y. Jeong**, R. A. L. Rorrer, B. H. Lee, and J. D. Park, "A Novel Control Scheme for High Efficiency Fuel Cell Power Systems in Parallel Structure," in *Proc. 2019 IEEE Energy Conversion Congress & Exposition (ECCE)*, 2019, pp. 940-946.
- [23] **B. Babaiahgari**, **Y. Jeong**, and J. D. Park, "Stability Analysis for Power Management Between Standalone DC Microgrids with Constant Power Loads," in *Proc. 2019 IEEE Energy Conversion Congress & Exposition (ECCE)*, 2019, pp. 5778-5782.
- [24] **M. H. Ullah**, **Y. Jeong**, and J. D. Park, "Multi Agent-based Distributed Energy Arbitrage in Residential Distribution System," in *Proc. 2019 IEEE Power and Energy Society General Meeting (PESGM)*, 2019, pp. 1-5.
- [25] **D. K. Kim**, **Y. Jeong**, J. E. Park, N. Y. Lee, and G. W. Moon, "Boost-Forward Integrated Converter for High Power Density Spacecraft Applications," in *Proc. 2019 10th International Conference on Power Electronics and ECCE Asia*, 2019, pp. 1-6.
- [26] **M. H. Park**, **Y. Jeong**, D. K. Kim, K. M. Kim, and G. W. Moon, "Pre-Regulating Boost Converter with Asymmetric Half-bridge LLC Converter for DC Server Power Supply," in *Proc. 2019 10th International Conference on Power Electronics and ECCE Asia*, 2019, pp. 1927-1932.

- [27] C. Y. Lim, Y. Jeong, M. S. Lee, Y. D. Lee, and G. W. Moon, “High Efficient Hybrid Converter Using Center-tapped Clamp Circuit,” in *Proc. 2019 10th International Conference on Power Electronics and ECCE Asia*, 2019, pp. 2067-2072.
- [28] D. K. Kim, Y. Jeong, J. I. Baek, J. E. Park, C. W. Lim, G. W. Moon, “High Efficiency and High Power Density Weinberg Converter Reducing Conduction Loss and Output Current Ripple for Space Applications”, in *Proc. Applied Power Electronics Conference and Exposition (APEC)*, 2019, 1583-1586.
- [29] Y. Jeong, M. H. Park, K. W. Kim, B. H. Lee, and G. W. Moon, “High Voltage Gain Interleaved Active-Clamp Forward (IACF) Converter having Reduced Primary Conduction Loss,” in *Proc. ECCE Asia*, 2018, pp. 838-844.
- [30] K. W. Kim, J. I. Baek, Y. Jeong, K. M. Kim, and G. W. Moon, “Analysis for High-Frequency LLC Resonant Converter with Planar Transformer at Light-Load Condition,” in *Proc. ECCE Asia*, 2018, pp. 2365-2369.
- [31] C. Y. Lim, Y. Jeong, K. W. Kim, F. S. Kang, and G. W. Moon, “A High-Efficiency Power Supply from Magnetic Energy Harvesters,” in *Proc. ECCE Asia*, 2018, pp. 2376-2379.
- [32] Y. Jeong, J. K. Kim, and G. W. Moon, “Analysis on half-bridge LLC resonant converter by using variable inductance for high efficiency and power density server power supply,” in *Proc. APEC*, 2017, pp. 170-177.
- [33] Y. Jeong, J. S. Park, J. K. Kim, C. Y. Lim, M. H. Park, and G. W. Moon, “A zero-voltage-switching dual boost power factor correction rectifier with active clamp circuit having minimized conduction losses,” in *Proc. ECCE Asia*, 2017, pp. 254-259.
- [34] M. H. Park, C. O. Yeon, J. I. Baek, Y. Jeong, G. W. Moon, and J. S. Park, “An improved current compensation method for high PF and low THD in digital boost power factor corrector,” in *Proc. ECCE Asia*, 2017, pp. 1065-1070.
- [35] C. Y. Lim, Y. Jeong, and G. W. Moon, “Phase leading input capacitor compensation using variable inductor with high efficiency in a CRM boost PFC,” in *Proc. ECCE Asia*, 2017, pp. 852-856.
- [36] Y. Jeong, J. I. Baek, J. Choi, and G. W. Moon, “Half Bridge LLC Resonant Converter with High Voltage Gain for Single-Phase AC/DC Power System,” in *Proc. ITEC Asia-Pacific*, 2016, pp. 573-578.
- [37] D. K. Kim, Y. Jeong, C. Y. Lim, B. Kang, and G. W. Moon, “Bidirectional Bridgeless PFC with Reduced Input Current Distortion and Switching Loss Using Gate Skipping Technique,” in *Proc. ITEC Asia-Pacific*, 2017, pp. 579-583 – **Best Paper Award**.
- [38] Y. Jeong, J. B. Lee, C. O. Yeon, C. Y. Lim, J. K. Han, and G. W. Moon, “Asymmetric Half-Bridge Resonant Converter having a Reduced Conduction Loss for DC/DC Power Systems with a Low Input Voltage,” in *Proc. ECCE Asia*, 2016, pp. 621-628.
- [39] J. K. Han, J. I. Baek, C. E. Kim, Y. Jeong, C. O. Yeon, and G. W. Moon, “A simple THD improving

- method for CCM boost PFC converter under mixed conduction mode operation,” in *Proc. ECCE Asia*, 2016, pp. 466-470.
- [40] J. I. Baek, J. Choi, **Y. Jeong**, Y. Jang, G. W. Moon, and C. H. Yu, “Asymmetrical Half-Bridge Converter with Reduced DC-offset current in Transformer,” in *Proc. ECCE Asia*, 2016, pp. 2249-2253.
- [41] C. Y. Lim, J. H. Kim, **Y. Jeong**, D. K. Kim, H. S. Youn, and G. W. Moon, “A High Efficiency Critical Mode Boost PFC Using a Variable Inductor,” in *Proc. ECCE Asia*, 2016, pp. 2792-2797.
- [42] S. W. Jwa, J. B. Lee, **Y. Jeong**, K. W. Kim, G. W. Moon, and J. H. Kim, “Active Clamped Current-Fed Full-Bridge Integrating LLC Converter with Low Current and Voltage Stress,” in *Proc. ECCE Asia*, 2016, pp. 3211-3217.
- [43] J. -W. Kim, J. -P. Moon, H. -S. Youn, **Y. Jeong**, and G. -W. Moon, “Phase Leading Input Current Compensation in Digitally Controlled CRitical Mode Boost PFC,” in *Proc. ECCE Asia*, 2015, pp. 2688-2695.
- [44] **Y. Jeong**, J. W. Kim, C. Y. Lim, D. K. Kim, J.I. Baek, and G. W. Moon, "A Strategic Control Scheme of Phase-Shift Full Bridge Converter for Improving Light-load Efficiency in Server Power System," in *Proc. ECCE Asia*, 2015, pp. 488-494.
- [45] D. K. Kim, C. O. Yeon, J. H. Kim, **Y. Jeong**, and G. W. Moon, “LLC Resonant Converter with High Voltage Gain Using Auxiliary LC Resonant Circuit,” in *Proc. ECCE Asia*, 2015, pp. 1505-1512.
- [46] **Y. Jeong**, C. E. Kim, S. Y. Cho, D. Y. Kim, and G. W. Moon, "Unexpected Bi-Directional Operation of Phase-Shift Full-Bridge Converter in Parallel Operation System," in *Proc. ECCE Asia*, 2013, pp. 999-1004.

PATENTS

U.S. Patents

- [1] J. N. Lee and **Y. Jeong**, POWER SUPPLY APPARATUS, US.9263953.B2, 2016

Korean Patents

- [1] S. H. Won, D. M. Jang, B. J. Choi, J. W. Kim, **Y. Jeong**, T. W. Heo, D. J. Park, J. K. Lee, D. S. Kim, and D. J. Kim, SERIAL COMMUNICATION APPARATUS, 1012876740000, 2013. **(Registered)**
- [2] B. J. Choi, D. M. Jang, J. W. Kim, **Y. Jeong**, T. W. Heo, S. H. Won, J. P. Kim, J. K. Lee, D. S. Kim, and D. J. Kim, MEASURING ROTATION SPEED OF FAN USINGING COUNTER, 1012737500000, 2013. **(Registered)**

- [3] **Y. Jeong**, C. E. Kim, J. P. Kim, and D. S. Kim, POWER SUPPLY WITH IMPROVED SYSTEM EFFICIENCY, 1011414160000, 2012. **(Registered)**
- [4] D. M. Jang, B. J. Choi, J. W. Kim, **Y. Jeong**, T. W. Heo, S. H. Won, J. P. Kim, J. K. Lee, D. S. Kim, and D. J. Kim, MONITORING APPARATUS OF POWER, 1011385900000, 2012. **(Registered)**
- [5] D. J. Kim, Y. Jeong, and D. S. Kim, POWER SUPPLY APPARATUS USING DUAL FEEDBACK CONTROL, 1012190010000, 2012. **(Extinguishment)**

ACADEMIC GRANTS/INDUSTRIAL PROJECTS

Total Funding: \$1,382,483 / PI Share: \$ 959,983

Title/Sponsor	Total Budget (Share)	Budget Period
Mwani wa Jua: Innovative solar-powered seaweed drying to reduce poverty and improve nutrition in Tanzania Fish Innovation Lab (United State Agency of International Development)	\$500,000 (Co-PI: \$ 77,500)	Jan. 2025 – Dec. 2027 Status: Awarded
Hardware-Accelerated Machine Learning (ML)-aided Electronic Design Automation (EDA) for Integrated Power Electronics Building Block (iPEBB) Office of Naval Research (ONR)	\$500,000 (Sole-PI: \$ 500,000)	Aug. 2024 – July 2029 Status: Active
Toward High Reliability: Novel Power Conversion System and Power Management Control for Water Monitoring Stations United States Geological Survey (USGS)	\$248,395 (Sole-PI: \$248,395)	Jan. 2024 – Dec. 2025 Status: Active
SELECT: Real-time Simulator and Educational Laboratory for Advanced Electric Transportation Technologies Champin Foundation	\$134,088 (Primary-PI: \$ 134,088)	Jan. 2024 – Dec. 2024 Status: Active

Student Support Fundings (Total: 10 students)

Title/Sponsor	Awardees	Budget Period
Undergraduate Research Assistant Fundings NDEP/NIUVT	Gianni Smith	2022 – Present
	Patrick Feliz	2024 – Present
	Mason Jacob	2023 – 2024
	Zachary Weinstein	2023 – 2024
	Alex Amado	2023 – 2024
	Zach Chofay	2022 – 2023
	Edgar Ponce	2022 – 2023
Undergraduate Research in Science and Engineering (URISE) College of Engineering	Sylas Wojciechowski	Fall 2024
	Sarah Eisenstein	Fall 2024
	William Lucas	Fall 2024

Student Research Fundings (Total: \$6,936)

Title/Awardee/Sponsor	Total Budget (Share)	Budget Period
Funding Proposal for URI Formula SAE Race Suspension Design Analysis <i>Ryan Hirsch, Andrew Harris, and Isaiah Smit</i> Office of Undergraduate Research and Innovation	\$1,400	2023-2024
URI Formula SAE Brake System Research <i>Joey Hook, Nicholas Caito, and Jeremy Herrera San</i> Office of Undergraduate Research and Innovation	\$1,400	2023-2024
URI Baja SAE Chassis Design Research Project <i>O'Malley Sherlock, Joshua Weiss, and Peter Hernandez</i> Office of Undergraduate Research and Innovation	\$1,400	2023-2024
Telemetry and Control System for URI's First Formula SAE Style Car <i>Nathan Mendoza, Liam Crisfield, and Jack Petrarca</i> Office of Undergraduate Research and Innovation	\$1,400	2023-2024
Funding Proposal for IFEC 2023: Solid State Transformer (SST) Project <i>Nicholas Costick, Edgar Ponce Baldelamar, and Zachary Chofay</i> Office of Undergraduate Research and Innovation	\$1,336	2022-2023

Previous Projects

Title/ Sponsor	Budget Period
DARPA Subterranean (SubT) Challenge, Team MARBLE The Defense Advanced Research Projects Agency (DARPA)	2018-2019
AC/DC server power systems with 800 W, 1.6 kW, and 2.0 kW Solu-M	2015-2018
AC/DC and DC/DC server/network power systems with 300 W, 450 W, 700 W, 750 W, 1.6 kW, and 2.0 kW Samsung Electro-Mechanics	2008-2015

STUDENT ADVISING

- **Graduate Research Assistant**

Xueshen Zhang	PhD Program	Fall 2021 – Present
Chang-seok Kim	PhD Program	Spring 2025 (Upcoming)
Fuwei Li	PhD Program	Spring 2025 (Upcoming)
Young-keun Kim	PhD Program	Fall 2025 (Upcoming)
Woo-Seong Baek	Master’s Program	Fall 2025 (Upcoming)
Shaun Thurber	Master’s Program	Fall 2022 – Present
Elana Viola	Master’s Program	Fall 2024 – Present

- **Undergraduate Research Assistant**

Sarah Eisenstein	Junior	Fall 2024 – Present
William Lucas	Junior	Fall 2024 – Present
Kyle Ludwig	Junior	Fall 2024 – Present
Patrick Feliz	Senior	Summer 2024 – Present
Victoria Delacruz	Sophomore	Spring 2024 – Present
Mason Jacob	Senior (IEP)	Fall 2023 – Present
Zachary Weinstein	Senior	Fall 2023 – Present
Gianni Smith	Senior (IEP)	Fall 2022 – Present
Alex Amado		Spring 2023– May 2024
Steven Kowalewski		Spring 2022– May 2024
Edgar Ponce		Fall 2022– May 2023
Zach Chofay		Fall 2022– May 2023
Shaun Thurber		Spring 2022– May 2022
Christopher Charron		Spring 2022– May 2022
Nataly Karnaukh		Spring 2022– May 2022

- **Visiting Students**

Sooan Pack	Kyungpook National University	Dec. 2024 – (Aug. 2025)
GyeongHyun Kwon	Incheon National University	Sep. 2024 – (Feb. 2025)
Young-keun Kim	Incheon National University	Sep. 2024 – (Feb. 2025)
Hailey Haesung Oh	Univ. of Southern California	May 2024 – Aug. 2024
Woo-Seong Baek	Sogang University	March 2024 – June 2024
Taewoo Kim	KAIST	March 2024 – May 2024
Yun-gi Kwak	Hanbat National University	July 2022 – Aug. 2022

- **Faculty Advisor, URI Formula SAE Club**

Plan to participate in 2025 SAE Competition	2021 – Present
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- **Faculty Advisor, URI International Future Energy Challenge (IFEC) Team**

2024 IFEC Competition Participation (On-going)	
2023 IFEC Competition Participation (Semi-final, 3rd Place)	2022 – Present
2022 IFEC Competition Participation (Semi-final)	

- **Graduate Thesis Committee**

Chandra Prasad Neupane	Ph.D. Degree (Physics)	Summer 2024
Adelina Herbst	Master’s degree (MISE)	Spring 2024
Kevin Rivera	Ph.D. Degree (Chemical Eng.)	Fall 2022
James Morris	Master’s degree (Electrical Eng.)	Summer 2024
Mehrsa Khaleghikarahodi	Ph.D. Degree (MISE)	Spring 2023
Kevin Rivera	Master’s degree (Electrical Eng.)	Fall 2022

STUDENT AWARDS

Title/Awardees/Sponsor	Total Budget	Budget Period
Dean's Fellowship <i>Xueshen Zhang</i> University of Rhode Island	Full scholarship	2024-2025
ECCE Student Travel Support <i>Xueshen Zhang</i> IEEE ECCE Conference Organization	\$750	Oct. 2024
URI COE Graduate Travel Awards <i>Xueshen Zhang</i> College of Engineering, University of Rhode Island	\$400	Oct. 2024
URI COE/ECBE Travel Awards <i>Alex Amado</i> College of Engineering/ECBE, University of Rhode Island	\$1,000	March 2024
URI COE/ECBE Travel Awards <i>Sylas Wojciechowski</i> College of Engineering/ECBE, University of Rhode Island	\$1,000	March 2024
Outstanding Teaching Assistant Award (1st Place) <i>Shaun Thurber</i> ECBE Department, University of Rhode Island	-	May 2023
Outstanding Research Assistant Award (2nd Place) <i>Xueshen Zhang</i> ECBE Department, University of Rhode Island	-	May 2023
URI COE Graduate Travel Awards <i>Xueshen Zhang</i> College of Engineering, University of Rhode Island	\$400	March 2023
URI COE Graduate Travel Awards <i>Xueshen Zhang</i> College of Engineering, University of Rhode Island	\$400	Oct. 2022
APEC Student Travel Support <i>Xueshen Zhang</i> IEEE APEC Conference Organization	\$1,000	March 2022

TEACHING

Course Number – Title		Semester / Year
ELE 446/556 – Introduction to Power Electronics		Fall 2024
ELE 449X – Power Electronics Design Lab	<i>Developed</i>	Spring 2024
ELE 446/556 – Introduction to Power Electronics	<i>In a Curriculum</i>	Fall 2023
ELE 322 – Electromagnetics I		Spring 2023

ELE 446X – Introduction to Power Electronics		Fall 2022
ELE 343 – Electronics II		Spring 2022
ELE 446X – Introduction to Power Electronics	<i>Developed</i>	Fall 2021
ELE 343 – Electronics II		Spring 2021

ACADEMIC SERVICES

Electrical Engineering Tenure-Track Faculty Search Committee <i>Search Committee Member</i>	2024
URI Open House & Welcome Day <i>ELE Representatives</i>	2024
Electrical Engineering Tenure-Track Faculty Search Committee <i>Search Committee Member</i>	2023
URI Open House & Welcome Day <i>ELE Representatives</i>	2023
URI Open House & Welcome Day <i>ELE Representatives</i>	2022
Electrical Engineering Technician Search Committee <i>Search Committee Member</i>	2021

PROFESSIONAL SERVICE

Senior Member, IEEE	Aug. 2023 - Present
Technical Committee Member, IEEE Heterogeneous Integration Road Map – Chapter 10 Integrated Power Electronics Technical Working Group (Leading) <i>IEEE-EPS Power & Energy Technical Committee (P&E TC)</i>	July 2024 – Present
Technical Committee Member, IEEE 2025 IEEE Electric Ship Technologies Symposium (ESTS)	2024 – Present
Publication Chair, IEEE International Symposium on Diagnostics for Electric Machines, Power Electronics and Drives (SDEMPED) 2025	2024 – Present
Technical Session Chair, IEEE Energy Conversion Congress and Exposition (ECCE)	Oct. 2024
Technical Session Chair, IEEE Energy Conversion Congress and Exposition (ECCE)	Nov. 2023
Technical Session Chair, ICPE 2023 – IEEE ECCE Asia Conference	May 2023
Technical Session Chair, IEEE Applied Power Electronics Conference (APEC)	March 2023
Technical Session Chair, IEEE Energy Conversion Congress and Exposition (ECCE)	Nov. 2023
NSF Panel Review (ENG/ECCS)	2023-2024

Journal/Conference Reviewer

- IEEE Transactions on Industrial Electronics
- IEEE Transactions on Power Electronics
- IEEE Transactions on Energy Conversion
- IEEE Transactions on Industry Applications
- IEEE Transactions on Transportation Electrification
- IEEE Journal of Emerging and Selected Topics in Power Electronics
- IEEE Access
- KIPE Journal of Power Electronics
- MDPI Energies — Open Access Journal
- IEEE Applied Power Electronics Conference (APEC)
- IEEE Energy Conversion Congress and Exposition
- IEEE Energy Conversion Congress and Exposition Asia
- IEEE Wireless Power Transfer Conference
- AIAA Propulsion & Energy Forum

INVITED SEMINARS/PRESENTATIONS

Research on Simplified Hybrid Power Conversion Systems with Integrated Energy Management and Scalable Design for Small UAV <i>The 1st Northeast Power Electronics Symposium (NEPES 2024), UConn</i>	Webinar Nov. 2024
Novel Power Conversion and Energy Management Control for Water Monitoring Systems <i>NIC/NGWOS Research and Development Seminar</i>	Webinar Nov. 2024
Time-efficient Machine Learning (ML)-aided Electric Design Automation (EDA) for Power Electronics Building Block <i>ONR PEPDS Program Review, MIT</i>	Cambridge, MA Nov. 2024
Technology Trends in Electronics Design Automation for Power Conversion Systems <i>Korean Institute of Power Electronics (KIPE)</i>	Webinar Sep. 2024
Time-efficient Machine Learning (ML)-aided Electric Design Automation (EDA) for Power Electronics Building Block <i>ONR Controls S&T Program Review, University of Michigan Ann Arbor</i>	Ann Arbor, MI Spe. 2024
Time-Efficient Machine Learning-aided Electric Design Automation for Power Conversion Systems <i>The 1st KIPE Electrification Workshop, Gyeong-sang National University</i>	Jinju, South Korea Aug. 2024
Time-Efficient Machine Learning-aided Electric Design Automation for Power Conversion Systems <i>Kunkuk University</i>	Seoul, South Korea Aug. 2024
Time-Efficient Machine Learning-aided Electric Design Automation for Power Conversion Systems <i>Incheon National University</i>	Incheon, South Korea Aug. 2024
Time-Efficient Machine Learning-aided Electric Design Automation for Power Conversion Systems <i>Inha National University</i>	Incheon, South Korea Aug. 2024

Time-Efficient Machine Learning-aided Electric Design Automation for Power Conversion Systems <i>Dankook University</i>	Yongin, South Korea Aug. 2024
Time-Efficient Machine Learning-aided Electric Design Automation for Power Conversion Systems Enabled by FPGA Accelerators: A Fast Power Converter Auto Designer <i>Hanbat National University</i>	Webinar July 2023
Time-Efficient Machine Learning-aided Electric Design Automation for Power Conversion Systems Enabled by FPGA Accelerators: A Fast Power Converter Auto Designer <i>Ajou University</i>	Webinar July 2023
Future of Mobility [Panelist] Future Science and Technology Session <i>The 1st World Congress of Korean Scientists and Engineers</i>	Seoul, South Korea July 2023
Time-Efficient Machine Learning-aided Electric Design Automation for Power Conversion Systems Enabled by FPGA Accelerators: A Fast Power Converter Auto Designer <i>Korea National University of Transportation</i>	Chungju, South Korea May 2023
Time-Efficient Machine Learning-aided Electric Design Automation for Power Conversion Systems Enabled by FPGA Accelerators: A Fast Power Converter Auto Designer <i>Jeonbuk National University, Jeonju, South Korea, May 2023</i>	Jeonju, South Korea May 2023
High-Efficiency Topologies for Industrial Applications in Power Electronics <i>University of Rhode Island</i>	Kingston, RI Feb. 2020
High-Efficiency Topologies for Industrial Applications in Power Electronics <i>University of Michigan Dearborn</i>	Dearborn, MI Feb. 2020
High-Efficiency Topologies for Industrial Applications in Power Electronics <i>Manhattan College</i>	Bronx, NY Feb. 2020
Introduction of Power Electronics and Server Power Systems <i>University of Colorado Denver</i>	Denver, CO Oct. 2018
State of the art for Server Power Systems <i>Myung-ji University</i>	Yongin, South Korea Aug. 2018