

# Dr. MINJIE CHEN

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## APPOINTMENTS

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- 2017- | **Assistant Professor, Princeton University**  
Department of Electrical and Computer Engineering  
Andlinger Center for Energy and the Environment  
Princeton Institute for the Science and Technology of Materials
- 2016 | **Postdoctoral Research Associate, EECS, MIT**  
Advisor: Prof. David Perreault

## EDUCATION

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- 2015 | **Ph.D., S.M., E.E., EECS, MIT**  
🏆 Dimitris N. Chorafas Doctoral Thesis Award  
Advisors: Prof. David Perreault and Prof. Khurram Afridi
- 2009 | **B.S., EE, Tsinghua University**  
🏆 Highest Honor, National Scholarship, Dean's List at HKUST  
Advisor: Prof. Chongqing Kang

## SELECTED AWARDS

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- Princeton SEAS E. Lawrence Keyes, Jr./Emerson Electric Co. Junior Faculty Award, 2022
- IEEE Transactions on Power Electronics Prize Paper Award, 1<sup>st</sup> Place, 2021
- IEEE Transactions on Power Electronics Prize Paper Award, 2<sup>nd</sup> Place, 2021
- IEEE Transactions on Power Electronics Prize Paper Award, 2<sup>nd</sup> Place, 2020
- IEEE Transactions on Power Electronics Prize Paper Award, 2<sup>nd</sup> Place, 2017
- IEEE Transactions on Power Electronics Prize Paper Award, 1<sup>st</sup> Place, 2016
- Princeton SEAS Commendation List for Outstanding Teaching, 2021
- Princeton SEAS Commendation List for Outstanding Teaching, 2020
- Princeton SEAS Commendation List for Outstanding Teaching, 2019
- IEEE ICRA Bio-inspired Robotics Workshop Best Poster Award, 2022
- OCP (Open Compute Project) Best Paper Award, 2021
- IEEE COMPEL Best Paper Award, 2020
- NSF CAREER Award, 2019
- IEEE ECCE Best Demonstration Award, 1<sup>st</sup> Place, 2021
- IEEE ECCE Best Demonstration Award, 1<sup>st</sup> Place, 2019
- IEEE ECCE Best Demonstration Award, 1<sup>st</sup> Place, 2014
- C3.ai DTI Faculty Research Award, 2021
- IEEE Senior Member, 2020

- Princeton Innovation Forum, 1<sup>st</sup> Place, 2019
- Siebel Energy Institute Faculty Research Award, 2018
- IEEE Transactions on Power Electronics Outstanding Reviewer Award, 2016
- MIT Dimitris N. Chorafas Doctoral Thesis Award, 2015
- Global Fellow, MIT-Imperial College London, 2012
- MIT E.E. Landsman Fellowship, 2009
- Dean's List, HKUST, 2008
- National Scholarship, Top Honor, Tsinghua University, 2006–2009

## JOURNAL PUBLICATIONS

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- [J24] P. Wang, D. Zhou, Y. Elasser, J. Baek and **M. Chen**, “Matrix Coupled All-in-One Magnetics for PWM Power Conversion,” *IEEE Transactions on Power Electronics*, vol. 37, no. 12, pp. 15035-15050, Dec. 2022.
- [J23] T. Liu, X. Zhao, P. Wang, Q. C. Burlingame, J. Hu, K. Roh, Z. Xu, B. P. Rand, **M. Chen**, and Y.-L. Loo, “Highly Transparent, Scalable, and Stable Perovskite Solar Cells with Minimal Aesthetic Compromise,” *Advanced Energy Materials*, 2022, 2200402.
- [J22] J. Baek, Y. Elasser, K. Radhakrishnan, H. Gan, J. Douglas, H. K. Krishnamurthy, X. Li, S. Jiang, C. R. Sullivan, and **M. Chen**, “Vertical Stacked LEGO-PoL CPU Voltage Regulator,” *IEEE Trans. on Power Electronics*, vol. 37, no. 6, pp. 6305-6322, June 2022.
- [J21] Y. Chen, P. Wang, H. Cheng, G. Szczeszynski, S. Allen, D. M. Giuliano, and **M. Chen**, “Virtual Intermediate Bus CPU Voltage Regulator,” *IEEE Trans. on Power Electronics*, vol. 37, no. 6, pp. 6883-6898, June 2022.
- [J20] P. Wang and **M. Chen**, “Analysis and Design of Series Voltage Compensator for Differential Power Processing,” *IEEE Jour. of Emerging and Selected Topics in Power Electron.*, accepted.
- [J19] D. H. Zhou, Y. Elasser, J. Baek, and **M. Chen**, “Reluctance-Based Dynamic Models for Multi-phase Coupled Inductor Buck Converters,” *IEEE Trans. on Power Electronics*, vol. 37, no. 2, pp. 1334-1351, Feb. 2022.
- [J18] P. Wang, R. C. N. Pilawa, P. Krein, **M. Chen**, “Stochastic Power Loss Analysis of Differential Power Processing,” *IEEE Trans. on Power Electron.*, vol. 37, no. 1, pp. 81-99, Jan. 2022.
- [J17] **M. Chen**, C. R. Sullivan, “Unified Models for Coupled Inductors Applied to Multiphase PWM Converters,” *IEEE Trans. on Power Electronics*, vol. 36, no. 12, pp. 14155-14174, Dec. 2021. [🏆 IEEE Power Electronics Transactions Prize Paper Award, 1<sup>st</sup> Place]  
— “selected from 1,233 papers published on IEEE Transactions on Power Electronics in 2021”
- [J16] P. Wang, Y. Chen, J. Yuan, R. C. N. Pilawa-Podgurski, **M. Chen**, “Differential Power Processing for Ultra-Efficient Data Storage,” *IEEE Transactions on Power Electronics*, vol. 36, no. 4, pp. 4269-4286, April 2021. [🏆 IEEE Power Electronics Transactions Prize Paper Award, 2<sup>nd</sup> Place]  
— “selected from 1,233 papers published on IEEE Transactions on Power Electronics in 2021”
- [J15] Y. Chen, **M. Chen**, and D. Xu, “A 3kW Two-Stage Transformerless PV Inverter with Resonant DC Link and ZVS-PWM Operation,” *IEEE Trans. on Industry Applications*, vol. 57, no. 2, pp. 1495-1506, March-April 2021.

- [J14] M. Liu, Y. Chen, Y. Elasser, and **M. Chen**, “Dual Frequency Hierarchical Modular Multilayer Battery Balancer Architecture,” *IEEE Trans. on Power Electronics*, vol. 36, no. 3, pp. 3099-3110, March 2021.
- [J13] Y. Chen, P. Wang, Y. Elasser, and **M. Chen**, “Multicell Reconfigurable Multi-Input Multi-Output Energy Router Architecture,” *IEEE Transactions on Power Electronics*, vol. 35, no. 12, pp. 13210-13224, Dec. 2020. [🏆 IEEE Power Electronics Transactions Prize Paper Award, 2<sup>nd</sup> Place] — “selected from 1,148 papers published on IEEE Transactions on Power Electronics in 2020”
- [J12] **M. Chen** and H. V. Poor, “High-Frequency Power Electronics at the Grid Edge: A Bottom-Up Approach Toward the Smart Grid,” *IEEE Electrification Magazine*, vol. 8, no. 3, pp. 6-17, Sept. 2020. [🏆 Invited Paper]
- [J11] M. Liu and **M. Chen**, “Dual-Band Wireless Power Transfer with Reactance Steering Network and Reconfigurable Receivers,” *IEEE Trans. on Power Electronics*, vol. 35, no. 1, pp. 496-507, Jan. 2020.
- [J10] **M. Chen**, S. Chakraborty, and D. J. Perreault, “Multitrack Power Factor Correction Architecture,” *IEEE Trans. on Power Electronics*, vol.34, no.3, pp. 2454-2466, March 2019.
- [J9] K. K. Berggren, Q.-Y. Zhao, N. Abebe, **M. Chen**, P. Ravindran, A. McCaughan, and J. C. Bardin, “A Superconducting Nanowire can be Modeled by Using SPICE,” *Superconductor Science and Technology*, vol. 31, no. 5, 2018.
- [J8] Y. Ni, S. Pervaiz, **M. Chen**, K. K. Afridi, “Energy Density Enhancement of Stacked Switched Capacitor Energy Buffers through Capacitance Ratio Optimization,” *IEEE Trans. on Power Electronics*, vol. 32, no. 8, pp. 6363-6380, August 2017.
- [J7] **M. Chen**, K. K. Afridi, S. Chakraborty, and D. J. Perreault, “Multitrack Power Conversion Architecture,” *IEEE Transactions on Power Electronics*, vol.32, no.1, pp. 325-340, Jan. 2017. [🏆 IEEE Power Electronics Transactions Prize Paper Award, 2<sup>nd</sup> Place] — “selected from 789 papers published on IEEE Transactions on Power Electronics in 2017”
- [J6] Y. Tang, **M. Chen**, and L. Ran, “A Compact MMC Submodule Structure with Reduced Capacitor Size Using the Stacked Switched Capacitor Architecture,” *IEEE Trans. on Power Electronics*, vol.31, no.10, pp. 6920-6936, October 2016.
- [J5] **M. Chen**, M. Araghchini, K. K. Afridi, J. H. Lang, C. R. Sullivan, and D. J. Perreault, “A Systematic Approach to Modeling Impedances and Current Distribution in Planar Magnetics,” *IEEE Transactions on Power Electronics*, vol.31, no.1, pp. 560-580, Jan. 2016. [🏆 IEEE Power Electronics Transactions Prize Paper Award, 1<sup>st</sup> Place] — “selected from 731 papers published on IEEE Transactions on Power Electronics in 2016”
- [J4] **M. Chen**, K. K. Afridi, and D. J. Perreault, “A Multilevel Energy Buffer and Voltage Modulator for Grid-Interfaced Micro-inverters,” *IEEE Trans. on Power Electronics*, vol.30, no.3, pp. 1203-1219, March 2015.
- [J3] K. K. Afridi, **M. Chen**, and D. J. Perreault, “Enhanced Stacked Switched Capacitor Energy Buffer Architecture,” *IEEE Trans. on Industry Applications*, pp. 1141-1149, March/April 2014.

- [J2] **M. Chen**, K. K. Afridi, and D. J. Perreault, "Stacked Switched Capacitor Energy Buffer Architecture," *IEEE Trans. on Power Electronics*, vol.28, no.11, pp. 5183-5195, November 2013.
- [J1] X. Chen, C. Kang, and **M. Chen**, "Short Term Probabilistic Forecasting of the Magnitude and Timing of Extreme Load," *Proceedings of the Chinese Society of Electrical Engineering (Proc. CSEE)*, pp. 64-72, Beijing, China, August, 2011.

## CONFERENCE PROCEEDINGS

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- [C59] D. H. Zhou, J. Celikovic, Y. Elasser, D. Maksimovic and **M. Chen**, "Balancing Limits of Flying Capacitor Voltages in Coupled Inductor FCML Converters," *IEEE 23rd Workshop on Control and Modeling for Power Electronics (COMPEL)*, 2022, pp. 1-8.
- [C58] P. Wang, D. Zhou, D. Giuliano, **M. Chen** and Y. Chen, "Multistack Switched-Capacitor Architecture with Coupled Magnetics for 48V-to-1V VRM," *IEEE 23rd Workshop on Control and Modeling for Power Electronics (COMPEL)*, 2022, pp. 1-7.
- [C57] D. Serrano et al., "Neural Network as Datasheet: Modeling B-H Loops of Power Magnetics with Sequence-to-Sequence LSTM Encoder-Decoder Architecture," *IEEE 23rd Workshop on Control and Modeling for Power Electronics (COMPEL)*, 2022, pp. 1-8.
- [C56] Z. Zheng, P. Kumar, Y. Chen, H. Cheng, S. Wagner, **M. Chen**, N. Verma, and J. C. Sturm, "Scalable Simulation and Demonstration of Jumping Piezoelectric 2-D Soft Robots," *IEEE International Conference on Robotics and Automation (ICRA)*, June 2022. [ [IEEE ICRA Workshop on Bio-inspired and Bio-hybrid Robotic Systems, Best Poster Award](#)]
- [C55] Z. Zheng, P. Kumar, Y. Chen, H. Cheng, S. Wagner, **M. Chen**, N. Verma, and J. C. Sturm, "Model-Based Control of Planar Piezoelectric Inchworm Soft Robot for Crawling in Constrained Environments," *IEEE 5th International Conference on Soft Robotics (RoboSoft)*, 2022.
- [C54] H. Li, D. Serrano, T. Guillod, E. Dogariu, A. Nadler, S. Wang, M. Luo, V. Bansal, Y. Chen, C. R. Sullivan, and **M. Chen**, "MagNet: an Open-Source Database for Data-Driven Magnetic Core Loss Modeling," *IEEE Applied Power Electronics Conference (APEC)*, Houston, March 2022.
- [C53] H. Cheng, Z. Zheng, P. Kumar, Y. Chen, and **M. Chen**, "Hybrid-SoRo: Hybrid Switched Capacitor Power Management Architecture for Multi-Channel Piezoelectric Soft Robot," *IEEE Applied Power Electronics Conference (APEC)*, Houston, March 2022. [ [IEEE APEC Outstanding Presentation Award](#)]
- [C52] P. Wang, Y. Elasser, V. Yang, and **M. Chen**, "WAN Converter: A Family of Multicell PWM Converter with All-in-One Magnetics," *IEEE Applied Power Electronics Conference (APEC)*, Houston, March 2022. [ [IEEE APEC Outstanding Presentation Award](#)]
- [C51] D. H. Zhou, A. Bendory, C. Li, and **M. Chen**, "Multiphase FCML Converter with Coupled Inductors for Ripple Reduction and Intrinsic Flying Capacitor Voltage Balancing," *IEEE Applied Power Electronics Conference (APEC)*, Houston, March 2022.
- [C50] Y. Elasser, J. Baek, K. Radhakrishnan, H. Gan, J. Douglas, H. Krishnamurthy, X. Li, S. Jiang, C. R. Sullivan, and **M. Chen**, "Vertical Stacked 48V-1V LEGO-PoL CPU Voltage Regulator with 1A/mm<sup>2</sup> Current Density," *IEEE Applied Power Electron. Conf. (APEC)*, Houston, March 2022.

- [C49] J. Baek, Y. Elasser, and **M. Chen**, “Vertical Stacked 48V-1V Voltage Regulator for Ultra-High-Current Microprocessors,” *Open Compute Project (OCP) Annual Conference*, San Jose, November 2021. [[🏆 OCP Best Paper Award](#)]
- [C48] D. H. Zhou, A. Bendory, P. Wang and **M. Chen**, “Intrinsic and Robust Voltage Balancing of FCML Converters with Coupled Inductors,” *IEEE Workshop on Control and Modeling of Power Electron. (COMPEL)*, Cartagena de Indias, Colombia, 2021.
- [C47] P. Wang, D. H. Zhou, V. Yang and **M. Chen**, “Matrix Coupled All-in-One Magnetics for PWM Power Conversion,” *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Cartagena de Indias, Colombia, 2021.
- [C46] E. Dogariu, H. Li, D. Serrano López, S. Wang, M. Luo and **M. Chen**, “Transfer Learning Methods for Magnetic Core Loss Modeling,” *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Cartagena de Indias, Colombia, 2021.
- [C45] M. Liao, H. Li, P. Wang, Y. Chen and **M. Chen**, “Machine Learning Methods for Power Flow Control of Multi-Active-Bridge Converters,” *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Cartagena de Indias, Colombia, 2021.
- [C44] T. Sen, J. Baek and **M. Chen**, “Current Balancing of Paralleled Switches in Resonant Converters with Multiphase Coupled Inductor,” *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Cartagena de Indias, Colombia, 2021.
- [C43] J. Baek, Y. Elasser and **M. Chen**, “3D LEGO-PoL: A 93.3% Efficient 48V-1.5V 450A Merged-Two-Stage Hybrid Switched-Capacitor Converter with 3D Vertical Coupled Inductors,” *IEEE Applied Power Electronics Conference (APEC)*, Phoenix, June 2021.
- [C42] Y. Chen, H. Cheng, D. Giuliano and **M. Chen**, “A 93.7% Efficient 400A 48V-1V Merged-Two-Stage Hybrid Switched-Capacitor Converter with 24V Virtual Intermediate Bus and Coupled Inductors,” *IEEE Applied Power Electronics Conference (APEC)*, Phoenix, June 2021.
- [C41] Y. Elasser, J. Baek, C. R. Sullivan and **M. Chen**, “Modeling and Design of Vertical Multiphase Coupled Inductors with Inductance Dual Model,” *IEEE Applied Power Electronics Conference (APEC)*, Phoenix, June 2021.
- [C40] C. R. Sullivan and **M. Chen**, “Coupled Inductors for Fast-Response High-Density Power Delivery: Discrete and Integrated,” *IEEE Custom Integrated Circuits Conference (CICC)*, April, 2021. [[🏆 CICC Invited Paper](#)]
- [C39] Y. Chen, D. Giuliano, and **M. Chen**, “Two-Stage 48V-1V Hybrid Switched-Capacitor Point-of-Load Converter with 24V Intermediate Bus,” *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Aalborg, Denmark, 2020. [[🏆 IEEE COMPEL Best Paper Award](#)]
- [C38] D. Zhou, Y. Elasser, J. Baek, C. R. Sullivan and **M. Chen**, “Inductance Dual Model and Control of Multiphase Coupled Inductor Buck Converter,” *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Aalborg, Denmark, 2020.
- [C37] P. Wang, R. Pilawa-Podgurski, P. Krein and **M. Chen**, “Performance Limits of Differential Power Processing,” *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Aalborg, Denmark, 2020.



- [C36] H. Li, S. Lee, M. Luo, C. R. Sullivan, Y. Chen and **M. Chen**, “MagNet: A Machine Learning Framework for Magnetic Core Loss Modeling,” *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Aalborg, Denmark, 2020. [[🏆 IEEE COMPEL Student Travel Award](#)]
- [C35] J. Yuan, Y. Chen, Y. Yang, F. Blaabjerg and **M. Chen**, “High Frequency Multicell Cascaded QuasiSquare-Wave Boost Converter,” *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Aalborg, Denmark, 2020.
- [C34] Y. Elasser, J. Baek, and **M. Chen**, “A Merged-Two-Stage LEGO-PoL Converter with Coupled Inductors for Vertical Power Delivery,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, Detroit, 2020.
- [C33] P. Wang and **M. Chen**, “Series Voltage Compensator for Differential Power Processing,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, Detroit, 2020.
- [C32] Y. Chen, J. Baek, and **M. Chen**, “Merged-Two-Stage Resonant and PWM Soft-Charging of Hybrid-Switched-Capacitor DC-DC Converters,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, Detroit, 2020.
- [C31] M. Liu, Y. Zhu, Z. Wang, and **M. Chen**, “A Hybrid Active/Passive Domino Architecture with MIMO Power Flow Control and Mixed Frequency Operation for Extended Range and Multi-Medium Wireless Power Transfer,” *IEEE Applied Power Electronics Conference (APEC)*, New Orleans, 2020.
- [C30] Y. Elasser, Y. Chen, M. Liu, and **M. Chen**, “A Multiway Bidirectional Multiport-AC-Coupled (MAC) Battery Balancer with Online Electrochemical Impedance Spectroscopy,” *IEEE Applied Power Electronics Conference (APEC)*, New Orleans, 2020.
- [C29] Y. Chen, J. Baek, and **M. Chen**, “LEGO-Boost: a Merged-Two-Stage Resonant-Switched-Capacitor Converter with High Voltage Conversion Ratio,” *IEEE Applied Power Electronics Conference (APEC)*, New Orleans, 2020.
- [C28] J. Baek, P. Wang, Y. Elasser, Y. Chen, S. Jiang, and **M. Chen**, “LEGO-PoL: a 48V-1.5V 300A Merged-Two-Stage Hybrid Converter for Ultra-High-Current Microprocessors,” *IEEE Applied Power Electronics Conference (APEC)*, New Orleans, 2020.
- [C27] P. Wang, Y. Chen, P. Kushima, Y. Elasser, M. Liu, and **M. Chen**, “A 99.7% Efficient 300 W Hard Disk Drive Storage Server with Multiport Ac-Coupled Differential Power Processing (MAC-DPP) Architecture,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, Baltimore, 2019. [[🏆 IEEE ECCE Best Student Demonstration Award, 1<sup>st</sup> Place](#)]
- [C26] Y. Chen, P. Wang, Y. Elasser, and **M. Chen**, “LEGO-MIMO Architecture: A Universal Multi-Input Multi-Output (MIMO) Power Converter with Linear Extendable Group Operated (LEGO) Power Bricks,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, Baltimore, 2019.
- [C25] J. Baek, G.-W. Moon, and **M. Chen**, “A Reverse-Feeding Hold-up Time Strategy for Two-Stage Grid-Interface PFC with a Rectifier-Coupled Boost Inductor,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, Baltimore, 2019. [[🏆 Milan M. Jovanovic Memorial Session](#)]
- [C24] M. Liu, P. Wang, Y. Guan and **M. Chen**, “A 13.56 MHz Multiport-Wireless-Coupled (MWC) Battery Balancer with High Frequency Online Electrochemical Impedance Spectroscopy,”

*IEEE Energy Conversion Congress and Exposition (ECCE)*, Baltimore, 2019.

- [C23] Y. Guan, P. Wang, M. Liu, D. Xu and **M. Chen**, "MSP-LEGO: Modular Series-Parallel (MSP) Architecture and LEGO Building Blocks for Non-isolated High Voltage Conversion Ratio Hybrid Dc-Dc Converters," *IEEE Energy Conversion Congress and Exposition (ECCE)*, Baltimore, 2019.
- [C22] J. Baek, P. Wang, S. Jiang and **M. Chen**, "LEGO-PoL: A 93.1% 54V-1.5V 300A Merged-Two-Stage Hybrid Converter with a Linear Extendable Group Operated Point-of-Load (LEGO-PoL) Architecture," *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Toronto, 2019.
- [C21] P. Wang, Y. Chen, Y. Elasser and **M. Chen**, "Small Signal Model for Very-Large-Scale Multi-Active-Bridge Differential Power Processing (MAB-DPP) Architecture," *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Toronto, 2019.
- [C20] Y. Elasser, Y. Chen, P. Wang and **M. Chen**, "Sparse Operation of Multi-Winding Transformer in Multiport-Ac-Coupled Converters," *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Toronto, 2019.
- [C19] Y. Chen, Y. Elasser, P. Wang, J. Baek and **M. Chen**, "Turbo-MMC: Minimizing the Submodule Capacitor Size in Modular Multilevel Converters with a Matrix Charge Balancer," *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Toronto, 2019.
- [C18] Y. Chen, P. Wang, H. Li, and **M. Chen**, "Power Flow Control in Multi-Active-Bridge Converters: Theories and Applications," *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Los Angeles, March 2019. [[🏆 IEEE APEC Outstanding Presentation Award](#)]
- [C17] M. Liu and **M. Chen**, "Dual-Band Multi-Receiver Wireless Power Transfer: Architecture, Topology, and Control," *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Los Angeles, March 2019.
- [C16] P. Wang, Y. Chen, and **M. Chen**, "A 99.7% Efficient Series-Stacked Architecture for Rack-Level Power Delivery in HDD Storage Servers," *OCP Annual Symposium*, San Jose, March 2019.
- [C15] P. Wang and **M. Chen**, "Towards Power FPGA: Architecture, Modeling and Control of Multiport Power Converters," *IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)*, Padua, Italy, June 2018.
- [C14] M. Liu and **M. Chen**, "Dual-Band Multi-Receiver Wireless Power Transfer with Reactance Steering Network," *IEEE PELS Workshop on Emerging Technologies: Wireless Power (WoW)*, Montreal, Canada, June 2018.
- [C13] **M. Chen**, S. Chakraborty, D. J. Perreault, "Multitrack Power Factor Correction Architecture," *IEEE Applied Power Electronics Conference and Exposition (APEC)*, San Antonio, TX, March 2018.
- [C12] W. D. Braun, **M. Chen** and D. J. Perreault, "A switched-winding transformer with low quiescent loss to meet the level VI efficiency standard at high power density," *IEEE Energy Conversion Congress and Exposition (ECCE)*, Cincinnati, OH, October, 2017.
- [C11] **M. Chen**, "Magnetics Design and Optimization for Tapped-Series-Capacitor (TSC) Power Converters," *IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, Stanford, CA, July, 2017.

- [C10] S. Gunter, **M. Chen**, S. A. Pavlick, R. Abranson, K. K. Afridi, and D. J. Perreault, “Applicability and Limitations of a *M2Spice*-assisted Time-Domain Current Calculation and Visualization Approach for Planar Magnetics,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Long Beach, CA, March, 2016. [[🏆 IEEE APEC Outstanding Presentation Award](#)]
- [C9] Y. Tang, **M. Chen**, and L. Ran, “A Compact Modular Multilevel Converter (MMC) Submodule Structure with Reduced Capacitance Based on Stacked Switched Capacitor (SSC) Architecture,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Long Beach, CA, 2016.
- [C8] **M. Chen**, K. K. Afridi, S. Chakraborty, and D. J. Perreault, “A High-Power-Density Wide-Input-Voltage-Range dc-dc Converter having a MultiTrack Architecture,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, Montreal, Canada, September, 2015.
- [C7] **M. Chen**, Y. Ni, C. M. Serrano, B. J. Montgomery, D. J. Perreault, and K. K. Afridi, “An Electrolytic-Free Offline LED Driver with a Ceramic-Capacitor-Based Compact SSC Energy Buffer,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, pp. 2713–2718, Pittsburgh, PA, September, 2014. [[🏆 IEEE ECCE Best Student Demonstration Award, 1<sup>st</sup> Place](#)]
- [C6] **M. Chen**, S. Pradeep, and J. Morroni, “A Series-Capacitor Tapped Buck Converter (SC-TaB) for Regulated High Voltage Conversion Ratio Dc-Dc Applications,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, pp. 3650–3657, Pittsburgh, PA, September, 2014.
- [C5] **M. Chen**, M. Araghchini, K. K. Afridi, J.H. Lang, C. R. Sullivan, and D. J. Perreault, “A Systematic Approach to Modeling Impedances and Current Distribution in Planar Magnetics,” *IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, pp. 1–17, Santander, Spain, June, 2014.
- [C4] Y. Ni, S. Pervaiz, **M. Chen**, and K. K. Afridi, “Energy Density Enhancement of Unipolar SSC Energy Buffers through Capacitance Ratio Optimization,” *IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, pp. 1–8, Santander, Spain, June, 2014.
- [C3] **M. Chen**, K. K. Afridi, and D. J. Perreault, “A Multilevel Energy Buffer and Voltage Modulator for Grid-Interfaced Micro-inverters,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, pp. 3070–3080, Denver, CO, September, 2013.
- [C2] K. K. Afridi, **M. Chen**, and D. J. Perreault, “Enhanced Stacked Switched Capacitor Energy Buffer Architecture,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, pp. 4209–4216, Raleigh, NC, September, 2012.
- [C1] **M. Chen**, K. K. Afridi, and D. J. Perreault, “Stacked Switched Capacitor Energy Buffer Architecture,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, pp. 1404–1413, Orlando, FL, February, 2012.

## ISSUED PATENTS

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- [P7] **M. Chen**, M. Liu, “System and Method for Reactance Steering Network (RSN)”, US Patent No. 11,258,306, issued 02/22/2022.
- [P6] **M. Chen**, K. K. Afridi, D. Perreault, “Coupled Split Path Power Conversion Architecture”, US Patent No. 10,644,503, issued 03/03/2020.



- [P5] **M. Chen**, D. J. Perreault, K. K. Afridi, S. B. Leeb and A. H. C. Chang, “Stacked Switched Capacitor Energy Buffer Circuit,” U.S. Patent No. 10,218,289, issued 02/26/2019.
- [P4] **M. Chen**, K. K. Afridi, Y. Ni, C. Serrano, B. Montgomery, D. Perreault, S. Pervaiz, “Stacked Switched Capacitor Energy Buffer Circuit”, US Patent No. 10,205,400, issued 11/12/2019.
- [P3] **M. Chen**, K. K. Afridi, D. J. Perreault, “Switched-Capacitor Split Drive Transformer Power Conversion Architecture,” US Patent No. 9,825,545, issued 11/21/2017.
- [P2] **M. Chen**, D. J. Perreault, K. K. Afridi, S. B. Leeb, and A. H. C. Chang, “Systems Approach to Photovoltaic Energy Extraction,” US Patent No. 9,407,164, issued 08/02/2016.
- [P1] **M. Chen**, D. J. Perreault, K. K. Afridi, S. B. Leeb, and A. H. C. Chang, “Stacked Switched-Capacitor Energy Buffer Architecture,” US Patent No. 9,374,020, issued 06/21/2016.

## BOOK CHAPTERS AND TECHNICAL REPORTS

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- [T3] E. Larson and **M. Chen**, *Analysis of Contact-Voltage Losses in Low-Voltage Electricity Distribution Systems of the U.K.*, Princeton Andlinger Center for Energy and the Environment & UKPN, December, 2018.
- [T2] L. Golston, G. Davies, R. Edwards, M. Miller, M. Momen, T. Nealon, E. Bou-Zeid, **M. Chen**, M. O.L. Hansen, M. Hultmark, R. Socolow, *Wind Power: An Energy Technology Distillate*, Princeton Andlinger Center for Energy and the Environment, December, 2018.
- [T1] J. G. Kassakian, R. L. Schmalensee, G. DesGroseilliers, T. D. Heidel, K. K. Afridi, A. M. Farid, J. M. Grochow, W. W. Hogan, H. D. Jacoby, J. L. Kirtley, H. G. Michaels, I. Pérez Arriaga, D. J. Perreault, N. L. Rose, G. L. Wilson, N. Abudaldah, **M. Chen**, P. E. Donohoo, S. J. Gunter, P. J. Kwok, V. A. Sakhrani, J. Wang, A. Whitaker, X. L. Yap, and R. Y. Zhang, *The Future of the Electric Grid*, MIT Energy Initiative, December, 2011.

## INVITED SEMINARS

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- [S46] “Unlock the Power of Granular Power Conversion: Architecture, Magnetics and Performance Gain,”  
**Cornell University**, Host: Prof. Khurram Afridi, Ithaca, NY, September 30, 2022.
- [S45] “Architecture, Magnetics, and Performance Bottlenecks for 48V-1V CPU VRM,”  
**TSMC**, Host: Dr. Shenggao Li, Hsinchu, Taiwan, August 16, 2022.
- [S44] “Hybrid Switched Capacitor Circuits and Magnetics for High Performance Power Delivery,”  
**Intel Labs**, Host: Dr. Kaladhar Radhakrishnan, Phoenix, Arizona, June 24, 2022.
- [S43] “Advanced Power Management for Future Telecom Towers,”  
**Analog Devices**, Host: Dr. Chris Mayer, online, June 13, 2022.
- [S42] “Princeton MagNet Project: Machine Learning Methods for Power Magnetics Modeling,”  
**Aalborg University**, Host: Prof. Frede Blabjerg, Aalborg, Denmark, June 8, 2022.
- [S41] “Magnetics Modeling and Circuit Architecture for High Performance Power Electronics,”  
**Polytechnic University of Madrid**, Host: Prof. Pedro Alou, Madrid, Spain, June 6, 2022.

- [S40] “Hybrid Switched Capacitor Circuits and Magnetics for High Performance Power Delivery,” EPFL, Host: Prof. Drazen Dujic, Lausanne, Switzerland, June 3, 2022.
- [S39] “Architecture and Magnetics, and Performance Bottlenecks for 48V-1V Power Conversion,” ETH-Zurich, Host: Prof. Johann W. Kolar, Zurich, Switzerland, June 2, 2022.
- [S38] “Hybrid Switched Capacitor Circuits and Magnetics for High Performance Power Delivery,” Fraunhofer IISB, Host: Dr. Bernd Wunder, Nuremburg, Germany, May 31, 2022.
- [S37] “Hybrid Switched Capacitor Circuits and Magnetics for High Performance Power Delivery,” RWTH Aachen University, Host: Prof. Rik De Doncker, Aachen, Germany, May 30, 2022.
- [S36] “Hybrid Switched Capacitor Circuits and Magnetics for High Performance Power Delivery,” University of Colorado Boulder, Host: Prof. Dragan Maksimovic, Boulder, CO, May 24, 2022.
- [S35] “Hybrid Switched Capacitor Circuits and Magnetics for High Density Power Delivery,” IEEE Custom Integrated Circuits Conference (CICC), Newport Beach, CA, April 24, 2022.
- [S34] “Power Electronics Design Methods and Artificial Intelligence,” Rap Session IEEE Applied Power Electronics Conference (APEC), Houston, TX, March 22, 2022. [🎤 Panelist]
- [S33] “Power Electronics for High Performance Computing - Opportunities and Challenges,” IEEE Applied Power Electronics Conference (APEC), Houston, TX, March 22, 2022. [🎤 Chair]
- [S32] “Extreme Performance 48V-1V Power Delivery for Ultra High Current Microprocessors,” Columbia University, Host: Dr. Xin Zhang, New York City, December 5, 2021. (virtual)
- [S31] “The Future of Mobility: Decarbonizing Transportation for Net-Zero 2050,” Princeton University Innovation and Entrepreneurship Conference (Engage), Princeton NJ, December 2-3, 2021. (virtual)
- [S30] “Machine Learning Methods for Power Magnetics Modeling,” European Center for Power Electronics Workshop on Steps Towards Design Automation and AI in Power Electronics (ECPE-DAPE), Graz, Austria, December 2-3, 2021. (virtual)
- [S29] “Extreme Performance 48V-1V Power Delivery for Ultra High Current Microprocessors,” Nvidia Research, Santa Clara CA, November 18, 2021. (virtual)
- [S28] “Managing Power Complexity for Performance: Circuit, Architecture, and Magnetics,” International Symposium on Power Electronics (Ee), Novi Sad, Serbia, Oct. 28, 2021. (virtual) [🎤 keynote]
- [S27] “Extreme Performance 48V-1V Power Delivery for Ultra High Current Microprocessors,” International Power Supply On Chip Workshop (PwrSoC), University of Pennsylvania, Philadelphia, PA, October 24-27, 2021.
- [S26] “Special Session: Power Electronic Technologies for Distributed Energy Resources,” IEEE Energy Conversion Congress and Expo (ECCE), Vancouver, Canada, Oct. 10, 2021. (virtual)
- [S25] “Power Architecture and Magnetics to Unlock the Potential of WBG Semiconductors,” Polytechnic University of Madrid, Madrid, Spain, June 24, 2021. (virtual)

- [S24] “Traditional and Machine-Learning based Magnetic Core Loss Modeling,”  
**PSMA Power Technology Roadmap Webinar**, April 15, 2021. (virtual)
- [S23] “Design Methodologies for High Frequency Multiwinding Magnetics: from Fundamental Principles to Design Tools,”  
**IEEE PELS DMC Webinar Series**, January 21, 2021. (virtual)
- [S22] “Power Electronics for High Performance Computing: Architecture, Topology, Magnetics,”  
**ETH Zurich**, Host: Prof. Johann W. Kolar, August 10, 2020. (virtual)
- [S21] “Data Infrastructure at the Edge: Energy and Infrastructure,”  
**American Tower Power and Energy Workshop**, Boston, MA, June 2, 2020. (virtual) [🎤 keynote]
- [S20] “Architecture, Magnetics, and 3D Packaging of a Merged-Two-Stage Point-of-Load Converter”  
**Google/Intel Sponsored Research Project Annual Meeting**, May 29, 2020. (virtual)
- [S19] “MLSPICE: Machine Learning based SPICE Modeling Platform for Power Magnetics,”  
**ARPA-E DIFFERENTIATE Program Kickoff Meeting**, April 29, 2020. (virtual)
- [S18] “Modeling and Design of Multiwinding Planar Magnetics for High Performance Power Electronics,”  
**IEEE PSMA Magnetics Workshop**, New Orleans, LA, March 14, 2020. (virtual)
- [S17] “Academic Perspective on OCP Symposium,”  
**OCP Future Technologies Symposium**, San Jose, CA, March 2, 2020. (virtual) [🎤 keynote]
- [S16] “Extreme Efficiency 240 Vac to Load Data Center Power Delivery Topologies,”  
**ARPA-E CIRCUITS Program Annual Review**, Los Angeles, CA, January 31, 2020.
- [S15] “High Frequency Power Electronics at the Grid Edge: Opportunities and Challenges,”  
**NSF Workshop on Power Electronics-Enabled Operation Of Power Systems**, Chicago, CA, October 31, 2019.
- [S14] “Ultra-High-Performance Power Electronics for Data Center Power Delivery,”  
**GE Electrification Symposium**, GE **Global Research**, Albany, NY, September 18, 2019.
- [S13] “Rapid Switch Discussion Panel: Techno-Economic Bottlenecks,”  
**Princeton Andlinger E-affiliates Annual Retreat**, Princeton, NJ, June 11, 2019.
- [S12] “Power Delivery Architecture in Future Data Centers,”  
**Data Center Dynamics (DCD)**, New York City, NY, April 10, 2019. [🎤 keynote]
- [S11] “Extreme Efficiency 240 Vac to Load Data Center Power Delivery Topologies and Control,”  
**ARPA-E CIRCUITS Program Annual Review**, New Orleans, LA, January 31, 2019.
- [S10] “Architecture, Magnetics, and 3D Packaging of a Merged-Two-Stage 54V-to-1.8V Point-of-Load Converter,”  
**Google/Intel Technical Webinar**, August 1, 2018.
- [S9] “Smart Power Electronics at the Grid Edge,”  
**Princeton Andlinger E-affiliates Annual Retreat**, Princeton, NJ, June 14, 2018.

- [S8] “Fast Charging and High Performance Power Conversion,”  
**Princeton Andlinger E-affiliates Partnership Annual Meeting**, Princeton, NJ, November 10, 2017.
- [S7] “Managing Electricity for the Future World,”  
**ExxonMobil Global Longer Range Research Meeting**, Princeton, NJ, May 9, 2017. [🎤 keynote]
- [S6] “Hybrid Switched-Capacitor Magnetics Power Conversion Architecture,”  
*IEEE PELS Webinar Series*, August 25, 2016.
- [S5] “Next Generation Power Electronics for Important Applications,”  
**University of California, San Diego**, March 17, 2016.  
**Harvard University**, March 9, 2016.  
**Texas A&M University**, March 2, 2016.  
**University of Pennsylvania**, February 23, 2016.  
**University of Washington, Seattle**, February 18, 2016.  
**Princeton University**, February 9, 2016.
- [S4] “Towards Miniaturized High-Performance Power Electronics,”  
**Princeton University**, Princeton, NJ, December 14, 2015.
- [S3] “Merged Multi-Stage Power Conversion”  
**Dartmouth College**, Hanover, NH, May 28, 2015.
- [S2] “A Systematic Approach to Modeling Impedances and Current Distribution in Planar Magnetics,”  
**Qualcomm Inc.**, San Diego, CA, January 15, 2015.
- [S1] “Stacked Switched Capacitor Energy Buffer Architecture,”  
**Texas Instruments**, Dallas, TX, July 19, 2013.

## TEACHING

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- Spring 2022, Princeton ENE 273 – Renewable Energy and Smart Grids
- Fall 2021, Princeton ELE 481/581 – Principles of Power Electronics [🎖 SEAS Commendation List]
- Summer 2021, Princeton ACEE Undergraduate Summer Research Program
- Spring 2021, Princeton ENE 273 – Renewable Energy and Smart Grids
- Fall 2020, Princeton ELE 481/581 – Principles of Power Electronics [🎖 SEAS Commendation List]
- Fall 2019, Princeton ELE 481/581 – Principles of Power Electronics
- Summer 2019, Princeton ACEE Undergraduate Summer Research Program
- Spring 2019, Princeton ELE 481/581 – Principles of Power Electronics [🎖 SEAS Commendation List]
- Fall 2018, Princeton ENE 273 – Renewable Energy and Smart Grids
- Summer 2018, Princeton ACEE Undergraduate Summer Research Program
- Spring 2018, Princeton ELE 481/581 – Principles of Power Electronics
- Fall 2017, Princeton ENE 273 – Renewable Energy and Smart Grids
- Summer 2017, Princeton ACEE Undergraduate Summer Research Program
- Spring 2017, Princeton ELE 481/581 – Principles of Power Electronics
- Spring 2016, MIT 6.334 – Power Electronics
- Spring 2013, MIT 6.334 – Power Electronics
- Summer 2016, MIT Undergraduate Research Opportunities Program (UROP)

## STUDENT ADVISING

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- **Postdoctoral Researchers:** Jae-Il Baek, Yufei Li, Diego Serrano, Ming Liu, Yenan Chen
- **Graduate Students:** Ping Wang, Youssef Elasser, Haoran Li, Daniel Zhou, Tanuj Sen, Mian Liao, Hsin Cheng, Shukai Wang
- **Visiting Students:** Yueshi Guan, Haoran Li, Zachary Wang, Yikang Xiao, Jing Yuan, Anthony Zai, Wali Afridi
- **Undergraduate Research Advisees (20):** Annie Lin, Pranav Avva, Vinay Konuru, Petru Cotrut, Cindy Li, Vincent Yang, Evan Dogariu, Avi Bendory, Eric Dogariu, Ryan Lee, Hoang Le, Ellie Shapiro, Abdulghafar Al Tair, Alex Ju, Fida Newaj, Yuqing Zhu, Obinna Umeh, Hyunsun Heidi Kim, Parker Kushima, Alexander Asante, Joyce R. Kimojino, Aneesha Manocha
- **Undergraduate Academic Advisees:** Samuel Otieno Gariy, Kyu Han, Kim Conner, Gabriel Derek Laniewski, Phoebe Lin, Reilly Deirdre McClanahan, Brendan McManamon, Anca Maria Negoiu, Akash Ranjan Pattnaik, Hari Santhanam, Hitesha Kamal Ukey, Brendan Y. Wang, Sophie Yangyi, Hadley Clayton, Ben Finch, Danxian Liu. Aneesha Manocha, Thomas Pries, Arielle Rivera, Diane Yang, and many others
- **Undergraduate Student Group:** Princeton Racing Electric (PRE) Team
- **Graduate Student Group:** Princeton CIRCUITS Student Group
- **Ph.D. Thesis Committee:** Janko Celikovic (CU Boulder), Chengjie Zhu (Princeton), Yue Ma (Princeton), Vladan Lazarevic (UPM), Peter Deaville (Princeton), Larry Thul (Princeton), Zitao Liao (Berkeley), Can Wu (Princeton), Hongyang Jia (Princeton), Jannik Schäfer (ETH Zurich), Yoni Mehlman (Princeton), Lianfeng Zhao (Princeton), Zitao Liao (UC Berkeley), Lingyu Hong (Princeton), Xuyang Lu (Princeton), Joe Durante (Princeton), Hossein Valavi (Princeton), Xue Wu (Princeton), Chandrakanth Reddy Chappidi (Princeton), Abdullah Guler (Princeton), Andrew Kim (Princeton), Lianfeng Zhao (Princeton), Jintao Zhang (Princeton), Qi Zhang (Princeton), Ji Qi (Princeton), Harvey Cheng (Princeton), Tiffany T. Moy (Princeton), Yutian Lei (UIUC)
- **Ph.D. General Exam Committee:** Zheng Liu (Princeton), Saeidi Hooman (Princeton), Chengjie Zhu (Princeton), Emir Ali Karahan (Princeton), Peter Deaville (Princeton), Prakhar Kumar (Princeton), Prerit Terway (Princeton), Zitao Liao (Berkeley)

## POSTDOC AND GRADUATE ALUMNI

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- Jaeil Baek – Analog Design Engineer, Intel Corporation, Arizona, USA (2022)
- Yenan Chen – Associate Professor, Zhejiang University, China (2021)
- Ming Liu – Associate Professor, Shanghai Jiaotong University, China (2020)
- Jing Yuan – Postdoc Research Associate, Aalborg University, Denmark (2020)
- Yueshi Guan – Associate Professor, Harbin Institute of Technology, China (2019)

## STUDENT AWARDS

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- Daniel Zhou - IEEE COMPEL Travelling Grant for Outstanding Student Paper (2022)
- Zhiwu Zheng - IEEE ICRA Bio-inspired and Bio-hybrid Robotics Systems, Best Poster Award (2022)
- Petru Cotrut - Hisashi Kobayashi Prize, Princeton ECE Department (2022)
- Hsin Cheng - IEEE APEC Outstanding Presentation Award (2022)
- Ping Wang - IEEE APEC Outstanding Presentation Award (2022)
- Youssef Elasser & Jaeil Baek - Best Paper Award, OCP Future Technologies Symposium (2021)
- Youssef Elasser & Ping Wang - 1<sup>st</sup> Place, IEEE ECCE Best Student Demonstration Award (2021)



- Haoran Li & Shukai Wang & Mian Liao - Honorable Mention, IEEE ECCE Student Demo (2021)
- Evan Dogariu - Best Undergraduate Presentation Award, ACEE Annual Meeting (2021)
- Daniel Zhou - NSERC Alexander Graham Bell Canada Graduate Scholarship (2021)
- Youssef Elasser - NSF Graduate Fellowship (2020)
- Ping Wang - Yan Huo \*94 Fellowship (2020)
- Yenan Chen, Youssef Elasser, Ping Wang - Princeton Innovation Forum 1<sup>st</sup> Place (2019)
- Yenan Chen - Best Postdoctoral Presentation Award, ACEE Annual Meeting (2019)
- Ming Liu - AirFuel Research Excellence Award (2019)
- Ping Wang & Jing Yuan - 1<sup>st</sup> Place, IEEE ECCE Best Student Demonstration Award (2019)
- Yenan Chen - IEEE APEC Outstanding Presentation Award (2019)
- Princeton Racing Electric - 2<sup>nd</sup> Place, International Formula Hybrid Competition (2019)
- Princeton Racing Electric - IEEE Excellence in Electric Vehicle Engineering Award (2019)
- Samantha Gunter - Best Presentation Award, IEEE APEC (2016)
- Saad Pervaiz & Yu Ni - 1<sup>st</sup> Place, IEEE ECCE Best Student Demonstration Award (2014)

## ACADEMIC SERVICES

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### Princeton University

- Associate Director, Energy track, Program in Technology & Society Certificate, 2021-present
- Member, Keller Center Entrepreneurship Certificate Executive Committee, 2021-present
- Faculty Advisor, Princeton Racing Electric, 2017-present
- Member, ECE Graduate Committee, 2019-2022
- Member, ECE Undergraduate Committee, 2019-present
- Member, ACEE YGL Planning Committee, 2019-present
- Freshmen Advisor & Faculty Fellow, Butler College, 2019
- Member, ECE Freshmen Advisor, 2017, 2019
- Member, SEAS Innovation Fund Review Committee, 2019
- Lead, ACEE E-affiliates Program Annual Meeting Planning Committee, 2019
- Lead, ACEE Highlight Seminar Series Planning Committee, 2019
- Member, ACEE Funding Review Committee, 2019
- Member, ACEE Junior Faculty Search Committee, 2019
- Member, ACEE Senior Faculty Search Committee, 2019
- Member, ACEE E-affiliate Industry Program Committee, 2017

## PROFESSIONAL SERVICES

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### IEEE Power Electronics Society

- Vice Chair, IEEE PELS TC10: Design Methodology, 2021-present
- co-Founder & Treasurer, IEEE PELS/IAS-Princeton/Philadelphia Chapter, 2018-present
- Working Group Chair, IEEE International Technology Roadmap of Power Electronics for Distributed Energy Resources (ITRD), 2020-present

### Associate Editor

- IEEE Transactions on Power Electronics, 2018-present
- IEEE Journal of Emerging and Selected Topics in Power Electronics, 2018-present

### Open Compute Project

- Technical Lead, Power Delivery and Efficiency, 2021

### Technical Program Committee Chair

- Vice Chair, *IEEE Energy Conversion Congress and Exposition (ECCE)*, 2022
- Chair, *IEEE International Conference on DC Microgrids (ICDCM)*, 2021
- Track Chair, *IEEE Design Methodology Conference (DMC)*, 2021
- Poster Chair, *IEEE International Power Supply-on-Chip Workshop (PwrSoC)*, 2021
- Track Chair, *IEEE Applied Power Electronics Conference (APEC)*, 2019–present
- Associate Chair, *IEEE Energy Conversion Congress and Exposition (ECCE)*, 2019

#### **Technical Program Committee Member**

- Member, *IEEE Applied Power Electronics Conference and Exposition (APEC)*, 2019–present
- Member, *IEEE Energy Conversion Congress and Exposition (ECCE)*, 2017–present
- Member, *IEEE Workshop on Control and Model. for Power Electron. (COMPEL)*, 2017–present
- Member, *IEEE Workshop on Emerging Technologies: Wireless Power (WoW)*, 2017–present
- Member, *IEEE Power Electronics and Application Conference and Exposition (PEAC)*, 2018

#### **Organizing Committee**

- Poster Chair, *IEEE International Workshop on Power-Supply-on-Chip (PwrSoC)*, 2021
- Student Activity Chair, *IEEE Energy Conversion Congress and Exposition (ECCE)*, 2020
- Member, *PSMA Capacitor Committee*, 2019
- Member, *IEEE Capacitor Workshop*, 2018
- Co-Organizer, *NSF Power Electronics Workshop*, 2016

#### **Review Panel**

- NSF
- DOE-EERE
- ARPA-E
- AAAS
- UK Royal Society
- Puerto Rico Science, Technology, and Research Trust

#### **Reviewer**

- *IEEE Transactions on Power Electronics*
- *IEEE Journal of Solid State Circuits*
- *IEEE Transactions on Energy Conversion*
- *IEEE Journal of Emerging and Selected Topics in Power Electronics*
- *IEEE Transactions on Industrial Electronics*
- *IEEE Transactions on Industry Applications*
- *IEEE Letters on Power Electronics*
- *IEEE Industry Electronics Magazine*
- *IEEE Power Electronics Magazine*
- *IEEE Electrification Magazine*
- *IEEE Applied Power Electronics Conference and Exposition (APEC)*
- *IEEE Workshop on Control and Modeling for Power Electronics*
- *IEEE Energy Conversion Congress and Exposition (ECCE)*
- *International Journal of Electrical Power & Energy Systems*
- *IET Power Electronics*
- *IET Renewable Power Generation*
- *IET Circuits, Devices, and Systems*

#### **Judge**

- *Princeton Energy Case Competition*, 2017