

## CURRICULUM VITAE

Seungdeog Choi, Ph.D., Associate Professor,  
Department of Electrical & Computer Engineering,  
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### PROFESSIONAL EXPERIENCE

**Associate professor**, Department of Electrical & Computer Engineering at Mississippi State University, Starkville, MS, 08/2018 ~ current

**Assistant professor**, Department of Electrical & Computer Engineering at The University of Akron, Oh, 08/2012 ~ 08//2018

**Design Engineer and later project leader**, Toshiba International Corp., Houston, Tx, 09/2010~ 08/2012

**Technical Intern**, Toshiba International Corporation, Houston, Tx, 09/2008~ 08/2010

**Research Assistant**, Texas A&M University – College station, Tx, 08/2007 ~ 08/2010

**Research and Development (R&D) Engineer**, LG Electronics, Seoul, Korea, 02/2006 ~ 08/2007

**Research & Teaching Assistant**, Seoul National University, Seoul, Korea, 03/2004 ~ 02/2006

### Major IEEE Experiences

**Guest editor** on a special session of IEEE Transaction on Energy Conversion, 2019 and 2020

**Editor** in IEEE Transaction on Energy Conversion from May 2019 ~ present

**Associate Editor** in IEEE Transaction on Industrial Electronics from Jan. 2018 ~ present

**Senior member** of IEEE, 2016 ~ present

**Track Chair** at the IEEE Applied Power Electronics Conference and Expo (APEC), 2018, 2019, and 2020

**Publication Chair** at the IEEE Symposium on Diagnostics for Electric Machines, Power Electronics and Drives, 2021.

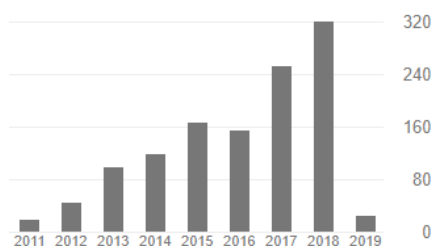
### EDUCATION

**Ph.D.**, Texas A&M University – College station, Elec. and Comp. Eng., Texas, USA, 2010 (GPA: 4.0/4.0)

**M.S.**, Seoul National University, Electrical Engineering and Computer sciences, Seoul, Korea, 2006

**B.S.**, Chung – Ang University, Electrical and Electronics Engineering, Seoul, Korea, 2004

### RESEARCH INTEREST



- ✓ More than 1000 citation since 2014 (Google Sch.).
- ✓ Reliability of power electronics system: Online condition monitoring, modeling, design, and intelligent control of next generation power electronics system in various micro grids (hybrid/electric vehicle, high speed train, electric aircraft).
- ✓ Design of high reliability, high efficiency, high power density, and high-speed electric machine and drive system.

- ✓ Game changing design and application of wide-band gap device (GaN and SiC power switches) in wider power electronics system.

## MAJOR PRESENTATIONS

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- [P1]. **S. Choi**, EMI in Emerging Electric Ship and Power Electronics System, **Invited Presentation**, University of Arkansas, Nov. 2019.
- [P2]. **S. Choi**, The “Reliability” of power electronics in electrified transportation system, **Invited Presentation**, University of Alabama – Tuscaloosa, Oct. 2019.
- [P3]. **S. Choi**, The smart control strategies in SST: State of the art, **Invited Presentation**, *10<sup>th</sup> Southeast Symposium on Contemporary Engineering Topics (SSCET)*, Sept., 2019.
- [P4]. **S. Choi**, Reliability of Power Electronics on Electrified Transportation System, **Keynote speaker**, *IEEE Transportation Electrification Conference and EXPO Asia-Pacific*, May, 2019.
- [P5]. **S. Choi**, Yilmaz Sozer, and Joan Carletta, “Reliable Electric Machine and Power Electronics System – FRN project leveraged,” Airforce Research Lab, Aug. 2017.
- [P6]. **S. Choi**, Polyphase Electric Machine Applications for Traction Drive Systems, **Panel Presentation** at *IEEE Transportation Electrification Conference 2017*, Chicago.
- [P7]. **S. Choi**, “Fault diagnosis of power converter (SiC, GaN, and Film capacitor) for future high speed electric motor drive,” **Panel Presentation** at *IEEE PES General Meeting*, Chicago, 2017.
- [P8]. **S. Choi**, “Advanced Condition Monitoring and Diagnosis of Electric Propulsion System,” *Korea Railroad Research Institute*, Aug., 2015.
- [P9]. **S. Choi**, “Critical Service Application of Multiphase Electric Machine: Design and Control,” *Korea Electro Technology Research Institute*, Korea, July, 2015.
- [P10]. **S. Choi** and Mark Rayner (Chief Technology Executive at Toshiba International Corporation (TIC)), “Advanced condition monitoring and diagnosis for electric motors and drives,” **Professional Education Seminar** at *IEEE Applied Power Electronics Conference and Expo (APEC)*, Charlotte, NC, Mar. 2015.
- [P11]. **S. Choi**, Mostak Mohammad (University of Akron), and Bob Chalfant (University of Akron), Implementation of entrepreneurship education in engineering course program,” *VentureWell 19th Annual Conference*, Washington D.C., Mar. 2015.
- [P12]. **S. Choi** and E. Pazouki, “Advanced condition monitoring, diagnosis, and maintenance,” **Panel Presentation** at *IEEE PES General Meeting*, Washington D.C., 2014.
- [P13]. **S. Choi**, “Advanced Condition Monitoring and Diagnosis of Electric Propulsion System,” *Chung-Ang University*, Aug., 2015.
- [P14]. **S. Choi**, “Electric Motor and Battery Application in Transportation System,” *Jeonju University*, Aug., 2015.
- [P15]. **S. Choi**, “Electric Motor and Battery Application in Transportation System,” *Changwon National University*, July, 2015.

## Personal HONOR

- ✓ Dr. Choi received 2019-2020 [South East Conference \(SEC\) Travel Grant](#). This will support the collaboration with University of Arkansas in the area of EMI research in medium voltage DC grid and electric-ship application.
- ✓ [VentureWell Faculty Fellowship](#) “Development of an Innovative and Compact Venture Education Module,” 2018 Cohort.
- ✓ [Firestone Research Initiative Fellowship](#) on “Reliability of Wide Band Gap Power Electronics System,” Mar. 15 2017.
- ✓ Academic excellence and scholarship in Electrical and Electronics Engineering at Seoul National University, Fall 2004.
- ✓ Academic excellence and scholarship in Electrical and Electronics Engineering Department at Chung – Ang University, Fall, 2003.
- ✓ Academic excellence and scholarship in Electrical and Electronics Engineering Department at Chung – Ang University, Fall, 2002.
- ✓ Best student (Rank #1) in academic excellence and full scholarship in Mechanical Engineering department at Chung – Ang University, Spring, 2001.

## HONOR OF GROUP



- ✓ Advised Ph.D. students, Mostak Mohammad and Moinul Haque received the [Best Paper Award in First Place](#) (IEEE IAS TSC) in *IEEE ECCE* 2019. IEEE ECCE is one of the best conference in the field in the world.
- ✓ EcoCar Mobility Challenge Team received [Sprit of Challenge Award](#), May 2019.



- ✓ Ph.D Student, Zakirul Islam, received [Best Presentation Award](#) in a session from *IEEE Applied Power Electronics Conference and Exposition (APEC)*, San Antonio, TX, Mar. 2018.
- ✓ Advised MS student Joseph Herbert received [The Kalaichelvi & Kaliappan Gopalan Outstanding Electrical and Computer Engineering \(ECE\) Graduate Thesis Award](#). The title of his thesis is “Thermal Analysis of a Permanent Magnet Assisted Synchronous Reluctance Motor using Lumped Parameter Thermal Modeling”, Apr. 27<sup>th</sup> 2017.



- ✓ Advised MS student Joseph Herbert received [Best Presentation Award](#) in a session from Applied Power Electronics Conference, *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Tampa, FL, 2017.



- ✓ Advised NASA robotic team received [Ohio Space Consortium Award](#), in Mar, 2017.
- ✓ Advised NASA robotic team received [Ohio Space Consortium Award](#), in Mar, 2016.

- ✓ Advised NASA robotic team received *Ohio Space Consortium Award*, in Mar. 2015.
- ✓ Advised teams of undergraduate and graduate students from throughout the nation demonstrated their excavator robots May 16-20 at Kennedy Space Center during NASA's 2016 Robotic Mining Competition. Teams from 45 universities participated, designing and building mining robots for the competition. Advised UA's NASA mining team brought home a win with the *Efficient Use of Communication Power Award*, for the team that uses the lowest average data bandwidth per points earned based on quantities of regolith mined.



- ✓ Advised MS student, Sai Sudheer Reddy Bonthu, received *Graduate Excellence & Leadership Award* from Department of Student Life at The University of Akron, 2016.
- ✓ Advised Ph.D student, Mostak Mohammad, received *Best Presentation Award* in a session from 2016 Applied Power Electronics Conference, Long beach, California.
- ✓ Advised Ph.D student, Zakirul Islam, received *Student Travel Support Award* from 2016 Applied Power Electronics Conference, Long beach, California.
- ✓ Advised NASA robotic team built a lunar mining robot team has been highlighted as a winner in multiple fields, including *2<sup>nd</sup> Place in Team Spirit Award* out of 46 national university teams at the 2015 NASA Robotic Competition at Kennedy Space Center, May, 2015.
- ✓ Advised formula E-Team built Formula-style electric vehicles and *1<sup>st</sup> Place in Cost Result* out of 15 international teams in 2015 Formula SAE International Competition in Lincoln, Nebraska, June, 2015.
- ✓ Advised entrepreneurship – Team (E – Team), Wenergy: Wireless vehicle charging pad, has been awarded by Venturewell Openmind program and *Exhibited Invention at Smithsonian National Museum of Natural History* in Washington D.C., Mar, 2015.
- ✓ Advised undergraduate project team, Topic: Parking deck counter, has received *Dr. C.F. Chen Student Award* for Design Excellence. The award is provided to one of the best senior design project teams of the academic year in Electrical and Computer Engineering Department, 2013 ~ 2014.

- ✓ Advised MS student, Sai Sudheer Reddy Bonthu, has won *The University of Akron LIFE Awards* 2015 for his outstanding leadership skills, <http://www.uakron.edu/studentlife/campusprograms/life-awards>.

## PATENTS

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- [P1]. USA Patent #10,185,802, **S. Choi** and S.S.R. Bonthu, “Method for Design and Customization of a Multiphase Electric Motor,” 1/22/2019.
- [P2]. USA Patent # 10,429,419 B2, **S. Choi**, Method for iterative condition monitoring and fault diagnosis of electric machine, U.S. Patent 14/874,210, Oct. 1<sup>st</sup> 2019.
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- [P3]. USA Patent #9,787,237, **S. Choi** and AKM Arafat, “Fault Tolerant Control System for Multiphase Permanent Magnet Assisted Synchronous Reluctance Motors,” 10/10//2017.
- [P4]. Korea Patent #: 1013655610000, **S. Choi**, Y. Yun, K. Kim, H. Kim, S. Yoon, and J. Ahn, “Method for effectively transmitting synchronization channel and method for allocating transmission power for the same,” Feb., 2014.
- [P5]. USA Patent #: US8509175 B2, H. Kim, **S. Choi**, K. Kim, S. Yoon, J. Ahn, B. Kim, D. Seo, Y. Yun, S. Jeong, E. Kim, D. Lee, and J. Lee, “Method for transmitting downlink control signal,” Aug. 2013
- [P6]. USA Patent #: US8553638 B2, D. Lee, B. Kim, Y. Yun, K. Kim, D. Roh, S. Yoon, J. Ahn, D. Seo, H. Kim, J. Lee, E. Kim, and **S. Choi**, “Method for receiving ack/nack signal in mobile communication system,” Oct. 2013.
- [P7]. Korea Patent #: 101319870000, **S. Choi**, Y. Woon, K. Kim, S. Yoon, H. Kim, and J. Ahn, “Method for allocating resource, and method for transmitting resource allocation information,” Oct. 2013.
- [P8]. USA Patent #: US8050704 B2, **S. Choi**, Y. Yun, K. Kim, H. Kim, S. Yoon, and J. Ahn, “Method for effectively transmitting synchronization channel and method for allocating transmission power for the same,” Mar. 2013.
- [P9]. USA Patent #: US 8184585 B2, **S. Choi**, Y. Woon, K. Kim, S. Yoon, H. Kim, and J. Ahn, “Method for allocating resource, and method for transmitting resource allocation information,” May 2012.
- [P10]. USA Patent #: US8054767 B2, **S. Choi**, K. Kim, S. Yoon, D. Lee, and J. Ahn, “Method Of Transmitting Scheduling Information In TDD System,” Aug. 2012.
- [P11]. USA Patent #: US79503061 B2, H. Kim, **S. Choi**, K. Kim, S. Yoon, J. Ahn, B. Kim, D. Seo, Y. Yun, J. Lee, and S. Jeong, “Method for transmitting control signal using efficient multiplexing,” May, 2011.
- [P12]. Korea Patent #: 1011004450000, **S. Choi**, K. Kim, S. Yoon, D. Lee, and J. Ahn, “Method Of transmitting scheduling information in TDD system,” Dec. 2011.
- [P13]. Korea Patent #: 1010491380000, D. Lee, B. Kim, Y. Yun, K. Kim, D. Roh, S. Yoon, J. Ahn, D. Seo, H. Kim, J. Lee, E. Kim, and **S. Choi**, “A method for receiving ack/nack signal in mobile communication system,” July, 2011.
- [P14]. Korea Patent #: 1009254360000, H.S. Kim, **S. Choi**, K. Kim, S. Yoon, B. Kim, D. Seo, Y. Yun, J. Lee, and S. Jeong, “Method for transmitting control signal using efficient multiplexing,” Oct. 2009.
- [P15]. Korea Patent #: 1009178280000, H. Kim, **S. Choi**, K. Kim, S. Yoon, J. Ahn, B. Kim, D. Seo, Y. Yun, S. Jeong, E. Kim, D. Lee, and J. Lee, “Method for transmitting downlink control signal,” Sept. 2009.
- [P16]. USA Patent #: US 8027297 B2, H. Kim, **S. Choi**, K. Kim, S. Yoon, J. Ahn, B. Kim, D. Seo, Y. Yun, S. Jeong, E. Kim, D. Lee, and J. Lee, “Method for transmitting downlink control signal,” Sept. 2011
- [P17]. USA Patent #: US9078247 B2, D. Lee, B. Kim, Y. Yun, K. Kim, D. Roh, S. Yoon, J. Ahn, D. Seo, H. Kim, J. Lee, E. Kim, and **S. Choi**, “Method for receiving ack/nack signal in mobile communication system,” July. 2015.
- [P18]. USA Patent #: US8254295 B2, **S. Choi**, K. Kim, S. Yoon, D. Lee, and J. Ahn, “Method Of Transmitting Scheduling Information In TDD System,” Aug. 2012.

- [P19]. USA Patent #: US9474060 B2, **S. Choi**, K. Kim, S. Yoon, D. Lee, and J. Ahn, “Method Of Transmitting Scheduling Information In TDD System,” Oct. 2016.
- [P20]. USA Patent #: US9451613 B2, H. Kim, **S. Choi**, K. Kim, S. Yoon, J. Ahn, B. Kim, D. Seo, Y. Yun, J. Lee, S. Jeong, and S. Jeong, “Method for transmitting control signal using efficient multiplexing,” Sept. 2016.
- [P21]. USA Patent #: US9106379 B2 H. Kim, **S. Choi**, K. Kim, S. Yoon, J. Ahn, B. Kim, D. Seo, Y. Yun, J. Lee, S. Jeong, and S. Jeong, “Method for transmitting control signal using efficient multiplexing,” Aug. 2015.
- [P22]. USA Patent #: US9071400 B2, **S. Choi**, K. Kim, S. Yoon, D. Lee, and J. Ahn, “Method Of Transmitting Scheduling Information In TDD System,” June 2015.

## COAUTHORED BOOK

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Electric machines – Modeling, condition monitoring, and fault diagnosis – By Hamid A. Toliyat, Subhasis Nandi, **Seungdeog Choi**, and Homayoun Meshgin – Kelk, CRC Press, 2012.

## JOURNAL PUBLICATION

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- [J1]. AKM Arafat, Khurshedul Islam, Joseph Herbert, and **S. Choi**, “Magnet Temperature Estimation based on a Novel Frequency Determination Algorithm for the Five-phase PMSynRM,” To appear at *IET Transaction on Power Application*, 2019.
- [J2]. Mostak Mohammad, **S. Choi**, and M. Elbuluk, “Loss Minimization Design of Ferrite Core in a DD-Coil based High-Power Wireless Charging System for Electrical Vehicle Application,” To appear *IEEE Transaction on Transportation Electrification*, 2019.
- [J3]. Ehsan Saeidpour Parizy, Hamid Bahrami, and **S. Choi**, “Grid-Specific Co-Optimization of Incentive for Generation Planning in Power Systems With Renewable Energy Sources,” *IEEE Transaction on Sustainable Energy*, DOI: 10.1109/TSTE.2019.2914875, Mar., 2019.
- [J4]. M. Mohammad, E. Wadajo, **S. Choi**, and M. Elbuluk, “Modeling and Design of Passive Shield to Limit EMF Emission and Minimize Shield Loss in Unipolar Wireless Charging System for EV,” *IEEE Transaction on Power Electronics*, DOI: 10.1109/TPEL.2019.2903788, Mar., 2019.
- [J5]. M. Islam, S. Bonthu, A. Arafat, and **S. Choi**, “Design of a Robust Five-phase Ferrite-assisted Synchronous Reluctance Motor with Low Demagnetization and Mechanical Deformation,” *IEEE Transaction on Energy Conversion*, DOI: 10.1109/TEC.2018.2882780, Nov. 28<sup>th</sup>, 2018.
- [J6]. A. Arafat and **S. Choi**, “Active Current Harmonic Suppression for Torque Ripple Minimization at Open Phase Faults in a Five-Phase PMSynRM,” *IEEE Transaction Industrial Electronics*, pp. 922-931, vol. 66, issue. 2, Mar. 2018.

- [J7]. Ehsan Saeidpour Parizy, Hamid Bahrami, and **S. Choi**, “A Low Complexity and Secure Demand Response Technique for Peak Load Reduction,” *IEEE Trans. on Smart Grid*, doi: 10.1109/TSG.2018.2822729, 2018.
- [J8]. **S. Choi**, M. Haque, T. Tarek, V. Mulpuri, Y. Duan, M. Das, V. Garg, D. Ionel, M. Masrur, B. Mirafzal, and H. Toliyat, “Fault Diagnosis Techniques for Permanent Magnet AC Machines and Drives – A Review of Current State of the Art,” *IEEE Transaction on Transportation Electrification*, vol. 4, no. 2, pp. 444-463, June 2018.
- [J9]. S. Bonthu, M. Tarek, and **S. Choi**, “Optimal Torque Ripple Reduction Technique for Outer Rotor Permanent Magnet Synchronous Reluctance Motors,” *IEEE Transaction on Energy Conversion*, vol. 33, no. 3, pp. 1184-1192, Sept. 2018.
- [J10]. S. Bonthu, **S. Choi**, and J. Beak, “Design Optimization with Multi-physics Analysis on External Rotor Permanent Magnet Assisted Synchronous Reluctance Motors,” *IEEE Transaction on Energy Conversion*, vol. 33, issue. 1, pp. 290 – 298, Mar. 2018.
- [J11]. A. Arafat and **S. Choi**, “Optimal Phase Advance under Fault Tolerant Control of Five-Phase Permanent Magnet Assisted Synchronous Reluctance Motor,” *IEEE Transaction. Industrial Electronics*, vol. 65, issue 4, pp. 2915-2924, Apr. 2018.
- [J12]. M. Haque, J. Baek, and **S. Choi**, “Auxiliary Particle Filtering based Remaining Useful Life Estimation of IGBT,” *IEEE Transaction on Industrial Electronics*, vol. 65, no. 3, pp. 2693-2703, March 2018.
- [J13]. S. Bonthu, A. Arafat, and **S. Choi**, “Comparisons of Rare-Earth and Rare-Earth Free External Rotor Permanent Magnet Assisted Synchronous Reluctance Motors,” *IEEE Transaction on Industrial Electronics*, vol. 64, issue 12, pp. 9729-9738, Dec. 2017.
- [J14]. A. Arafat, **S. Choi**, and J. Baek, “Open Phase Fault Detection of a Five-Phase Permanent Magnet Assisted Synchronous Reluctance Motor based on Symmetrical Components Theory,” *IEEE Transaction on Industrial Electronics*, vol. 64, pp. 6465-6474, Aug., 2017.
- [J15]. M. Mohammed, **S. Choi**, M. Islam, S. Kwak, and J. Baek, “Core Design and Optimization for Better Misalignment Tolerance and Higher Range Wireless Charging of PHEV,” *IEEE Transaction on Transportation Electrification*, vol. 3, no. 2, pp. 445-453, June, 2017.
- [J16]. **S. Choi**, M. Haque, A. Arafat, and H. Toliyat, “Detection and Estimation of Extremely Small Fault Signature by Utilizing Multiple Current Sensor Signals in Electric Machines,” *IEEE Transaction on Industry Application*, vol. 53, issue 3, pp. 2805-2816, Jan., 2017.
- [J17]. S. Bonthu, **S. Choi**, and J. Beak, “Comparisons of three-phase and five-phase Permanent Magnet Assisted Synchronous Reluctance Motors,” *IET Electric Power Applications*, vol. 10, issue 6, pp. 347-355, May, 2016.
- [J18]. J. Beak, S. Bonthu, and **S. Choi**, “Design of Five-Phase Permanent Magnet Assisted Synchronous Reluctance Motor for Low Output Torque Ripple Applications,” *IET Electric Power Applications*, vol. 10, issue 5, pp. 339-346, May, 2016.
- [J19]. **S. Choi**, P. Elham, B. Hamid, and J. Beak, “Iterative condition monitoring and fault diagnosis scheme of electric motor for harsh industrial application,” *IEEE Transaction on Industrial Electronics*, vol. 62, no. 3, pp. 1760-1769, Mar. 2015.
- [J20]. **S. Choi**, B. Akin, S. Kwak, and H. Toliyat, “A compact error management algorithm to minimize

false – alarm rate of motor/generator faults in (hybrid) electric vehicles,” *IEEE Journal of Emerging and Selected Topic in Power Electronics*, vol. 2, no. 3, pp. 618 – 626, Sept., 2014.

- [J21]. S. Kim, J. Park, **S. Choi**, Y. Kim, and M. Ehsani, “Optimal control method of magnetic switch in high – voltage power supply,” *IEEE Transaction on Power Electronics*, vol. 28, issue 3, pp. 1065 – 1071, Mar. 2013.
- [J22]. B. Akin, **S. Choi**, and H. Toliyat, “DSP applications in electric and hybrid electric vehicle,” Invited paper, *IEEE Signal Processing Magazine*, vol. 29, issue. 3, pp. 136 – 133, May, 2012.
- [J23]. **S. Choi**, B. Akin, M. Rahimian, and H. Toliyat, “Performance – oriented electric motor diagnostics in modern energy conversion system,” *IEEE Transaction on Industrial Electronics*, vol. 59, pp. 1266 – 1277, Feb. 2012.
- [J24]. B. Akin, **S. Choi**, U. Orguner, and H. Toliyat, “A simple real – time fault signature monitoring tool for motor drive embedded fault diagnosis systems,” *IEEE Transaction on Industrial Electronics*, vol. 58, no. 5, pp. 1990 – 2001, May, 2011.
- [J25]. **S. Choi**, B. Akin, M. Rahimian, and H.A. Toliyat, “Implementation of fault diagnosis algorithm for induction machines based on advanced digital signal processing techniques,” *IEEE Transaction on Industrial Electronics*, vol. 58, no. 3, pp. 957 – 963, Mar., 2011.

## CONFERENCE PRESENTATION

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- [C1]. Eshet Wodajo, Malik Elbuluk, Haitham Abu-Rub, and **S. Choi**, “Capacitor Voltage Ripple Reduction of Hybrid Balanced Two-Leg Five-Level Neutral Point Clamped Inverter,” To be presented at *IEEE APEC 2020*.
- [C2]. Moinul Haque and **S. Choi**, “Real-time Degradation Aware Control of Solid State Transformer,” To be presented at *IEEE APEC 2020*.
- [C3]. Moinul Haque and **S. Choi**, “Analysis and Control of High Power Wireless Battery Charging for Electric Ship Applications,” To be presented at *IEEE APEC 2020*.
- [C4]. Eshet Wodajo, Malik Elbuluk, Haitham Abu-Rub, and **S. Choi**, “Nested Active Balancing DC Link Capacitor Voltage in Neutral Point Clamped Multilevel Inverters,” *IEEE ECCE, 2019*.
- [C5]. Ashik Amin and **S. Choi**, “A Review on Recent Characterization Effort of CM EMI in Power Electronics System with Emerging Wide Band Gap Switch,” *IEEE Electric Ship Technology Symposium*, Arlington, VA, 2019.
- [C6]. Ehsan Saeidpour Parizy, R. Esmaeeli, **S. Choi**, Hamid Bahrami, “Super Soldier Program: A Numerical Optimization Approach for Optimal Planning and Utilization of Distributed Generation and Storage in Power Grids,” IEEE Power and Energy Conference at Illinois (PECI), Mar., 2019.
- [C7]. M. Haque and S. Choi, "A Novel Degradation-Aware Control of Solid State Transformer in EV Charging Application," *IEEE ITEC Asia*, Jeju, Korea, May, 2019.
- [C8]. S. Dharmasena and **S. Choi**, “Model Predictive Control of Five-Phase Permanent Magnet Assisted Synchronous Reluctance Motor considering dynamic model variations under Single Phase Open fault,” *IEEE APEC*, Anaheim, CA, Mar. 2019.
- [C9]. Mostak Mohammad, Moinul Haque, and S. Choi, “Comparison of 22kHz and 85 Khz 50 Kw Single



Phase Phase-Shifted Full Bridge Si and SiC Inverter for Inductive Wireless Charging System for Electric Vehicle,” *IEEE WiPDA*, Atlanta, GA, Oct. 2018.

- [C10]. Moinul Haque and Seungdeog Choi, "Support Vector Regression Assisted Auxiliary Particle Filter based Remaining Useful Life Estimation of GaN FET," *IEEE IECON*, Washington DC, 2018.
- [C11]. Mohammad Tarek, Shamini Dharmasena, Arjuna Madanayake, **S. Choi**, Jarred Goldstein, Jifu Liang, and Soumyajit Mandal, "Power-Efficient Data Modulation for All-Mechanical ULF/VLF Transmitters," *IEEE MWSCAS* 2018.
- [C12]. Sai Sudheer Reddy Bonthu, Md. Zakirul Islam, and **S. Choi**, "Performance review of permanent magnet assisted synchronous reluctance traction motor designs," *IEEE ECCE 2018 in Portland, Oregon*.
- [C13]. Mohammad Noor Shaheed and **S. Choi**, "Reliability Analysis of Small Scale DC Microgrid using Stochastic Hybrid System Modeling," *IEEE ECCE 2018 in Portland, Oregon*.
- [C14]. AKM Arafat Md. Zakirul Islam, and **S. Choi**, "Performance Comparison at Maximum Torque per Ampere Control between Rare Earth and Rare Earth Free Five-phase PMA-SynRM under Open Phase Faults," To be presented at *IEEE ECCE 2018 in Portland, Oregon*.
- [C15]. Md. Zakirul Islam, AKM Arafat, and **S. Choi**, "Design of Five-phase Bearingless Permanent Magnet Assisted Synchronous Reluctance Motor for High Speed Applications," To be presented at *IEEE ECCE 2018 in Portland, Oregon*.
- [C16]. (***Best Paper Award, 1<sup>st</sup> place, IEEE IAS TSC***) Mostak Mohammad, M. Haque and **S. Choi**, "A Litz Wire Based Novel Passive Shield Design for Wireless Charging System for Electric Vehicle," To be presented at *IEEE ECCE 2018 in Portland, Oregon*.
- [C17]. Shamini Dharmasena, AKM Arafat, **S. Choi**, "Fault-Tolerant Model Predictive Control of Five-Phase Permanent Magnet Assisted Synchronous Reluctance Motor under Single Phase Open-Circuit Condition," *IEEE ITEC 2018, Long beach. CA*.
- [C18]. Md Tawhid Bin Tarek and **S. Choi**, "Efficiency Optimization Method of a Ultra High Speed, Low Torque Permanent Magnet Motor with Multiphase Configuration," *IEEE ITEC 2018, Long beach. CA*.
- [C19]. Vamsi Mulpuri, Mohammad Noor Shaheed, Moinul Haque, and **S. Choi**, "Multistate Markov Analysis in Reliability Evaluation and Life Time Extension of DC-DC Power Converter for Electric Vehicle Applications," *IEEE ITEC 2018, Long beach. CA*.
- [C20]. Moinul Haque, Mohammad Noor Shaheed, and **S. Choi**, "Application of Deep Learning based Fault Detection and Classification system for Electric Vehicle Micro-grid," *IEEE ITEC 2018, Long beach. CA*.
- [C21]. Moinul Haque, and **S. Choi**, "Evolutionary Time series Prediction based RUL Estimation of Power Semiconductor Switch for Vehicular Applications," *IEEE ITEC 2018, Long beach. CA*.
- [C22]. AKM Arafat, Md. Zakirul Islam, and **S. Choi**, "Transient Stability Comparison between Five-phase and Three-phase Permanent Magnet Assisted Synchronous Reluctance Motor," *IEEE ITEC 2018, Long beach. CA*.
- [C23]. Md. Zakirul Islam, AKM Arafat, and **S. Choi**, "Determining the Operating Region for Demagnetization-Free Fault Tolerant Control of Multiphase PMA-SynRM," *IEEE APEC*, Tx, 2018.
- [C24]. Sai Sudheer Reddy Bonthu, Md Tawhid Bin Tarek, AKM Arafat, Md Zakirul Islam, and **S. Choi**,

“Fault-Tolerant Performance Comparisons between External and Internal Rotor PMA-SynRMs,” *IEEE APEC*, Tx, 2018.

- [C25]. (***Best Presentation Award in a Session***) Sai Sudheer Reddy Bonthu, Md Tawhid Bin Tarek, Ms Zakirul Islam and **S. Choi**, “Performance Analysis of Rare-earth and Rare-earth free External Rotor Motors under Eccentricity Faults,” *IEEE APEC*, Tx, 2018.
- [C26]. AKM Arafat and **S. Choi**, “State Space Modeling and Feedback Control of Five-phase Permanent Magnet Assisted Synchronous Reluctance Motor under Open Phase Faults,” *IEEE APEC*, Tx, 2018.
- [C27]. Mostak Mohammad and **S. Choi**, “Design and Optimization of Ferrite for Bipolar Wireless Charging Pad to Minimize Core Loss and EMF emission in PHEV/EV Application,” *IEEE APEC*, Tx, 2018.
- [C28]. Arjuna Madanayake, **S. Choi**, Mohammad Tarek, Shamini Dharmasena, Soumyajit Mandal Jarred Goldstein, and Alp Sehrioglu, “Energy-Efficient ULF/VLF Transmitters Based on Mechanically-Rotating Dipoles,” *MERCon*, 2017.
- [C29]. Mostak Mohammad and **S. Choi**, “Sensorless Estimation of Coupling Coefficient Based on Current and Voltage Harmonics Analysis for Wireless Charging System,” To be presented at *IEEE Energy Conversion Congress & Expo (ECCE)*, Cincinnati, OH, 2017.
- [C30]. Moinul Shahidul Haque and **S. Choi**, “Prognosis of Enhance Mode Gallium Nitride High Electron Mobility Transistors using On-state Resistance as a Fault Precursor,” To be presented at *IEEE Energy Conversion Congress & Expo (ECCE)*, Cincinnati, OH, 2017.
- [C31]. Vamsi Mulpuri and **S. Choi**, “Degradation of SiC MOSFETs with gate oxide breakdown under short circuit and high temperature operation,” To be presented at *IEEE Energy Conversion Congress & Expo (ECCE)*, Cincinnati, OH, 2017.
- [C32]. Eshet Wodajo, Malik Elbuluk, and **S. Choi**, “A New Ladder Transistor-Clamped Multilevel Inverter with High Voltage Variation,” To be presented at *IEEE Energy Conversion Congress & Expo (ECCE)*, Cincinnati, OH, 2017.
- [C33]. Md Tawhid Bin Tarek and **S. Choi**, “Design and Rotor Shape Modification of a Multiphase High Speed Permanent Magnet Assisted Synchronous Reluctance Motor for Stress Reduction,” To be presented at *IEEE Energy Conversion Congress & Expo (ECCE)*, Cincinnati, OH, 2017.
- [C34]. Md. Zakirul Islam and **S. Choi**, “Performance Comparison between Three-Phase and Five-Phase Ferrite Permanent Magnet Assisted Synchronous Reluctance Motor,” *IEEE Transportation Electrification Conference and Expo (ITEC)*, Chicago, 2017.
- [C35]. Sai Sudheer Reddy Bonthu and **S. Choi**, “Five-phase external rotor permanent magnet assisted synchronous reluctance motor for in-wheel applications,” *IEEE Transportation Electrification Conference and Expo (ITEC)*, Chicago, 2017.
- [C36]. Md. Zakirul Islam and **S. Choi**, “Design Optimization of Rare-earth Free PM-assisted Synchronous Reluctance Motor to Improve Demagnetization Prevention Capability,” *International Electric Machines and Drives Conference (IEMDC)*, Miami, FL, 2017.
- [C37]. Md. Zakirul Islam, Sai Sudheer Reddy Bonthu, and **S. Choi**, “Comparison of Two Different Winding Topologies for External-Rotor Five-phase PM-assisted Synchronous Reluctance Motor in Vehicle,” *International Electric Machines and Drives Conference (IEMDC)*, Miami, FL, 2017.
- [C38]. Md Tawhid Bin Tarek, Joseph Herbert, and **S. Choi**, “Analysis of Unbalanced Magnetic Pull of Permanent Magnet Assisted Synchronous Reluctance Motor Based on Uneven Axial Temperature

Distribution of Magnets,” *International Electric Machines and Drives Conference (IEMDC)*, Miami, FL, 2017.

- [C39]. Md Tawhid Bin Tarek and **S. Choi**, “Center Post and Rib Length Optimization of a High Speed Permanent Magnet Assisted Synchronous Reluctance Motor,” *International Electric Machines and Drives Conference (IEMDC)*, Miami, FL, 2017.
- [C40]. Sai Sudheer Reddy Bonthu, Md. Zakirul Islam, and Tawhid Bin Tarek, and **S. Choi**, “Design of a rare earth free external rotor permanent magnet assisted synchronous reluctance motor,” *International Electric Machines and Drives Conference (IEMDC)*, Miami, FL, 2017.
- [C41]. AKM Arafat, Joseph Herbert, and **S. Choi**, “Study of the Thermal Effects of a Five-Phase Permanent Magnet Assisted Synchronous Reluctance motor under Fault Tolerant Control,” *International Electric Machines and Drives Conference (IEMDC)*, Miami, FL, 2017.
- [C42]. AKM Arafat and **S. Choi**, “Torque Ripple Minimization under Unbalanced Phase Resistance in a Five-phase Permanent Magnet Assisted Synchronous Reluctance Motor,” *International Electric Machines and Drives Conference (IEMDC)*, Miami, FL, 2017.
- [C43]. Moinul Shahidul Haque and **S. Choi**, “Prognosis of Power MOSFET Based on Continuous time Markov Process,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Tampa, FL, 2017.
- [C44]. Vamsi Mulpuri and **S. Choi**, “Reliability of SiC Power MOSFETs under High Repetitive Pulse Current Conditions,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Tampa, FL, 2017.
- [C45]. AKM Arafat, Joseph Herbert, and **S. Choi**, “Torque Ripple Minimization of a Five-Phase Permanent Magnet Assisted Synchronous Reluctance Motor under Open-Phase Faults,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Tampa, FL, 2017.
- [C46]. (**Best Presentation Award in a session**) Joseph Herbert, AKM Arafat, and **S. Choi**, “Novel Frequency Determination Method for Dynamic Magnet Temperature Estimation of a Five Phase PMA-SynRM Using Signal Injection Method *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Tampa, FL, 2017.
- [C47]. Mohammad Noor Shaheed and **S. Choi**, “Microgrid Reliability Analysis Under Distributed Degradation Of Semiconductor Power Switch Modules Through A New Stochastic Hybrid System Modeling,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Tampa, FL, 2017.
- [C48]. Sai Sudheer Reddy Bonthu, Md. Zakirul Islam, A.K.M. Arafat, Md Tawhid Bin Tarek and **S. Choi**, “Rare-earth free multi-phase motor with fault tolerant control,” *Advanced Machinery Technology Symposium by American Society of Naval Engineers*, Villanova, PA, 2016.
- [C49]. A.K.M. Arafat and **S. Choi**, “Comparison of Electrical Losses In An Inverter-fed Five-Phase and Three-Phase Permanent Magnet Assisted Synchronous Reluctance Motor,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Longbeach, CA, 2016.
- [C50]. J. Herbert, AKM Arafat, Guo-Xiang Wang, S. Choi, “Investigation of a thermal model for a Permanent Magnet assisted Synchronous Reluctance motor,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Longbeach, CA, 2016.
- [C51]. Moinul Haque, J. Beak, J. Herbert, and **S. Choi**, “Prognosis of Wire Bond Lift-Off Fault of an IGBT based On Multisensory Approach,” *IEEE Applied Power Electronics Conference and Exposition*

(APEC), Longbeach, CA, 2016.

- [C52]. (***Best Presentation Award in a Session***) M. Mohammed, S. Kwak, and **S. Choi**, “Core design for better misalignment tolerance and higher range of wireless charging system for hybrid electric vehicle,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, 2016.
- [C53]. S.S.R. Bonthu and **S. Choi**, “Design procedure for multi-phase external rotor permanent magnet assisted synchronous reluctance machines,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Longbeach, CA, 2016.
- [C54]. (***Travel Award***) Z. Islam and **S. Choi**, “Design of Rare-Earth Free Five-Phase Outer-Rotor IPM Drive for Electric Bicycle,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Longbeach, CA, 2016.
- [C55]. A.K.M. Arafat and **S. Choi**, “Fault Tolerant Control of Five-Phase Permanent Magnet Assisted Synchronous Reluctance Motor based on Dynamic Current Phase Advance,” *IEEE Energy Conversion Congress & Expo (ECCE)*, Montreal, Canada, 2015.
- [C56]. A.K.M. Arafat and **S. Choi**, “Open phase fault detection of a five – phase permanent magnet synchronous reluctance motor based on symmetrical components theory,” *International Electric Machines and Drives Conference (IEMDC)*, Coeur d’Alene, ID, May, 2015.
- [C57]. A.K.M. Arafat and **S. Choi**, “Optimal sustainable fault tolerant control of five – phase permanent magnet assisted synchronous reluctance motor,” *International Electric Machines and Drives Conference (IEMDC)*, Coeur d’Alene, ID, May, 2015.
- [C58]. E. Pazouki and **S. Choi**, “Fault diagnosis and condition monitoring of bearing using multisensory approach based FCM clustering,” *International Electric Machines and Drives Conference (IEMDC)*, Coeur d’Alene, ID, May, 2015.
- [C59]. E. Pazouki, Z. Islam, and S.S.R. Bonthu, and **S. Choi**, “Eccentricity fault detection in multi – phase permanent magnet assisted synchronous reluctance motor,” *International Electric Machines and Drives Conference (IEMDC)*, Coeur d’Alene, ID, May, 2015.
- [C60]. M. Mohammad, J. Baek, and **S. Choi**, “A high frequency magnetic resonant wireless power transfer system for hybrid electric vehicle,” *International Electric Machines and Drives Conference (IEMDC)*, Coeur d’Alene, ID, May, 2015.
- [C61]. S.S.R. Bonthu, J. Baek Z. Islam, and **S. Choi**, “Optimal design of five phase permanent magnet assisted synchronous reluctance motor for integrated starter generator application,” *International Electric Machines and Drives Conference (IEMDC)*, Coeur d’Alene, ID, May, 2015.
- [C62]. S.S.R. Bonthu, **S. Choi**, A. Gorgani and K. Jang, “Design of permanent magnet assisted synchronous reluctance motor with eternal rotor architecture,” *International Electric Machines and Drives Conference (IEMDC)*, Coeur d’Alene, ID, May, 2015.
- [C63]. Z. Islam, S.S.R. Bonthu, and **S. Choi**, “Obtaining Optimized Designs of Multi-Phase PMA-SynRM Using Lumped Parameter Model Based Optimizer,” *International Electric Machines and Drives Conference (IEMDC)*, Coeur d’Alene, ID, May, 2015.
- [C64]. Z. Islam and **S. Choi**, “Design of Five-phase Ferrite Magnet Assisted Synchronous Reluctance Motor using Lumped Parameter Model Based Optimizer and FEA,” *International Electric Machines and Drives Conference (IEMDC)*, Coeur d’Alene, ID, May, 2015.
- [C65]. J. Baek, S.S.R. Bonthu, S. Kwak, and **S. Choi**, “Optimal design of five – phase permanent magnet

assisted synchronous reluctance motor for low output torque ripple,” *IEEE Energy Conversion Congress & Expo (ECCE)*, Pittsburgh, PA, 2014.

- [C66]. S.S.R. Bonthu, J. Baek, and **S. Choi**, “Comparison of optimized permanent magnet assisted synchronous reluctance motors with three – phase and five – phase systems,” *IEEE Energy Conversion Congress & Expo (ECCE)*, Pittsburgh, PA, 2014.
- [C67]. E. Pazouki, Bahrami Hamid, and **S. Choi**, “Condition based maintenance optimization of wind turbine generators using degradation prediction,” *IEEE Power & Energy Society General Meeting*, Washington D.C., 2014.
- [C68]. J. Baek, C. Ahn, B. Kim, **S. Choi**, and S. Kwak, “High frequency wireless power transfer system for robot vacuum cleaner,” *IEEE International Conference on Consumer Electronic (ICCE)*, Lasvesgas, 2014.
- [C69]. J. Beak S. Kwak, and **S. Choi**, “Adaptive PWM Algorithm Using Digital-Signal Processing based THD easurement for Electric Vehicle Application,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Dallas, Tx, 2014.
- [C70]. **S. Choi**, Bahrami Hamid, and Bilal Akin, “Reliability assessment of energy conversion components in a geographically distributed power grid through modern communication network,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, CA, 2013.
- [C71]. M. Rahimian, **S. Choi**, and K. Butler – Purry, “A novel analytical method for prediction of the broken bar fault signature amplitude in synchronous machine damper winding and induction machine cage rotor,” *IEEE Energy Conversion Congress & Expo (ECCE)*, Phoenix, Arizona, 2011.
- [C72]. **S. Choi**, B. Akin, M. Rahimian, H.A. Toliyat, “A robust sensorless fault diagnosis algorithm for low cost motor drive,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Palm spring, CA, 2010.
- [C73]. **S. Choi**, B. Akin, M. Rahimian, H.A. Toliyat, and M. Rayner, “Fault monitoring technique of a induction machine with ordered harmonic and noise cancelation,” *Electric Machines & Drives Conference (IEMDC)*, Miami, FL, May 3 – 6, 2009.
- [C74]. **S. Choi**, B. Akin, M. Rahimian, H.A. Toliyat, and M. Azadpour, “A generalized condition monitoring method for multi – phase induction motors,” *Electric Machines & Drives Conference (IEMDC)*, Miami, FL, May 3 – 6, 2009.
- [C75]. **S. Choi**, B. Akin, M. Rahimian, and H.A. Toliyat, “Fault diagnosis implementation of induction machine based on advanced digital signal processing techniques,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Washington D.C., Feb. 15 – 19, 2009.
- [C76]. B. Akin, **S. Choi**, M. Rahimian, and H.A. Toliyat, “DSP based continuous multi – fault signature monitoring implementation,” *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Washington DC, Feb. 15 – 19, 2009.
- [C77]. **S. Choi**, J.M. Choi, and J.H. Lee, “An initial timing offset estimation method for OFDM systems in Rayleigh fading channel,” *IEEE Vehicular Technology Conference (VTC)*, Montreal, CA, 2006.
- [C78]. **S. Choi**, J.M. Choi, and J.H. Lee, “Study on the OFDM timing synchronization” *IEEK – fall 2005*, vol. 28, no. 2, Seoul Korea, Nov. 2005.
- [C79]. **S. Choi**, J.M. Choi, and J.H. Lee, “An improved coarse timing offset estimation method for OFDM system,” *ITC – CSCC 2005*, vol. 2, Che – Ju, Korea, July. 2005.

## Poster & Oral Presentations

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- [PO1]. Oral Presentation, WBG Device Reliability – Common-Mode EMI and Device Degradation, **S. Choi**, *Electric Ship Research and Development Consortium (ESRDC) meeting*, Starkville M.S., May, 2019.
- [PO2]. Poster Presentation, Multi-phase Machine design and Fault Tolerant Control for E-Ship, K. Islam, Z. Islam, AKM Arafat, S. Bonthu, and **S. Choi**, *Electric Ship Research and Development Consortium (ESRDC) meeting*, Starkville M.S., May, 2019.
- [PO3]. Poster Presentation, Investigation of Common Mode Conducted EMI in WBG Three Phase Inverter Motor Drive for E-ship, A. Amin and **S. Choi**, *Electric Ship Research and Development Consortium (ESRDC) meeting*, Starkville M.S., May, 2019.

## STUDENT AND EXTERNAL VISITOR MENTORING

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### Ph. D. Thesis (Served as Chair/Co-Chair)

- ✓ Dinh Le, Ph.D., Chair: from Fall 2019 ~
- ✓ Moinul Haque, topic: Fault diagnosis of electric machines and power converters, from spring, 2015~
- ✓ Eshet Wodajo, topic: Multilevel inverter design, 2017~
- ✓ Md Khurshedul Islam, topic: electric machine design, Fall 2018 ~
- ✓ Ashik Amin, topic, common mode EMI analysis of WBG device, Spring 2019 ~
- ✓ William Ward, topic: EMI analysis, Spring 2019 ~
- ✓ Mark Diat, topic: EMI analysis, Summer 2019 ~
- ✓ A.K.M. Arafat, topic: Fault tolerant control and fault detection of electric machines, from fall, 2013~2018.
- ✓ Mostak Mohammad, topic: Wide band gap power switch based wireless power transfer, from summer, 2014~ 2019
- ✓ Md. Zakirul Islam, topic: Rare-earth material free electric machine design, from summer, 2014~2019

### M.S. Thesis (in progress)

- ✓ N/A

### M.S. Thesis (graduated)

- ✓ Md. Mamun Biswas, M.S. (co-advised with Dr. Malik Elbuluk), Topic: Wireless power systems, Fall 2017.
- ✓ Shamini Dharmasena, topic: Model predictive control of electric motor drive system, 2016~2018
- ✓ Md. Tawhid Bin Tarek, topic: High speed electric machine design for all electric aircraft, Fall of 2017.
- ✓ Vamsi Mulpuri, M.S., topic: Pulsed power system and modeling of a SiC power switch, Fall of 2017

- ✓ A.K.M. Arafat, topic: Fault tolerant control and fault detection of electric machines, 2015
- ✓ Sai Sudheer Reddy Bonthu, M.S., topic: Optimal design of multiphase permanent magnet assisted synchronous reluctance motors, 2015
- ✓ Joseph Herbert, M.S., topic: Thermal analysis of machines, 2017

#### **Undergraduate researcher**

- ✓ Adam Long, topic: Intelligent more electric aircraft system, 2017~2018
- ✓ Chris Heldman, topic: Intelligent more electric aircraft system, 2018
- ✓ Koshish Sigdel, topic: Wireless power transfer system, Fall, 2018

#### **Ph. D. Thesis (Served as Committee)**

- ✓ Sriakulapu, Divya: Dr. Yong Fu, from Spring 2019~
- ✓ Zeeshan Ahamed: Dr. Joni Cluss from Spring 2019 ~ Spring 2019
- ✓ Seyed Saeed Muraee Ashtiani: Dr. Karimi Masoud, from Spring 2019 ~
- ✓ Sharma Roshan: Dr. Karimi Masoud from Spring 2019 ~
- ✓ Qunaus Thaer, Ph.D Chair: Dr. Karimi Masoud, from Spring 2019 ~ Spring 2019
- ✓ Yehong Peng, Ph.D, Chair: Dr. Yong Fu, from Fall 2018~
- ✓ Lin Gong, Ph.D., Chair: Dr. Yong Fu, from Fall 2018~
- ✓ Abou Jawdeh, Shaya, Ph.D., Chair: Dr. Karimi Masoud, from Fall 2018 ~
- ✓ Farhina Haque, Ph.D, Chair: Dr. Joni Cluss, from Fall 2018 ~
- ✓ Ehsan Saeidpour Parizy, Ph.D., Current topic area: Couple of adjacent islanded micro grid, Chair: Dr. Hamid Bahrami, 2017
- ✓ Mohammed Badawy, Ph.D., Current topic area: Grid Tied PV/Battery System Architecture and Power Management for Fast Electric Vehicles Charging, Chair: Dr. Yilmaz Sozer, summer, 2016.
- ✓ Sam Mahmudicherati, Ph.D., Direct power control of doubly fed induction generator in wind power systems, Chair, Dr. Malik Elbuluk, Summer, 2016.
- ✓ Aparna Saha, Ph.D., Electrical and Computer Engineering, Chair: Dr. Yilmaz Sozer, 2017

#### **MS (Served as Committee)**

- ✓ Ricard Urena, M.E., Fall 2019 ~ Fall 2019, Chair: Dr. Karimi Masoud
- ✓ Kaleru, Sandhya: from Spring 2019 ~ present, Chair Dr. Yong Fu
- ✓ Tom Vo, M.S., Topic: The development of an integrated battery management system and charger, Electrical Computer Engineering in Summer 2014, Chair: Dr. Tom Hartley.
- ✓ Saeed Anwar, M.S., Topic: Efficient single phase harmonics compensation and sharing method for microgrid operation, Electrical Computer Engineering in Summer 2014, Chair: Dr. Yilmaz Sozer.

- ✓ Guanglei Zhang, M.S., Topic: SAR ADC using single capacitor pulse width to analog converter based DAC, Electrical Computer Engineering in Fall 2017, Chair: Dr. Kyeshin Lee.

### **Honor's College Student Thesis (Served as Committee and Reviewer)**

- ✓ James Plunket, Topic: Parking deck counter, B.S., Electrical and Computer Engineering, Summer 2014.
- ✓ Sean Waples, Topic: Motor monitoring system, B.S., Electrical Computer Engineering, expected to graduate Summer 2015.
- ✓ Elizabeth J. Hammell, Alissa L. M, Brian G. Simmons, and Sean D. Querry, Topic: Pot hole detector, B.S., Electrical Computer Engineering, expected to graduate Summer 2015.

### **Undergraduate Student Team (Served as Advisor)**

- ✓ Eco-Car Mobility Challenge, supporting electrical system and connected vehicles, 2018 ~
- ✓ NASA Mining Robotics Team, (supporting competition, grant award, and outreach activities), 2014 ~ 2018 at The University of Akron.
- ✓ Formula Electric Vehicle Team, (supporting competition, grant award, and outreach activities), 2014 ~ 2018 at The University of Akron.

### **Student Design Center at Toshiba International Corp., (Served as Advisor), 2010~2012.**

- ✓ Team 1: Variable speed control of large cooling fans and thermal feed – back and control.
- ✓ Team 2: Test simple DC/DC converters with future goal of cost reduction an distributed control.
- ✓ Team 3: Regenerative power converter design.

### **External Visitor (Served as Advisor)**

- ✓ Dr. Kibong Jang, Assistant Professor, Electrical Engineering Department, Changwon University, 2013 ~ 2014.

## **MEMBERSHIP**

- 
- ✓ Editor in IEEE Transaction on Energy Conversion from May 2019 ~ present
  - ✓ Associate Editor in IEEE Transaction on Industrial Electronics from Jan. 2018 ~ present
  - ✓ Senior member of IEEE, 2016 ~ present
  - ✓ Member of IEEE, 2011~ 2015
  - ✓ Member of IEEE Industrial Electronics Society, 2010 ~ present
  - ✓ Member of IEEE Working Group, Condition Monitoring, 2011 ~ 2018
  - ✓ Member of IEEE Student Member, 2008 ~ 2010



- ✓ Member of American Society of Naval Engineers, 2015 ~ 2016
- ✓ NSF Innovation Corps (I – Corps) National Innovation Network, 2015 ~ 2016
- ✓ Member of ASEE, 2017

## SERVICE ACTIVITIES

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### Service to Engineering Society

- ✓ Track Chair at the IEEE Applied Power Electronics Conference and Expo (APEC), 2020
- ✓ Track Chair at the IEEE Applied Power Electronics Conference and Expo (APEC), 2019
- ✓ Track Chair at the IEEE Applied Power Electronics Conference and Expo (APEC), 2018
- ✓ Session chair, Control application, at the IEEE Applied Power Electronics Conference and Expo (APEC), 2018
- ✓ Session chair, Renewable Energy System, at the IEEE Applied Power Electronics Conference and Expo (APEC), 2018
- ✓ Reviewer at the IEEE Energy Conversion Congress & Expo (ECCE), 2017
- ✓ Reviewer at the International Electric Machines and Drives Conference, 2017
- ✓ Reviewer for Elsevier, 2017
- ✓ Reviewer for the IEEE Journal of Emerging and Selected Topics in Power Electronics, 2017
- ✓ Reviewer for the IEEE Transaction on Power Electronics and IEEE Transaction on Industrial Application, 2016 ~ present
- ✓ Session Chair at the IEEE Applied Power Electronics Conference and Expo (APEC), 2014
- ✓ Session Chair at the IEEE Energy Conversion Congress & Expo (ECCE), 2014
- ✓ Topics Chair at the IEEE Energy Conversion Congress & Expo (ECCE), 2014
- ✓ Technical Program Committee member at the IEEE Vehicular Technology Conference (VTC), 2014
- ✓ Reviewer at the IEEE Energy Conversion Congress & Expo (ECCE), 2014
- ✓ Reviewer at the IEEE Annual Conference of the IEEE Industrial Electronics Society (IECON), 2014
- ✓ Reviewer at the IEEE Vehicular Technology Conference (VTC), 2014
- ✓ Reviewer at the IEEE Applied Power Electronics Conference and Expo (APEC), 2014
- ✓ Member, the IEEE Working Group on Condition Monitoring of Electric Motors (WG-11) under the Electrical Motor Subcommittee of the IEEE Power and Energy Society, 2014 ~ present
- ✓ Reviewer at the IEEE Energy Conversion Congress & Expo (ECCE), 2013
- ✓ Reviewer of other journals including the IEEE Transaction on Energy Conversion, IEEE Transaction

on Industrial Electronics, and IEEE Transaction on Dielectrics and Electrical Insulation, 2010 ~ present

### **Service to The University of Akron**

- ✓ Advisor for the NASA mining team, 2014 ~ 2018
- ✓ Advisor for the formula Electric vehicle team, 2014 ~ 2018
- ✓ Member of the graduate admissions/assistantships committee, 2014 ~ 2018
- ✓ Member of the space committee, 2014 ~ 2015
- ✓ Member of the non-curricular activities committee, 2014 ~ 2015
- ✓ Qualifying exam grading for the power and control group, 2013 ~ 2018
- ✓ Poster competition judge for a high school camp, 2014
- ✓ Scholarship Friday interviewing for Honors students, 2013
- ✓ Akron visit day volunteer, 2013 ~ 2018.

### **Service to Mississippi State University – Starkville**

- ✓ Advisor of EcoCar Mobility Challenge, Fall 2018 ~
- ✓ Graduate program committee, Fall 2018 ~
- ✓ Faculty search committee, Fall 2018 ~ Spring 2019
- ✓ Mentor to new assistant professor, Dr. Chanyeop Park, 2019 ~ 2020 academic year

## TEACHING EXPERIENCE – University of Akron and Seoul National University

Course Number	Course Title	Credit	Class	Semester
4400 489 – 801	†Electric and Hybrid Vehicles	3	Under graduate	2012 Fall
4400 589 – 801	†Dsgn of Elec & Hybrid Vehicles	3	Graduate	2012 Fall
4400 687 – 801	Power Electronics II	3	Graduate	2013 Spring
4400 489 – 801	†Electric and Hybrid Vehicles	3	Under graduate	2013 Fall
4400 589 – 801	†Dsgn of Elec & Hybrid Vehicles	3	Graduate	2013 Fall
4400 381 – 013	Energy Conversion (Laboratory)	1	Under graduate	2013 Fall
4400 485 – 801	Electric Motor Drives	3	Under graduate	2014 Spring
4400 585 – 801	Electric Motor Drives	3	Graduate	2014 Spring
4400 693 – 804	SP: Design of Electric Machine	3	Graduate	2014 Spring
4400 489 – 801	† <b>Electric and Hybrid Vehicles</b>	3	Under graduate	2014 Fall
4400 589 – 801	† <b>Dsgn of Elec &amp; Hybrid Vehicles</b>	3	Graduate	2014 Fall
4400 687 – 801	Power Electronics II	3	Graduate	2014 Fall
4400 485 – 801	Electric Motor Drives	3	Under graduate	2015 Spring
4400 585 – 801	Electric Motor Drives	3	Graduate	2015 Spring
4400 693 – 804	SP: Design of Electric Machine	3	Graduate	2015 Spring
4400 489 – 801	† <b>Electric and Hybrid Vehicles</b>	3	Under graduate	2014 Fall
4400 589 – 801	† <b>Dsgn of Elec &amp; Hybrid Vehicles</b>	3	Graduate	2014 Fall
4400 693 – 804	SP: Condition Monitoring and Fault Diagnosis of Machine	3	Graduate	2015 Fall
4400 485 – 801	Electric Motor Drives	3	Under graduate	2016 Spring
4400 585 – 801	Electric Motor Drives	3	Graduate	2016 Spring
4400 307 – 801	Basic Electrical Engineering	4	Under graduate	2016 Spring
4400 489 – 801	† <b>Electric and Hybrid Vehicles</b>	3	Under graduate	2016 Fall
4400 589 – 801	† <b>Dsgn of Elec &amp; Hybrid Vehicles</b>	3	Graduate	2016 Fall
4400 485 – 801	Electric Motor Drives	3	Under graduate	2017 Spring
4400 585 – 801	Electric Motor Drives	3	Graduate	2017 Spring
4400 307 – 801	Basic Electrical Engineering	4	Under graduate	2017 Spring
4400 489 – 801	Electric and Hybrid Vehicles	3	Under graduate	2017 Fall
4400 589 – 801	Dsgn of Elec & Hybrid Vehicles	3	Graduate	2017 Fall
4400 307 – 801	Basic Electrical Engineering	4	Under graduate	2017 Fall
4400 307 – 801	Basic Electrical Engineering	4	Under graduate	2018 Spring
4400 485 – 801	Electric Motor Drives	3	Under graduate	2018 Spring

†**Course development award by NCIIA** (2014 ~ 2016): Dsgn of Elec & Hybrid Vehicles

†**Faculty Fellowship by VentureWell** (2018): Development of an Innovative and Compact Venture Education Module

### Invited Class Presentation

- Seungdeog Choi, “Safe Operation and Name Plate of Electric Motor,” Senior Design Project Class, Fall, 2014.
- Seungdeog Choi, “Safety and Failure of Electric Motor,” Senior Design Project Class, Fall, 2016.

### Teaching Assistant at Seoul National University

- Teaching assistant, Industrial Management at Seoul National University, Fall, 2004
- Teaching assistant, Engineering Mathematics at Seoul National University, Spring, 2004

