Mohammad Ali Saket, Ph.D., SMIEEE

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EDUCATION

THE UNIVERSITY OF BRITISH COLUMBIA, Vancouver, BC, Canada
Ph.D. Power Electronics (Jan 2015-March 2020)
- **GPA:** 4.0

SHARIF UNIVERSITY OF TECHNOLOGY, Tehran, Iran
M.S. Power Electronics (Sep 2009-Dec 2011)

AMIRKABIR UNIVERSITY OF TECHNOLOGY, Tehran, Iran
B.S Electrical Engineering (Sep 2005-Sep 2009)

WORK EXPERIENCE

AIRA POWER, Phoenix, Arizona (Working Remotely From Canada)
Senior R&D Power Electronics Engineer, Nov 2020 - Present
- Design, development, and optimization of free-position wireless charger (using multiple coils) for Qi compatible devices.

UNIVERSITY OF BRITISH COLUMBIA, Vancouver, BC, Canada
Part-Time Research Associate, April 2021 – Dec 2021
- Giving guidance to graduate students in their research.

SMPC TECHNOLOGIES, Vancouver, BC, Canada
Power Electronics Design Engineer, April 2020 – Oct 2020
- Design and development of high-power-density power converters for EV and telecom industry
- **Featured Project:** low-profile 1500W & 750W AC-DC converters with GAN and Integrated planar magnetics.
  DC-DC Stage: LLC converter operating at 7000kHz.
  AC-DC Stage: Totem-Pole PFC operating at 140kHz.
  Contributions: Power Stage Design, Schematic Capture, PCB Layout, Magnetic Design

UNIVERSITY OF BRITISH COLUMBIA, Vancouver, BC, Canada
***Power Electronics Graduate Research Assistant**, Feb 2015 – April 2020*
- Integrated Magnetic Structures for Battery Charger Application (Transformer, Inductor, CM Choke)
- Developing Methods to Minimize Electromagnetic Interference and meet EMC for Planar Transformers
- LLC Resonant Converter Design and Optimization for Battery Charger Application
- Research on Resonant Wireless Power Transfer
- Designing PCB Layout with Minimized Parasitic Element for Power Supply Applications.
- Design, Prototyping, and validation of power management circuits (PFC+LLC, Flyback, Filter).

***Part-Time Research Scholar at Delta-Q technologies**, Feb 2015 – April 2020*
- Collaboration with Delta-Q technologies on Battery Chargers of Different Power Levels (3.3kW, 1.2kW, 650W, 400W)
- Optimal Design of Magnetic for Battery Chargers
- Design and Implementation of a three Phase LLC Resonant Battery Charger.

TESLA, Palo Alto, CA, USA
***Power Electronics Design Intern**, May 2018 - Aug 2018*
- Finite Element Analysis of Gen3 Super Charger Using ANSYS MAXWELL, ICEPAK, Q3D and Simplorer
- PCB Layout Design Review and Analysis (Schematic, Layout, FEA)
- High Current (4kW) Transformer and Rectifier PCB Design

YEKTA BEHINEH TAVAN, TEHRAN, Iran

Electrical Engineer, *Dec 2011 - Dec 2014*

- Project Engineer for Power-Quality Related Projects

TEACHING

- **Energy Conversion and Transmission (9 Semesters) -** University of British Columbia - Fall 2015-Spring 2019
- **Electrical Engineering Design Studio II (1 Semester) -** University of British Columbia - Summer 2017
- **Power Electronics Lab (2 Semesters)** – Sharif University of Technology – Fall 2009-Fall 2010
- **Electrical Machines (1 Semester) –** Sharif University of Technology – Spring 2010

JOURNAL PUBLICATION

[1] **M. A. Saket**, M. Ordonez, N. Shafiei "*Planar Transformers with Near Zero Common Mode Noise for Flyback and Forward Converters*," IEEE Transaction on Power Electronics (TPEL), Vol. 33, No. 2, pp. 1554-1571, Feb. 2018 **(Second Place Winner for 2018 Prize Paper Awards: IEEE Transactions on Power Electronics)**

[2] **M. A. Saket**, N. Shafiei, M. Ordonez, M. Craciun, C. Botting "*Improving Planar Transformers for LLC Resonant Converters: Paired Layers Interleaving*," IEEE Transaction on Power Electronics (TPEL), Vol. 34, No. 12, pp. 11813-11832, Dec. 2019

[3] **M. A. Saket**, N. Shafiei, M. Ordonez "*LLC Converters with Planar Transformers: Issues and Mitigation*," IEEE Transaction on Power Electronics (TPEL), Vol. 32, No. 6, pp. 4524-4542, June 2017.

[4] E. Serban, **M. A. Saket** and M. Ordonez, "High Performance Isolated Gate-Driver Power Supply With Integrated Planar Transformer," IEEE Transaction on Power Electronics (TPEL), Early Access.

[5] Q. Wang, **M. A. Saket**, Aaron Troy, and Martin Ordonez *"A Self-Compensated Planar Coil for Resonant Wireless Power Transfer Systems*," IEEE Transaction on Power Electronics (TPEL), Vol. 36, No. 1, pp. 674-682, Jan. 2021.

[6] A. Arshadi, M. Ordonez, W. Eberle, **M. A. Saket**, M. Craciun, C. Botting "*Unbalanced Three-Phase LLC Resonant Converters: Analysis and Trigonometric Current Balancing*" IEEE Transaction on Power Electronics (TPEL), Vol. 34, No. 3, pp. 2025-2038, March 2019 **(Highlighted Paper of March 2019 Volume).**

[7] R. Shafaei, M. Ordonez, **M. A. Saket** "*Three-Dimensional Frequency-Dependent Thermal Model for Planar Transformers in LLC Resonant Converters,"* IEEE Transaction on Power Electronics (TPEL), Vol. 34, No. 5, pp. 4641-4655, May 2019

[8] N. Shafiei, M. Ordonez, **M. A. Saket**, A. Arefifar "*PV Battery Charger Using an L3C Resonant Converter for Electric Vehicle Applications*," IEEE Transaction on Transportation Electrification (TTE), Vol. 4, No. 1, pp. 108-121, March 2018.

[9] M. Cermak, X. Faure, **M. A. Saket,** M. Bahrami, and M. Ordonez, *"Natural graphite sheet heat sinks with embedded heat pipes*," IEEE ACCESS, Vol. 8, pp. 80827-80835, 2020

CONFERENCE PUBLICATIONS

[10] **M. A. Saket**, M. Ordonez, M. Craciun, C. Botting"*Common-Mode Noise Elimination in Planar Transformers for LLC Resonant Converters*," IEEE Energy Conversion Congress & Exposition (ECCE), 2018, Portland, Oregon.

[11] **M. A. Saket**, M. Ordonez, N. Shafiei "*Planar Transformers with no Common Mode Noise Generation for Flyback and Forward Converters*," Applied Power Electronics Conference (APEC), 2017, Tampa, FL.

[12] **M. A. Saket**, N. Shafiei, M. Ordonez "*Planar Transformer Winding Technique for Reduced Capacitance in LLC Power Converters*," IEEE Energy Conversion Congress & Exposition (ECCE), 2016, Milwaukee, Wisconsin.

[13] **M. A. Saket**, N. Shafiei, M. Ordonez, M. Craciun, C. Botting "*Low Parasitics Planar Transformer for LLC Resonant Battery Chargers*," Applied Power Electronics Conference (APEC), 2016, Long Beach, CA.

[14] J. Hammer, **M. A. Saket**, M. Ordonez *"LLC Converters with GaN: Commutation Loop Capacitance,"* In 2022 IEEE Applied Power Electronics Conference and Exposition (APEC) 2022 Mar 20 (pp. 1752-1756). IEEE.

[15] J. Hammer, IG. Zurbriggen**, M. A. Saket**, M. Ordonez *"Low inductance pcb layout for gan devices: Interleaving scheme,"* In 2021 IEEE Applied Power Electronics Conference and Exposition (APEC) 2021 Jun 14 (pp. 1537-1542). IEEE.
[16] E. Serban, **M. A. Saket** and M. Ordonez,*"High Performance Gate-Driver Power Supply for Multilevel-based 1500V Converters"* IEEE Energy Conversion Congress & Exposition (ECCE), 2020, Detroit, Michigan.
[17] R. Shafaei, **M. A. Saket**, M. Ordonez, "Thermal Comparison of Planar versus Conventional Transformers used in LLC Resonant Converters," IEEE Energy Conversion Congress & Exposition (ECCE), 2018, Portland, Oregon.
[18] N. Shafiei, **M. A. Saket**, M. Ordonez "Time Domain Analysis of LLC Resonant Converters in the Boost Mode for Battery Charger Applications," IEEE Energy Conversion Congress & Exposition (ECCE), 2017, Cincinnati, Ohio.
[19] N. Shafiei, A. Arefifar, **M. A. Saket**, M. Ordonez. "*High Efficiency LLC Converter Design for Universal Battery Chargers*," Applied Power Elecronics Conference (APEC), 2016, Long Beach, CA.
[20] Q Wang, M Ordonez, J Wang, **MA Saket**, R Shafaei "*A Novel Dual Slot Permanent Magnet Machine with Complementary Rotors for Electric Vehicle Propulsion*", 2019 IEEE 28th International Symposium on Industrial Electronics (ISIE), Vancouver, BC, Canada, 2019, pp. 221-225.
[21] **M. A. Saket**, B. Jandaghi, M. Moghaddami, H. Oraee. "*Thermal Lumped Parameter Modeling of a Toroidal Transformer*," 3rd International Academic Conference of Young Scientists (EPECS), 2011, Lviv, Ukraine.
[22] H. Gorginpour, B. Jandaghi, **M. A. Saket**, A. Oraee, H. Oraee. "*Magnetic Field Harmonic Analysis in Brushless Doubly Fed Machine*" in 3rd international youth conference on energetic, 2011, Leiria, Portugal.
[23] B. Jandaghi, H. Gorginpour, **M. A. Saket**, A. Oraee, M. Ahmadian, H. Oraee. "*A Survey on Rotor Faults in Brushless Doubly Fed Machines*" 3rd international youth conference on energetic, 2011, Leiria, Portugal.
[24] M. Ahmadian, A. Oraee, B. Jandaghi, **M. A. Saket**, H. Gorginpour, H. Oraee. "*Eddy Current Losses in Brushless Doubly-Fed Machines*" 3rd international youth conference on energetic, 2011, Leiria, Portugal.
[25] H. Gorginpour, A. Oraee, B. Jandaghi, **M. A. Saket**, M. Ahmadian, H. Oraee. "*Reduction of the Torque Ripple in Brushless Doubly-Fed Machine*" 3rd international youth conference on energetic, 2011, Leiria, Portugal.
[26] **M. A. Saket**, M. Moghaddami, E. Alishahi. "*Modeling one typical digital differential relay in the MATLAB*",3rd International Academic Conference of Young Scientists (EPECS), 2011, Lviv, Ukraine.
[27] E. Alishahi**, M. A. Saket**, M. Moghaddami. "*A comparison of genetic algorithm and immune algorithm in optimization of one typical axial flux permanent magnet*",3rd International Academic Conference of Young Scientists (EPECS), 2011, Lviv, Ukraine.

PH.D. THESIS

[28] **M. A. Saket** *"High-efficiency and low noise planar transformers for power converters: paired layers interleaving."* PhD diss., University of British Columbia, 2020.