

W. WARREN CHEN

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Summary PhD Candidate and electrical engineer specializing in power electronics with eight years of research and product development experience in industry and academia. Led design projects on three-phase grid-interactive and motor drive inverter, switched mode power supply and Class-D audio amplifier. Recognized for expertise in hardware development: specification creation, system design, prototype verification and agency approval. Strengths include technical knowledge, analytical thinking and achieving results. Excellent presentation and writing skills in both English and Chinese.

Education

Utah State University (USU)	Ph.D. (GPA: 4.0)	Electrical Engineering	2017
Dissertation title, “ <i>Bidirectional three-phase ac-dc power conversion using dc-dc converters and a three-phase unfold.</i> ” (Advisor: Dr. Regan Zane)			
University of California, Irvine	M.S. (GPA: 3.8)	Electrical and Computer Engineering	2007
University of California, Irvine	B.S. (GPA: 3.5)	Electrical Engineering	2005

Employment

2013 – present **PhD Candidate** *USU Power Electronics Lab* *Logan, Utah*

- Conducted research on design and control of three-phase power-bidirectional converters for use in ac and dc microgrids, grid-integration of energy storage, and electric vehicle drivetrain and battery charger.
- Developed modulation and control algorithms for resonant dc-dc converters to obtain fast dynamic response and direct generation of ac currents and voltages, enabling ac-dc and dc-ac conversion with reduced filter and energy storage requirements.
- Modeled and simulated converter power and control circuits in Matlab, Simulink, PLECS and LTspice.
- Implemented DPWM, PID, LQR, V/f, vector and field oriented controllers in Xilinx FPGAs.
- Designed and validated sensor and gate-driver PCB in 32-kW converter prototype using SiC MOSFETs.

2011 – 2013 **Senior Electrical Engineer** *IPEC Technology Ltd.* *China*

- Led development on a line of electronic load test instruments with energy-recycling feature for functional and burn-in tests of switched mode power supplies.
- Communicated and collaborated with customers to formulate product specifications and cost estimates.

2007 – 2011 **Senior Electrical Engineer** *PowerPhysics Inc.* *Newport Beach, California*

- Co-designed and tested commercial power electronic products including Class-D audio amplifiers and switched mode power supplies up to 1.2-kW.
- Power supply design experiences include topology selection, magnetics design, thermal management, soft-switching techniques and controller design.
- Performed compliance tests and improvements on multiple products to obtain UL safety and FCC conducted and radiated emissions certifications.
- Supervised junior engineers and technicians on PCB layout and product tests and repairs.

Peer-Reviewed Publications

- [1] **W. W. Chen**, R. Zane, L. Corradini, “Isolated bidirectional grid-tied three-phase AC-DC power conversion using series-resonant converter modules and a three-phase unfold,” *IEEE Transactions on Power Electronics*, vol. PP, no. 99, pp. 1-12, Jan. 2017.
- [2] **W. W. Chen**, R. Zane, “Active rectifier system using three-phase unfold and series resonant converters controlled in synchronous rotating frame,” in *Proc. IEEE International Telecommunications Energy Conference, INTELEC 2016*, Austin, TX, Oct. 2016, pp. 1-7.
- [3] **W. W. Chen**, R. Zane, “Application of three-phase unfold in electric vehicle drivetrain,” in *Proc. IEEE Workshop on Control and Modeling for Power Electronics, COMPEL 2015*, Vancouver, BC, Jul. 2015, pp. 1-8.
- [4] **W. W. Chen**, R. Zane, D. Seltzer, L. Corradini, “Isolated bidirectional DC/AC and AC/DC three-phase power conversion using series resonant converter modules and a three-phase unfold,” in *Proc. IEEE Workshop on Control and Modeling for Power Electronics, COMPEL 2014*, Santander, Spain, Jun. 2014, 1-6.

Patents

- [1] **W. W. Chen**, S. J. Chen, “Single-pole switch power source,” US Patent 20150333633, Nov. 19, 2015.

Presentations

- [1] **W. W. Chen**, A. C. Bagchi, R. Zane, “Multipurpose three-phase inverter system controlled in synchronous rotating frame,” poster pres., *SELECT Annual Meeting and Technology Showcase*, Logan, UT, Sep. 2016.
- [2] **W. W. Chen**, R. Zane, “Multipurpose three-phase inverter system with reduced filter requirements,” poster presentation, *Conference on Electric Roads and Vehicles*, Logan, UT, May 2016.
- [3] **W. W. Chen**, “Integrated battery charger and motor drive design for electric vehicles,” oral presentation, *Utah State University Student Research Symposium*, Logan, UT, Apr. 2015.

Teaching

Utah State University:

- Modeling and Control of Power Electronics Systems, ECE 7930, 3 credits.
 - Spring 2015: Co-taught this advanced graduate level course. 5 students.
- Power Electronics for Electric Drive Vehicles, ECE 6930, 3 credits.
 - Fall 2014: Teaching assistant of this introductory graduate level course. 10 students.

Software Proficiency

- Programming – Verilog, C++, Matlab, LaTeX.
- Simulation – Simulink, PLECS, LTspice.
- PCB layout – Altium, Eagle.
- Productivity – Word, Excel, PowerPoint.

Honors and Awards

2015 Travel Award IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)
 2002 – 05 Dean’s Honor List University of California, Irvine

Professional and Honor Society Memberships

IEEE Power Electronics Society	Member	2006 – present
IEEE-Eta Kappa Nu (IEEE-HKN)	Member	2005 – present
Tau Beta Pi	Member	2005 – present